

# AT9000 Advanced Transmitter

## Gauge Pressure Transmitters

### **OVERVIEW**

AT9000 Advanced Transmitter is a microprocessor-based smart transmitter that features high performance and excellent stability. Capable of measuring gas, liquid, vapor, and liquid levels, it transmits 4 to 20 mA DC analog and digital signals according to the measured pressure.

It can also execute two-way communications between the CommPad (Handy Communicator) or HART® 375 communicator, thus facilitating self-diagnosis, range resetting, and automatic zero adjustment.



### **FEATURES**

#### **High performance and stability**

- Unique characterization and composite semiconductor sensors realize high accuracy up to 0.04% F.S.
- Our proven sensor technology enables Long-term stability up to 0.1% of URL per 10-year.

#### **Wide measuring range (range ability)**

- A wide measuring range is available from a single model. This feature is highly effective in taking measurement over a wide range and reducing the need for inventory.
- Model GTX60G: 17.5 to 3500 kPa (range ability: 200 to 1)

#### **A diverse lineup**

- A wide range of models is available to meet user requirements for low, standard, and high pressures.
- A wide variety of corrosion-resistant materials for wetted parts is also available.

#### **Remote communication**

- Two-way communication using digital output facilitates self-diagnosis, range resetting, automatic zero adjustment, and other operations.
- HART® protocol communication is available. (Option)

#### **China RoHS**

This device is used in the Oil & Gas, Petrochemical, Chemical, Pulp & Paper, Food & Beverage, Machinery, Steel/Metal & Mining, and Automobile industries and therefore does not fall under the China RoHS Legislation.

If this device is used in semiconductor manufacturing equipment, labeling on the device and documents for the China RoHS may be required. If such documents are required, consult a Yamatake representative.

HART® is a registered trademark of the HART Communication Foundation.

**FUNCTIONAL SPECIFICATIONS****Type of protection**

NEMA3 and 4X  
IEC IP67

**FM Explosionproof and Dust Approvals**

Explosionproof for Class I, Division 1, Groups A, B, C and D; Class I, Zone 1, AEx d IIC  
Dust-Ignitionproof for Class II, III, Division 1, Groups E, F and G  
T5 -40°C ≤ Tamb ≤ +85°C  
Hazardous locations  
Indoor / Outdoor Type 4X, IP67  
Factory sealed, conduit seal not required for Division applications  
Caution - Use supply wires suitable for 5°C above surrounding ambient



**FM Intrinsically safe Approval**

IS/I,II,III/1/ABCDEFGH/T4; -40 °C ≤ Tamb ≤ +60 °C;  
80395278, 80395279,80395280; Entity; TYPE 4X; IP67  
I/O/ AEx ia/IIC/T4; -40 °C ≤ Tamb ≤ +60 °C;80395278, 80395279, 80395280; Entity; TYPE 4X;IP67  
Entity Parameters: Vmax(Ui)=30 Volts, Imax(Ii)=100mA, Pi=1W, Ci=10nF, Li=0.5mH

**FM Nonincendive Approval**

NI/I/2/ABCD/T4; -40 °C ≤ Tamb ≤ +60 °C;80395494;  
NIFW; TYPE 4X; IP67  
NI/I/2/IIC/T4; -40 °C ≤ Tamb ≤ +60 °C; 80395494;  
NIFW; TYPE 4X; IP67  
S/II,III/1/EFG/T4; -40 °C ≤ Tamb ≤ +60 °C;  
80395494;NIFW; TYPE 4X; P67  
Nonincendive Field Wiring Parameters: Vmax(Ui)=30 Volts, Ci=10nF, Li=0.5mH

**ATEX Flameproof and Dust Certifications**

 0344  KEMA 08ATEX0004

II 1/2 G Ex d IIC T6 Tprocess=85°C  
-30°C ≤ Tamb ≤ +75°C IP66/67  
II 1/2 G Ex d IIC T5 Tprocess=100°C  
-30°C ≤ Tamb ≤ +80°C IP66/67  
II 1/2 G Ex d IIC T4 Tprocess=110°C  
-30°C ≤ Tamb ≤ +80°C IP66/67  
II 2 D Ex tD A21 IP66/67 T85 Tprocess=85°C  
-30°C ≤ Tamb ≤ +75°C  
II 2 D Ex tD A21 IP66/67 T100 Tprocess=100°C  
-30°C ≤ Tamb ≤ +75°C  
II 2 D Ex tD A21 IP66/67 T110 Tprocess=110°C  
-30°C ≤ Tamb ≤ +75°C  
Caution - Use supply wires suitable for 5°C above surrounding ambient

**ATEX Intrinsic safety and Dust Certifications**

 0344  KEMA 07ATEX0200 X

II 1 G Ex ia IIC T4 TPROCESS = 105 °C

-30 °C ≤ Tamb ≤ +60 °C IP66 / 67

ELECTRICAL PARAMETERS: Ui = 30 V, Ii = 93 mA,  
Pi = 1 W, Ci = 5 nF, Li = 0.5 mH  
II 1 D Ex iaD 20 IP66 / 67 T105 TPROCESS = 105 °C  
-30 °C ≤ Tamb ≤ +60 °C

**ATEX Type n and Dust Certifications**

 0344  KEMA 07ATEX0200 X

II 3 G Ex nL IIC T4 TPROCESS = 105 °C  
-30 °C ≤ Tamb ≤ +60 °C IP66 / 67  
ELECTRICAL PARAMETERS: Ui = 30 V, Ci = 5 nF, Li = 0.5 mH  
II 2 D Ex tD A21 IP66 / 67 T85 TPROCESS = 85 °C  
-30 °C ≤ Tamb ≤ +75 °C  
II 2 D Ex tD A21 IP66 / 67 T100 TPROCESS = 100 °C  
-30 °C ≤ Tamb ≤ +80 °C  
II 2 D Ex tD A21 IP66 / 67 T110 TPROCESS = 110 °C  
-30 °C ≤ Tamb ≤ +80 °C

**NEPSI Flameproof and Dust Certifications**

Ex d IIC T6 DIP A21 Ta 85°C Tprocess=80°C -40°C ≤ Tamb ≤ +75°C  
Ex d IIC T5 DIP A21 Ta 100°C Tprocess=95°C -40°C ≤ Tamb ≤ +80°C  
Ex d IIC T4 DIP A21 Ta 115°C Tprocess=110°C -40°C ≤ Tamb ≤ +80°C  
ENCLOSURE TYPE IP66/67  
Certificate No. GYJ071268

**NEPSI Intrinsic Safety Certification**

Ex ia IIC T4 Tprocess=105°C -40°C ≤ Tamb ≤ +60°C  
Enclosure IP66 / 67  
Electrical Parameters: Ui=30V, Ii=100mA, Pi=1W,  
Ci=13nF, Li=0.5mH  
Certificate No. GYJ071269

**NEPSI Type n Certification**

Ex nL IIC T4 Tprocess=110°C -40°C ≤ Tamb ≤ +60°C  
Enclosure IP66 / 67  
Electrical Parameters: Ui=30V, Ii=100mA, Pi=1W,  
Ci=13nF, Li=0.5mH  
Certificate No. GYJ071269

**IECEx Flameproof and Dust Certifications**

Certificate No. IECEx KEM 08.0001  
Ga/Gb Ex d IIC T6 Tprocess=85°C -30°C ≤ Tamb ≤ +75°C IP66/67  
Ga/Gb Ex d IIC T5 Tprocess=100°C -30°C ≤ Tamb ≤ +80°C IP66/67  
Ga/Gb Ex d IIC T4 Tprocess=110°C -30°C ≤ Tamb ≤ +80°C IP66/67  
Ex tD A21 IP66/67 T85 Tprocess=85°C -30°C ≤ Tamb ≤ +75°C  
Ex tD A21 IP66/67 T100 Tprocess=100°C -30°C ≤ Tamb ≤ +75°C  
Ex tD A21 IP66/67 T110 Tprocess=110°C -30°C ≤ Tamb ≤ +75°C  
Caution - Use supply wires suitable for 5°C above surrounding ambient

## IECEX Intrinsic safety and Dust Certifications

IECEX KEM 07.0058X

Zone 0 Ex ia IIC T4 TPROCESS = 105 °C

-30 °C ≤ Tamb ≤ +60 °C IP66 / 67

ELECTRICAL PARAMETERS: Ui = 30 V, Ii = 93

mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

Ex iaD 20 IP66 / 67 T105 TPROCESS = 105 °C

-30 °C ≤ Tamb ≤ +60 °C

## IECEX Type n and Dust Certifications

IECEX KEM 07.0058X

Ex nL IIC T4 TPROCESS = 105 °C

-30 °C ≤ Tamb ≤ +60 °C IP66 / 67

ELECTRICAL PARAMETERS: Ui = 30 V, Ci = 5 nF, Li = 0.5 mH

Ex tD A21 IP66 / 67 T85 TPROCESS = 85 °C

-30 °C ≤ Tamb ≤ +75 °C

Ex tD A21 IP66 / 67 T100 TPROCESS = 100 °C

-30 °C ≤ Tamb ≤ +80 °C

Ex tD A21 IP66 / 67 T110 TPROCESS = 110 °C

-30 °C ≤ Tamb ≤ +80 °C

## EMC Conformity

89/336/EEC, 92/31/EEC, 93/68/EEC Electromagnetic Compatibility (EMC) Directive

## PED Conformity (97/23EC)

The maximum pressures applicable under the Sound Engineering Practice (SEP) section of the *Pressure Equipment Directive* depend on the type of fluid measured, as shown in the table below. Devices in the AT9000 Series shall be used at or below the applicable pressure in the table or the device's maximum working pressure, whichever is lower.

Any AT9000 model having a maximum working pressure that is higher than the pressure corresponding to its group does not conform to SEP and cannot be used.

Measurement fluid	Group *	Pressure	Applicable models
Gas	1	200 bar (20 MPa)	All models except GTX32D, 42D, 72D, 82G, 82U
	2	1,000 bar (100 MPa)	All models
Liquid	1	500 bar (50 MPa)	All models
	2	1,000 bar (100 MPa)	All models

Note) Group 1 comprises fluids defines as: explosive, extremely flammable, highly flammable, flammable, very toxic, toxic and oxidizing. Group 2 comprises all other fluids not refer to group 1.

## Measuring span / Setting range / Working pressure range

Model	Measuring Span	Measuring range	Overload Resistance value
GTX 60G	17.5 to 3500 kPa {0.175 to 35 kgf/cm <sup>2</sup> }	-100 to 3500 kPa {-1 to 35 kgf/cm <sup>2</sup> } (*1)	5250 kPa {52.5 kgf/cm <sup>2</sup> }
GTX 71G	0.7 to 14 MPa {7 to 140 kgf/cm <sup>2</sup> }	-0.1 to 14 MPa {-1 to 140 kgf/cm <sup>2</sup> } (*2)	21 MPa {210 kgf/cm <sup>2</sup> }
GTX 82G	0.7 to 42 MPa {7 to 420 kgf/cm <sup>2</sup> }	-0.1 to 42 MPa {-1 to 420 kgf/cm <sup>2</sup> } (*3)	63 MPa {630 kgf/cm <sup>2</sup> }

Note) 1) With PVC parts, the maximum working pressure is 1.5 MPa {15 kgf/cm<sup>2</sup>}.  
 2) With 304 SST bolts and nuts, the maximum working pressure is 10MPa {100 kgf/cm<sup>2</sup>}.  
 3) With 304 SST bolts and nuts, the maximum working pressure is 23 MPa {234 kgf/cm<sup>2</sup>}.

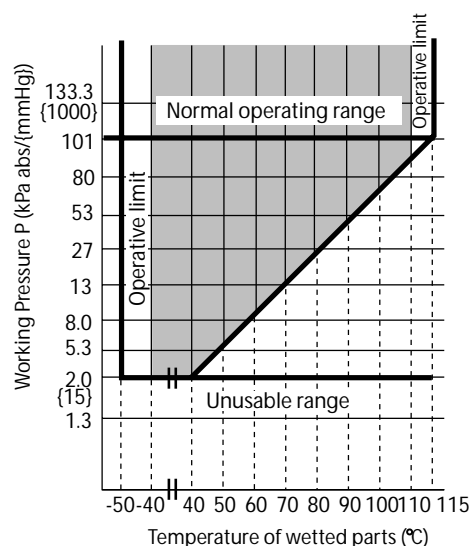


Figure 1 Working pressure and temperature of wetted parts section (for general purpose models)

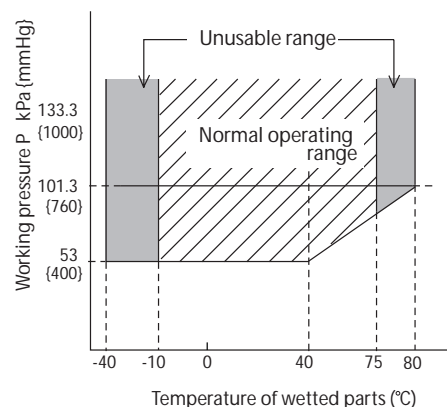


Figure 2 Working pressure and temperature of wetted parts section (for oxygen and chlorine service)

## Supply voltage and load resistance

17.9 to 42V DC. A load resistance of 250 Ω or more is necessary between loops. See Figure 3.

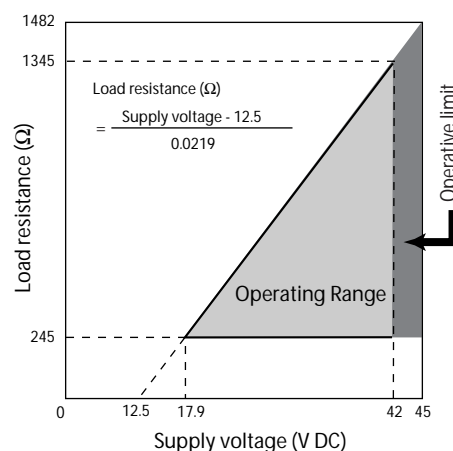


Figure 3 Supply voltage vs. load resistance characteristics

Note) For communication with HART communicator or Comm-Pad, a load resistance of 250 Ω or more is necessary.

**Output**

Analog output (4 to 20 mA DC) with DE protocol  
 Analog output (4 to 20 mA DC) with HART protocol

**Output signal**

3.6 to 21.6 mA  
 3.8 to 20.5 mA (NAMUR NE43 compliant)

**Failure Alarm**

Upper: 21.6 mA or more  
 Lower: 3.6 mA or less

**Ambient temperature limit****Normal operating range**

-40 to 85°C for general purpose models  
 -10 to 75°C for oxygen and chlorine models  
 -25 to 80°C for models with digital indicators

**Operative limits**

-50 to 93°C for general purpose models  
 -40 to 80°C for oxygen and chlorine models  
 -30 to 85°C for models with digital indicators

**Transportation and storage conditions**

-50 to 85°C

**Temperature ranges of wetted parts****Normal operating range**

-40 to 110°C for general purpose models  
 -20 to 75°C for oxygen and chlorine models

**Operative limits**

-50 to 115°C for general purpose models  
 -40 to 80°C for oxygen and chlorine models

**Ambient humidity limits**

5 to 100% RH

**Stability against supply voltage change**

± 0.005% FS/V

**Response time**

Below 100 msec. (model GTX60G, when damping time is set to 0 sec.)

**Damping time**

Selectable from 0 to 32 sec. in ten stages

**Zero Stability**

± 0.1% of URL per 10 year (model GTX60G)

**Lightning protection**

Applicable Standards; IEC 61000-4-5  
 Peak value of current surge(80/20μ sec.): 6000A

**Indicator**

The digital LCD indicator (optional) indicates engineering units and can be set freely between -99999 and 99999 (5 digits). For meter calibration, specify the following items when placing your order

- Meter calibration range
- Meter calibration unit
- Linear / Square-root for meter indication.  
 Various kinds of data can be set using the CommPad or the HART<sup>®</sup>375 communicator.

**Bolts and nuts materials (for fastening meter body cover)**

Carbon steel (SNB7), 304 SST, 630 SST

**Paint****Standard**

Corrosion-resistant paint (Baked acrylic paint)

**Corrosion-proof finish**

Corrosion-proof paint (Baked epoxy paint), fungus-proof finish

**Corrosion-resistant finish (silver paint)**

Transmitter case is coated with silver paint in addition to the above corrosion-resistant finish.

**OPTIONAL SPECIFICATIONS****Oil free finish**

The transmitter is shipped with oil-free wetted parts.

**External zero/span adjustment function**

The transmitter can be easily zero/span adjusted in the field.

**Elbow**

This is an adaptor for changing the electrical conduit connection port from the horizontal to the vertical direction, if required by wiring conditions in the field. One or two elbows may be used as needed.

**Conformance to Non SI units**

We deliver transmitters set to any Non SI units as specified.

**Safety Transmitter**

Select this option to be used as a component of Safety Instrumented System (SIS).

AT9000 is complied with IEC61508, certified according to Safety Integrity Level2 (SIL-2)

**Alarm Output (contact output)**

Contact output is prepared as alarm output when alarm (Output Alarm/Sensor Temp. Alarm) condition is detected. It can be set to Normally Open. (When alarm is detected, Contact ON).

**Custom calibration**

Calibrate for the specified pressure range at the factory.

**PHYSICAL SPECIFICATIONS****Materials****Fill fluid**

Silicone oil for general purpose models  
Fluorine oil for oxygen and chlorine models

**Center body**

316 SST

**Transmitter case**

Aluminum alloy

**Meter body cover**

SCS14A (Equivalent to 316 SST) or 316SST, PVC

**For Wetted parts****Adapter flange (option)**

SCS14A (Equivalent to 316 SST), PVC

**Center body**

316 SST (Diaphragm 316L SST)  
ASTM B575 (Equivalent to Hastelloy C-276), Tantalum, 316L SST

**Vents and plugs**

316 SST, PVC

**Weight**

Approx. 3.6 kg (model GTX60G)

**INSTALLATION****Electrical connection**

1/2NPT internal thread, M20 internal thread.

**Grounding**

Resistance 100  $\Omega$  max.

**Mounting**

Can be installed on a 2-inch horizontal or vertical pipe  
(can be directly mounted on a process pipe)

**Process connection**

Rc1/2, 1/2NPT internal thread and Rc1/4, 1/4NPT internal thread.

**WARNING**

- Impact to transmitter can damage sensor module.

**PERFORMANCE SPECIFICATIONS****Reference accuracy**

Shown for each item are the percentage ratio for  $\chi$  (kPa), which is the greatest value of either the upper range value (URV) <sup>\*1</sup>, the lower range value (LRV) <sup>\*2</sup> or the span.

**Model GTX60G (for regular type)**

(Material of wetted parts: Diaphragm; 316L SST, Others; 316 SST)

Reference accuracy (*3)(*4)	$\pm 0.04\%$	(For $\chi \geq 350$ kPa {3.5 kgf/cm <sup>2</sup> })
	$\pm \left( 0.008 + 0.032 \times \frac{350}{\chi} \right) \%$	(For $\chi < 350$ kPa {3.5 kgf/cm <sup>2</sup> })
Ambient Temperature effect (Shift from the set range) Change of 30°C (*3)	Combined shift: (including zero and span shifts)	$\pm 0.15\%$ (For $\chi \geq 350$ kPa {3.5 kgf/cm <sup>2</sup> })
		$\pm \left( 0.075 + 0.075 \times \frac{350}{\chi} \right) \%$ (For $\chi < 350$ kPa {3.5 kgf/cm <sup>2</sup> })

**Model GTX60G (for oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; 316L SST, Others; 316 SST)

Reference accuracy (*3)(*4)	$\pm 0.075\%$	(For $\chi \geq 1750$ kPa {17.5 kgf/cm <sup>2</sup> })
	$\pm 0.1\%$	(1750 kPa {17.5 kgf/cm <sup>2</sup> } > $\chi \geq 140$ kPa {1.4 kgf/cm <sup>2</sup> })
	$\pm \left( 0.025 + 0.075 \times \frac{140}{\chi} \right) \%$	(For $\chi < 140$ kPa {1.4 kgf/cm <sup>2</sup> })
Temperature characteristics (Shift from the set range) Change of 30°C (*3) (Range from -5 to 55°C)	Combined shift: (including zero and span shifts)	$\pm 0.44\%$ (For $\chi \geq 350$ kPa {3.5 kgf/cm <sup>2</sup> })
		$\pm \left( 0.19 + 0.25 \times \frac{350}{\chi} \right) \%$ (For $\chi < 350$ kPa {3.5 kgf/cm <sup>2</sup> })

**Model GTX60G (for regular type / oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; ASTM B575 (Equivalent to Hastelloy C-276), Tantalum, 316L SST Others; ASTM B575 (Equivalent to Hastelloy C-276), Tantalum, 316L SST)

Reference accuracy (*3)(*4)	$\pm 0.2\%$	(For $\chi \geq 350$ kPa {3.5 kgf/cm <sup>2</sup> })
	$\pm \left( 0.05 + 0.15 \times \frac{350}{\chi} \right) \%$	(For $\chi < 350$ kPa {3.5 kgf/cm <sup>2</sup> })
Ambient Temperature effect (Shift from the set range) Change of 30°C (*3)(Range from -5 to 55°C)	Combined shift: (including zero and span shifts)	$\pm 0.85\%$ (For $\chi \geq 350$ kPa {3.5 kgf/cm <sup>2</sup> })
		$\pm \left( 0.35 + 0.5 \times \frac{350}{\chi} \right) \%$ (For $\chi < 350$ kPa {3.5 kgf/cm <sup>2</sup> })

Note) \*1) URV denotes the process value for 100% (20 mA DC) output.

\*2) LRV denotes the process value for 0% (4 mA DC) output.

\*3) Within a range of URV  $\geq 0$  and LRV  $\geq 0$ .

\*4) Reference accuracy at calibrated condition.

**Model GTX71G (for regular type / oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; 316L SST, Others; 316 SST)

<b>Reference accuracy (*3)(*4)</b>		$\pm 0.15\%$	(For $\chi \geq 2.1$ MPa {21 kgf/cm <sup>2</sup> })
		$\pm \left(0.05 + 0.1 \times \frac{2.1}{\chi}\right) \%$	(For $\chi < 2.1$ MPa {21 kgf/cm <sup>2</sup> })
<b>Ambient Temperature effect (Shift from the set range) Change of 30°C (*3)</b>	Combined shift: (including zero and span shifts)	$\pm 0.41\%$	(For $\chi \geq 3.5$ MPa {35 kgf/cm <sup>2</sup> })
		$\pm \left(0.18 + 0.23 \times \frac{3.5}{\chi}\right) \%$	(For $\chi < 3.5$ MPa {35 kgf/cm <sup>2</sup> })

**Model GTX71G (for regular type / oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; ASTM B575 (Equivalent to Hastelloy C-276), Tantalum, 316L SST Others; ASTM B575 (Equivalent to Hastelloy C-276), Tantalum, 316L SST)

<b>Reference accuracy (*3)(*4)</b>		$\pm 0.2\%$	(For $\chi \geq 2.1$ MPa {21 kgf/cm <sup>2</sup> })
		$\pm \left(0.05 + 0.15 \times \frac{2.1}{\chi}\right) \%$	(For $\chi < 2.1$ MPa {21 kgf/cm <sup>2</sup> })
<b>Ambient Temperature effect (Shift from the set range) Change of 30°C (*3) (Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm 0.85\%$	(For $\chi \geq 3.5$ MPa {35 kgf/cm <sup>2</sup> })
		$\pm \left(0.35 + 0.5 \times \frac{3.5}{\chi}\right) \%$	(For $\chi < 3.5$ MPa {35 kgf/cm <sup>2</sup> })

**Model GTX82G (for regular type / oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; 316L SST, Others; 316 SST)

<b>Reference accuracy (*3)(*4)</b>		$\pm 0.15\%$	(For $\chi \geq 7$ MPa {70 kgf/cm <sup>2</sup> })
		$\pm \left(0.05 + 0.1 \times \frac{7}{\chi}\right) \%$	(For $\chi < 7$ MPa {70 kgf/cm <sup>2</sup> })
<b>Ambient Temperature effect (Shift from the set range) Change of 30°C (*3)</b>	Combined shift: (including zero and span shifts)	$\pm 0.41\%$	(For $\chi \geq 7$ MPa {70 kgf/cm <sup>2</sup> })
		$\pm \left(0.18 + 0.23 \times \frac{7}{\chi}\right) \%$	(For $\chi < 7$ MPa {70 kgf/cm <sup>2</sup> })

**Model GTX82G (for regular type / oxygen / chlorine service)**

(Material of wetted parts: Diaphragm; ASTM B575 (Equivalent to Hastelloy C-276))

<b>Reference accuracy (*3)(*4)</b>		$\pm 0.15\%$	(For $\chi \geq 7$ MPa {70 kgf/cm <sup>2</sup> })
		$\pm \left(0.05 + 0.1 \times \frac{7}{\chi}\right) \%$	(For $\chi < 7$ MPa {70 kgf/cm <sup>2</sup> })
<b>Ambient Temperature effect (Shift from the set range) Change of 30°C (*3) (Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm 0.85\%$	(For $\chi \geq 7$ MPa {70 kgf/cm <sup>2</sup> })
		$\pm \left(0.35 + 0.5 \times \frac{7}{\chi}\right) \%$	(For $\chi < 7$ MPa {70 kgf/cm <sup>2</sup> })

\*3) Within a range of URV  $\geq 0$  and LRV  $\geq 0$ .

\*4) Reference accuracy at calibrated condition.

**MODEL SELECTION****Model GTX60G(Standard gage pressure)**

Model No.: GTX\_\_G - Selection I (I II III IV V VI VII) - Selection II(I II III IV V VI) - Option

Basic Model No.

	Measuring span	17.5 to 3500kPa (0.175 to 35kgf/cm <sup>2</sup> )	GTX60G
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## Selection I

I	Output	4 to 20mA (SFN Communication)	A
		4 to 20mA (HART Communication)	B
II	Fill fluid	Regular type (Silicone oil)	A
		For oxygen service (Fluorine oil)	H
		For chlorine service (Fluorine oil) *6	J
III	Material (Meter-body cover, Vent/ Drain plugs)	Meterbody cover	Vent / Drain plugs
		SCS14A	316 SST
		PVC *4*7*8	PVC *4*7*8
IV	Material (center body)	316 SST (Diaphragm: 316L SST)	A
		ASTM B575 (Equivalent to Hastelloy C-276)	B
		Tantalum *5	C
		316L SST *5	D
V	Process connections of reference side	Rc 1/2, with adapter flange *7	A
		Rc 1/4, with adapter flange	B
		Rc 1/4, without adapter flange	C
		1/2 NPT internal thread, with adapter flange *7	D
		1/4 NPT internal thread, with adapter flange	E
		1/4 NPT internal thread, without adapter flange	F
VI	Process installation	Vertical piping, top connection *5 *8	A
		Vertical piping, bottom connection *5 *8	B
		Horizontal piping, front connection	C
VII	Bolt/nut	304 SST	B

## Selection II

		-	
I	Electrical connection	1/2 NPT, Watertight	A
		M20, Watertight *9	B
II	Explosion proof	None	XX
		FM Explosion proof	F1
		FM Intrinsically safe	F2
		FM Nonincendive	F5
		ATEX Explosion proof	A1
		ATEX Intrinsically safe	A2
		ATEX Type n	A5
		IECEX Explosion proof	E1
		IECEX Intrinsically safe	E2
		IECEX Type n	E5
		NEPSI Explosionproof	N1
		NEPSI Intrinsically safe	N2
		NEPSI Type n	N5
III	Indicator	None	X
		With indicator	A
IV	Paint	Standard	X
		Corrosion-proof	B
		Corrosion-resistant (Silver coating)	D
V	Failure alarm	Upper limit of output at abnormal condition	A
		Lower limit of output at abnormal condition	B
VI	Mounting bracket	None	X
		Carbon steel (L form) *2	3
		304 SST (L form) *2	4
		Carbon steel (Flat form) *3	5
		304 SST (Flat form) *3	6

Note) \*2 Applicable for wetted parts of material (center body); 316 SST and ASTM B575

\*3 Applicable for wetted parts of material (center body); Tantalum and 316L SST.

\*4 304 SST bolts and nuts material (-B) must be selected when PVC meterbody cover is selected. The max. working pressure is 1.5MPa.

\*5 In case code C, or D is selected, code A, or B of Process installation should be selected.

\*6 In case code J is selected, code C "Tantalum" of Material (meterbody) should be selected.

\*7 In case PVC is selected, code A, or D of Process connections should be selected.

\*8 In case PVC is selected, code A, or B of Process installation should be selected.

\*9 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

(Continued)



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Model No.: GTX\_ \_G-Selection I ( I II III IV V VI VII) - Selection II (I II III IV V VI) - **Option**

Option		-
	No options	XX
	With external Zero/Span adjustment*11	A2
	One elbow (left) *6 *7*10	G1
	One elbow (right) *6 *7*10	G2
	2 elbows *6 *8*10	G3
	Long vent/drain plugs	G4
	Side vent/drain top *6	G6
	Side vent/drain bottom *6	G7
	Oil and water free finish	K1
	Oil free finish *4	K3
	Au Plating Diaphragm	L1
	Safety Transmitter *5	Q1
	NAMUR NE43 Compliant Output Signal Limits:3.8 to 20.5mA (Output 21.6mA/selected upper limit, 3.6mA/selected lower limit)	Q2
	Alarm Output (contact output)	Q7
	Custom calibration	R1
	Test report	T1
	Mill certificate	T2
	Traceability certificate	T4
	NACE certificate *9	T5
	Non SI Unit	W1

Note) \*4 No need to select when Fill Fluid code H, or J is selected.

\*5 Not applicable for the combination with code A2, or Q7 of Option.

\*6 Not applicable for the combination with code A, or B of Process installation.

\*7 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

\*8 Not applicable for any Explosion proof. Please select code F1 "None" of Explosion proof.

\*9 Applicable for "ASTM B575", code B of Material (center body).

\*10 Not applicable for the combination with code B "M20, Watertight" electrical connection.

\*11 Not applicable for the combination with code X "None" of Indicator. Please select "With indicator".

**Model GTX71G(High gage pressure)**

Model No.: GTX\_\_G - Selection I (I II III IV V VI VII) - Selection II(I II III IV V VI) - Option

Basic Model No.

Measuring span	0.7 to 14MPa (7 to 140kgf/cm <sup>2</sup> )	GTX71G
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## Selection I

I	Output	4 to 20mA (SFN Communication)	A
		4 to 20mA (HART Communication)	B
II	Fill fluid	Regular type (Silicone oil)	A
		For oxygen service (Fluorine oil)	H
		For chlorine service (Fluorine oil) *7	J
III	Material (Meter-body cover, Vent/ Drain plugs)	Meterbody cover	Vent / Drain plugs
		SCS14A	316 SST A
IV	Material (center body)	316 SST (Diaphragm: 316L SST)	A
		ASTM B575 (Equivalent to Hastelloy C-276)	B
		Tantalum *6	C
		316L SST *6	D
V	Process connections of reference side	Rc 1/2, with adapter flange	A
		Rc 1/4, with adapter flange	B
		Rc 1/4, without adapter flange	C
		1/2 NPT internal thread, with adapter flange	D
		1/4 NPT internal thread, with adapter flange	E
		1/4 NPT internal thread, without adapter flange	F
VI	Process installation	Vertical piping, top connection *6	A
		Vertical piping, bottom connection *6	B
		Horizontal piping, front connection	C
VII	Bolt/nut	Carbon steel	A
		304 SST *5	B
		630 SST	C

## Selection II

		-	
I	Electrical connection	1/2 NPT, Watertight	A
		M20, Watertight *8	B
II	Explosion proof	None	XX
		FM Explosion proof	F1
		FM Intrinsically safe	F2
		FM Nonincendive	F5
		ATEX Explosion proof	A1
		ATEX Intrinsically safe	A2
		ATEX Type n	A5
		IECEX Explosion proof,	E1
		IECEX Intrinsically safe	E2
		IECEX Type n	E5
		NEPSI Explosionproof	N1
		NEPSI Intrinsically safe	N2
		NEPSI Type n	N5
III	Indicator	None	X
		With indicator	A
IV	Paint	Standard	X
		Corrosion-proof	B
		Corrosion-resistant (Silver coating)	D
V	Failure alarm	Upper limit of output at abnormal condition	A
		Lower limit of output at abnormal condition	B
VI	Mounting bracket	None	X
		Carbon steel (L form) *2	3
		304 SST (L form) *2	4
		Carbon steel (Flat form) *3	5
		304 SST (Flat form) *3	6

Note) \*2 Applicable for wetted parts of material (center body); 316 SST, ASTM B575.

\*3 Applicable for wetted parts of material (center body); Tantalum, 316L SST.

\*5 When 304 SST bolt/nut is selected, max working pressure rating is 10MPa(100kgf/cm<sup>2</sup>).

\*6 In case code C, or D is selected, code A, or B of Process installation should be selected.

\*7 In case code J is selected, code C "Tantalum" of Material (meterbody) should be selected.

\*8 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

(Continued)

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Model No.: GTX\_\_G-Selection I (I II III IV V VI VII) - Selection II (I II III IV V VI) - Option

Option		-
	No options	XX
	With external Zero/Span adjustment*11	A2
	One elbow (left) *6 *7*10	G1
	One elbow (right) *6 *7*10	G2
	2 elbows *6 *8*10	G3
	Long vent/drain plugs	G4
	Side vent/drain top *6	G6
	Side vent/drain bottom *6	G7
	Oil and water free finish	K1
	Oil free finish *4	K3
	Au Plating Diaphragm	L1
	Safety Transmitter *5	Q1
	NAMUR NE43 Compliant Output Signal Limits: 3.8 to 20.5mA (Output 21.6mA/selected upper limit, 3.6mA/selected lower limit)	Q2
	Alarm Output (contact output)	Q7
	Custom calibration	R1
	Test report	T1
	Mill certificate	T2
	Traceability certificate	T4
	NACE certificate *9	T5
	Non SI Unit	W1

Note) \*3 Not applicable for the combination with "304 SST Bolts/Nuts".

\*4 No need to select when Fill Fluid code H, or J is selected.

\*5 Not applicable for the combination with code A2, or Q7 of Option.

\*6 Not applicable for the combination with code A, or B of Process installation.

\*7 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

\*8 Not applicable for any Explosion proof. Please select code F1 "None" of Explosion proof.

\*9 Applicable for "ASTM B575", code B of Material (center body).

\*10 Not applicable for the combination with code B "M20, Watertight" electrical connection.

\*11 Not applicable for the combination with code X "None" of Indicator. Please select "With indicator".

**Model GTX82G(High gage pressure)**

Model No.: GTX\_\_G - Selection I (I II III IV V VI VII) - Selection II(I II III IV V VI) - Option

Basic Model No.

Measuring span	0.7 to 42MPa (7 to 420kgf/cm <sup>2</sup> )	GTX82G
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## Selection I

I	Output	4 to 20mA (SFN Communication)	A
		4 to 20mA (HART Communication)	B
II	Fill fluid	Regular type (Silicone oil)	A
		For oxygen service (Fluorine oil)	H
III	Material (Meter-body cover, Vent/ Drain plugs)	Meterbody cover	Vent / Drain plugs
		316 SST	316 SST A
IV	Material (center body)	316 SST (Diaphragm: 316L SST)	A
		ASTM B575 (Equivalent to Hastelloy C-276)	B
V	Process connections of reference side	Rc 1/4, without adapter flange	C
		1/4 NPT internal thread, without adapter flange	F
VI	Process installation	Vertical piping, top connection	A
		Vertical piping, bottom connection	B
VII	Bolt/nut	Carbon steel	A
		304 SST *5	B
		630 SST	C

## Selection II

		-	
I	Electrical connection	1/2 NPT, Watertight	A
		M20, Watertight *6	B
II	Explosion proof	None	XX
		FM Explosion proof	F1
		FM Intrinsically safe	F2
		FM Nonincendive	F5
		ATEX Explosion proof	A1
		ATEX Intrinsically safe	A2
		ATEX Type n	A5
		IECEX Explosion proof,	E1
		IECEX Intrinsically safe	E2
		IECEX Type n	E5
		NEPSI Explosionproof	N1
		NEPSI Intrinsically safe	N2
		NEPSI Type n	N5
III	Indicator	None	X
		With indicator	A
IV	Paint	Standard	X
		Corrosion-resistant	A
		Corrosion-proof	B
		Corrosion-resistant (Silver coating)	D
V	Failure alarm	Upper limit of output at abnormal condition	A
		Lower limit of output at abnormal condition	B
VI	Mounting bracket	None	X
		Carbon steel (Flat form)	5
		304 SST (Flat form)	6

Note) \*5 When 304 SST bolt/nut is selected, max working pressure rating is 23MPa(230kgf/cm<sup>2</sup>).

\*6 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

(Continued from previous page)

Model No.:GTX\_\_G-Selection I (I II III IV V VI VII) - Selection II(I II III IV V VI) - **Option**

Option		
	No options	XX
	With external Zero/Span adjustment*11	A2
	One elbow (left) *6 *7*10	G1
	One elbow (right) *6 *7*10	G2
	2 elbows *6 *8*10	G3
	Long vent/drain plugs	G4
	Side vent/drain top *6	G6
	Side vent/drain bottom *6	G7
	Oil and water free finish	K1
	Oil free finish *4	K3
	Au Plating Diaphragm *12	L1
	Safety Transmitter *5	Q1
	NAMUR NE43 Compliant Output Signal Limits:3.8 to 20.5mA (Output 21.6mA/selected upper limit, 3.6mA/selected lower limit)	Q2
	Alarm Output (contact output)	Q7
	Custom calibration	R1
	Test report	T1
	Mill certificate	T2
	Traceability certificate	T4
	NACE certificate *9	T5
	Non SI Unit	W1

Note) \*3 Not applicable for the combination with "304 SST Bolts/Nuts".

\*4 No need to select when Fill Fluid code H, or J is selected.

\*5 Not applicable for the combination with code A2, or Q7 of Option.

\*6 Not applicable for the combination with code A, or B of Process installation.

\*7 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

\*8 Not applicable for any Explosion proof. Please select code F1 "None" of Explosion proof.

\*9 Applicable for "ASTM B575", code B of Material (center body).

\*10 Not applicable for the combination with code B "M20, Watertight" electrical connection.

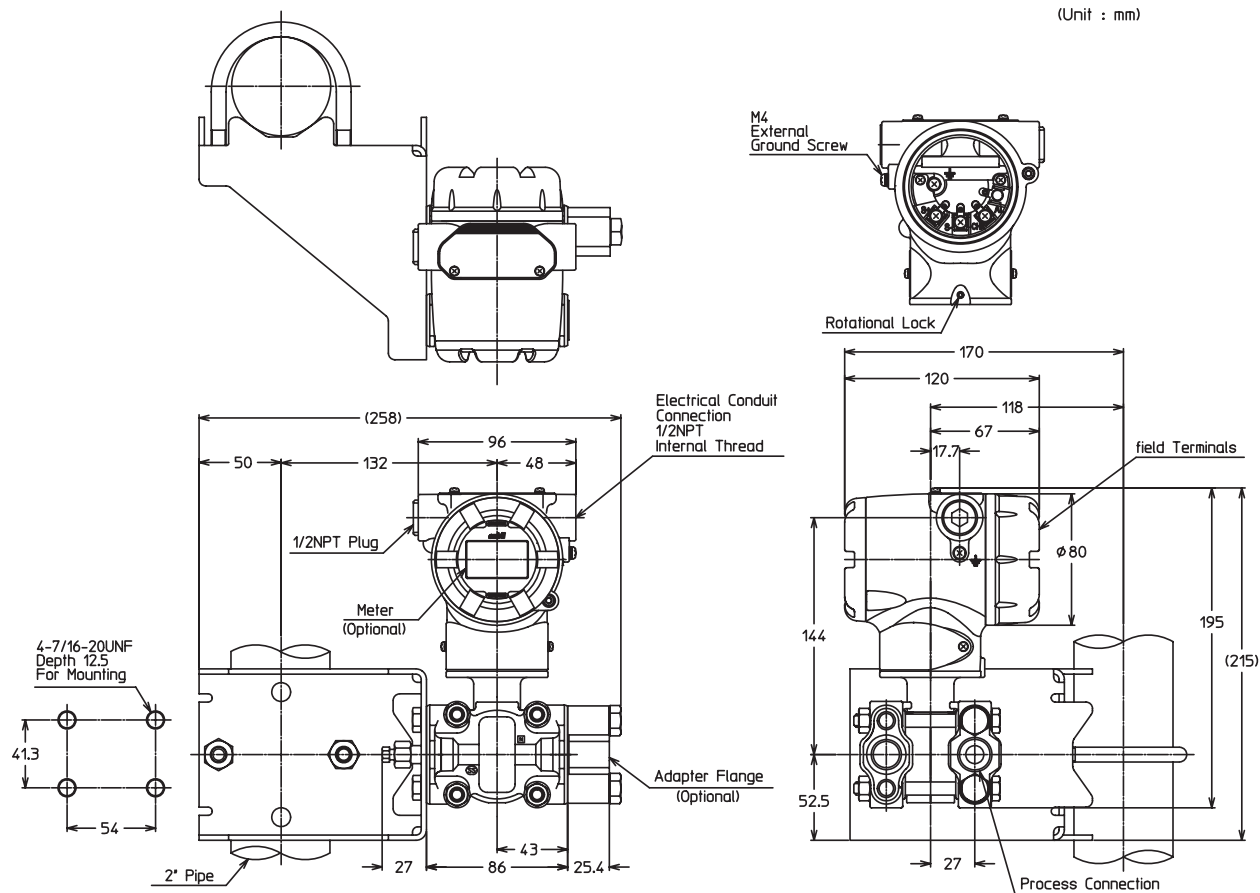
\*11 Not applicable for the combination with code X "None" of Indicator. Please select "With indicator".

\*12 Not applicable for the combination with "Tantalum" of diaphragm Material.

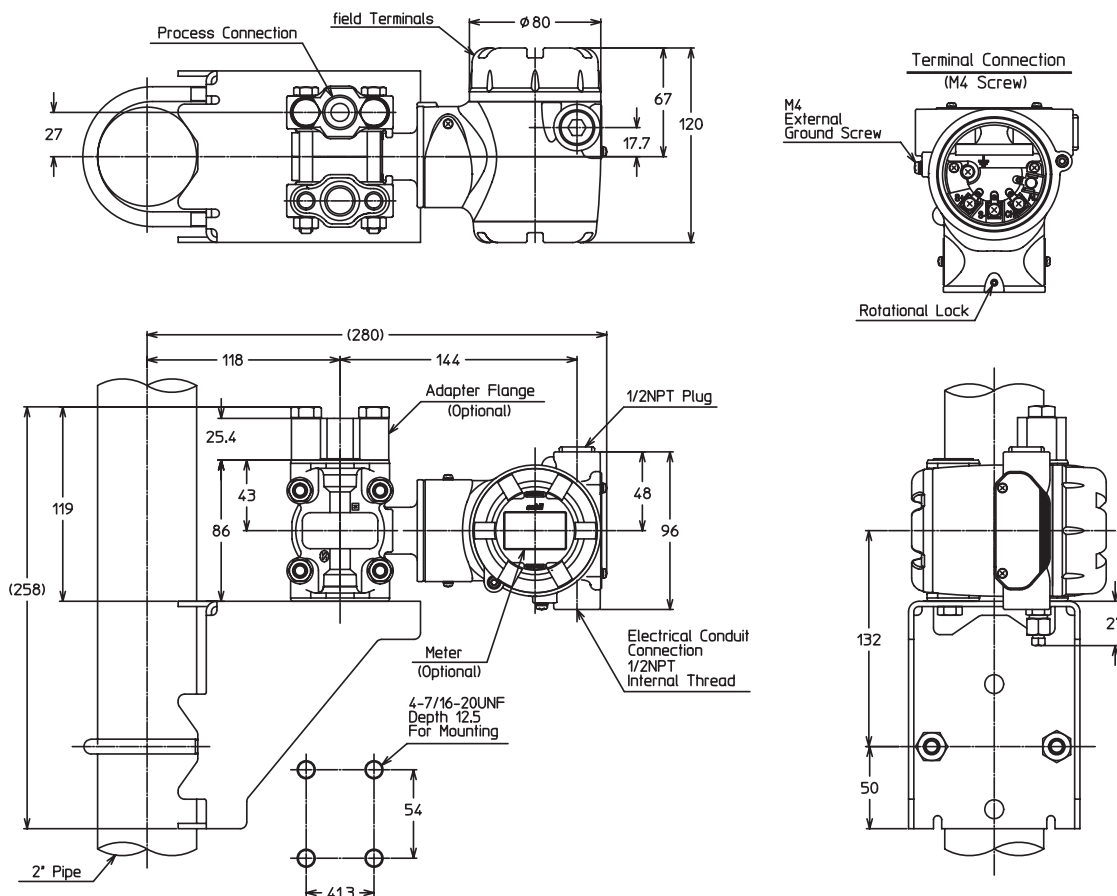
**DIMENSIONS****Model GTX60G (Material (center body): 316 SST, ASTM B575)**

Process Connection : Front Side

(Unit : mm)



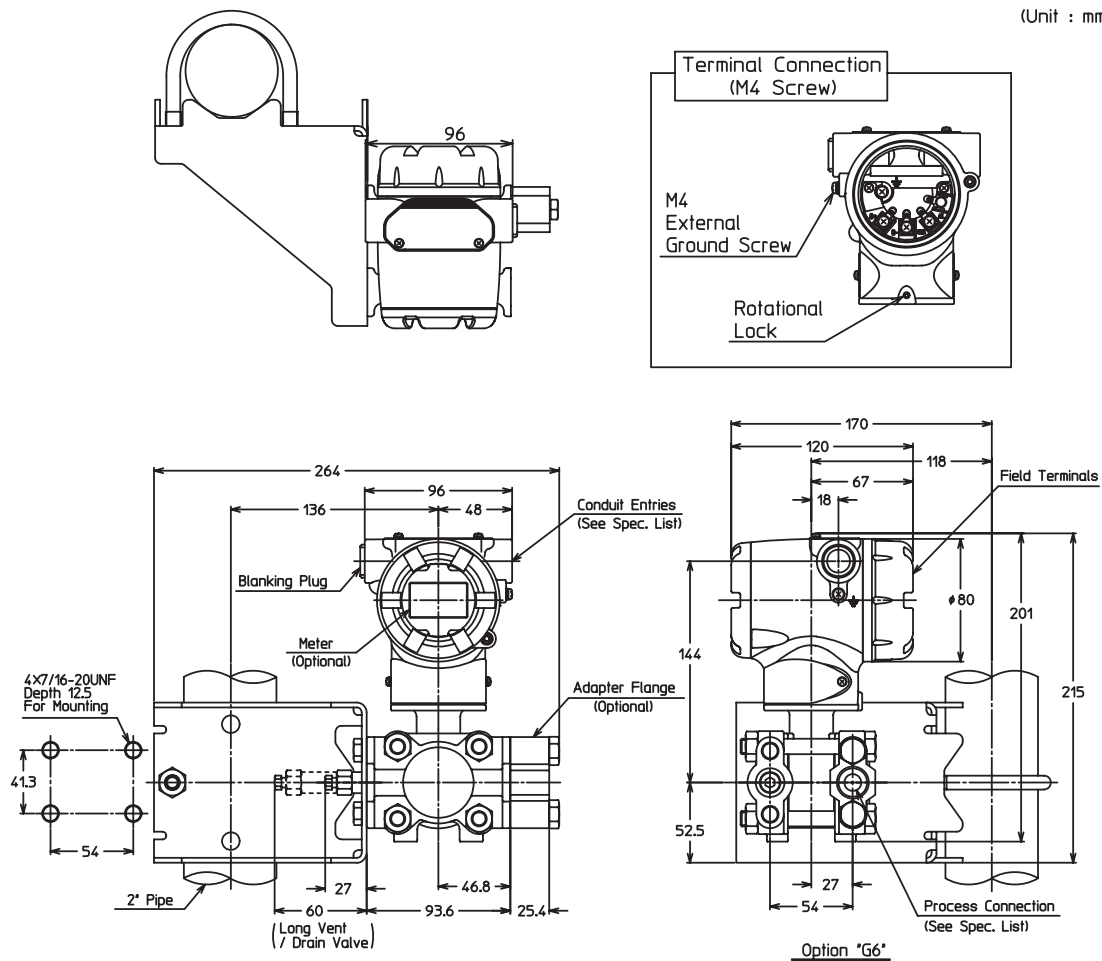
Process Connection : Top or Bottom Side



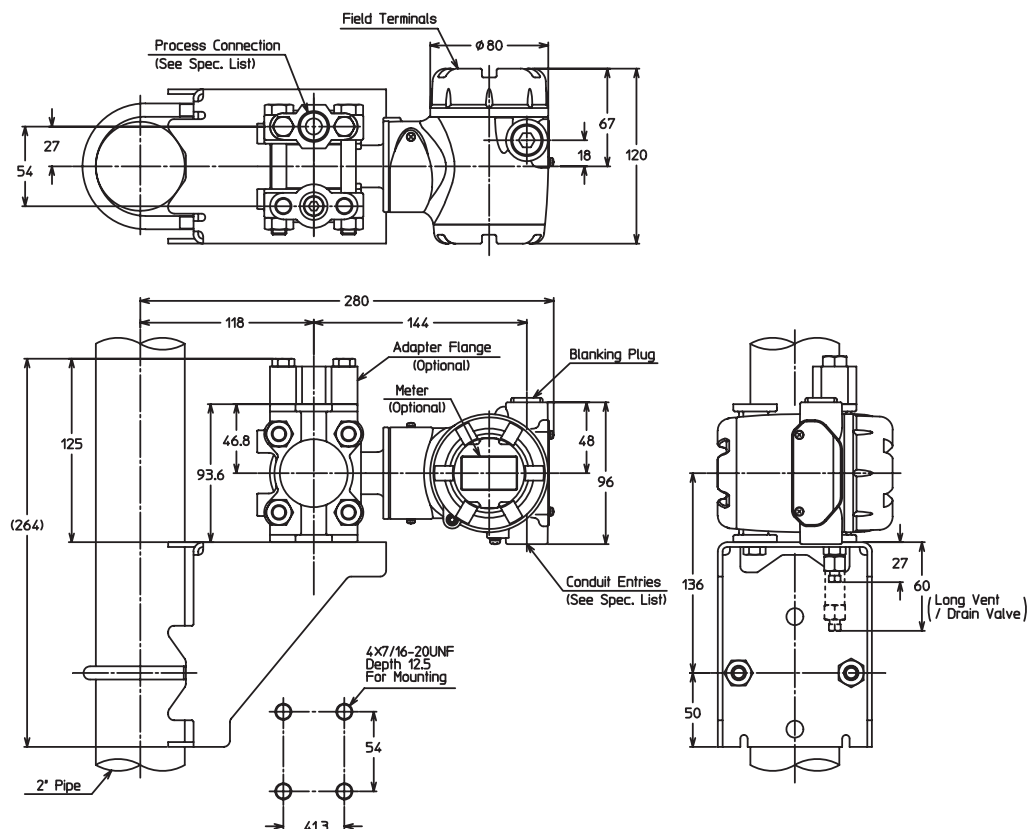
**Model GTX71G (Material (center body): 316 SST, ASTM B575)**

Process Connection : Front Side

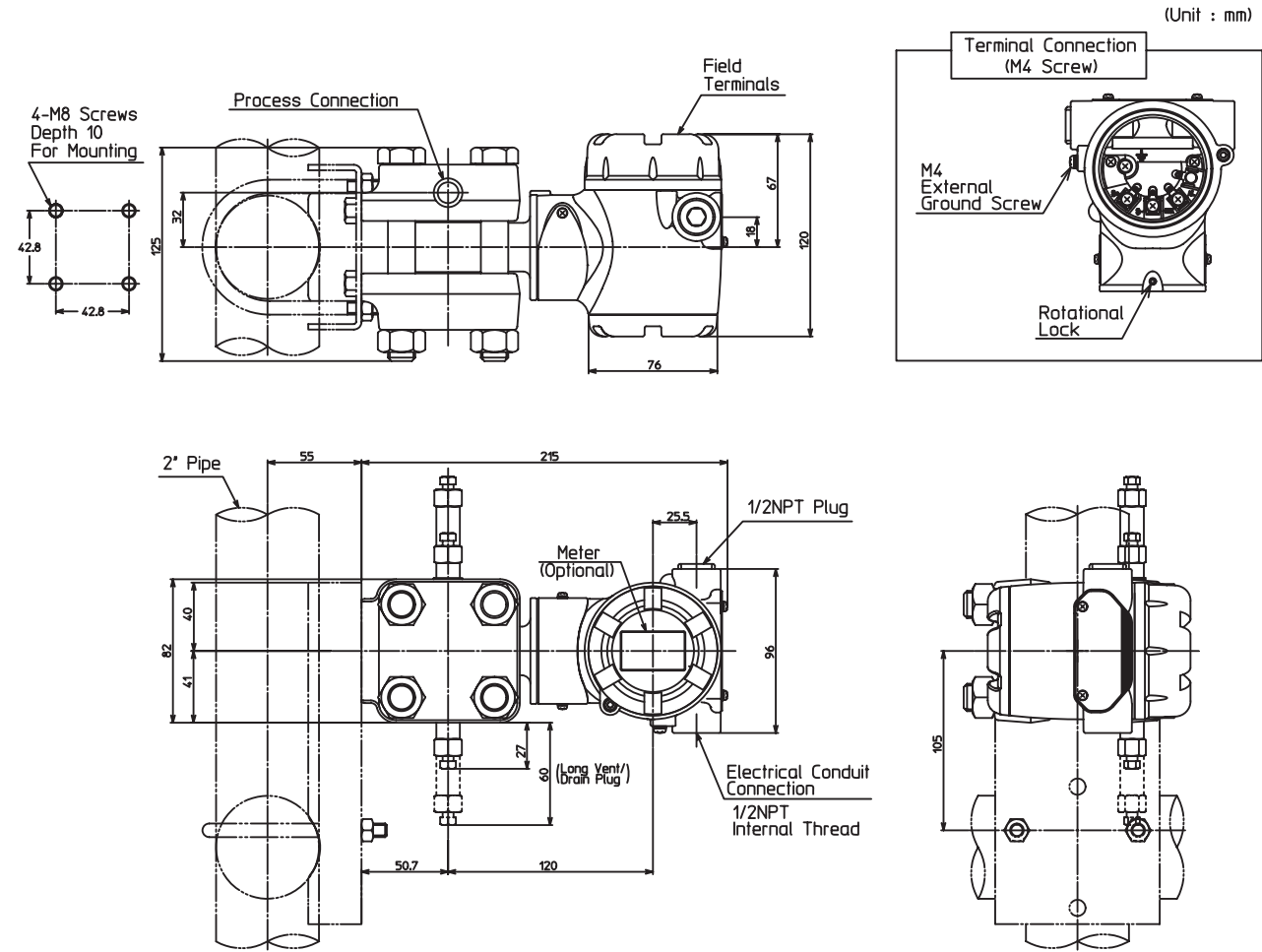
(Unit : mm)



Process Connection : Top or Bottom Side



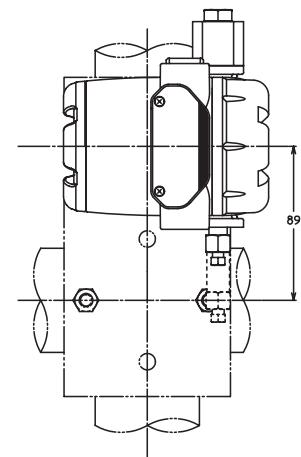
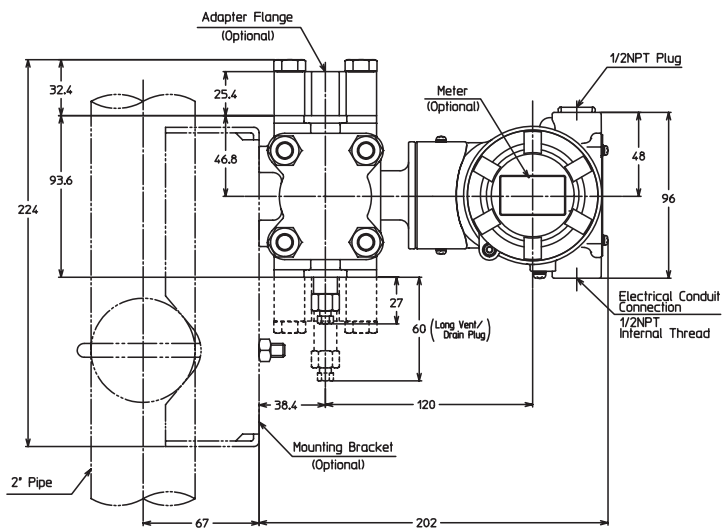
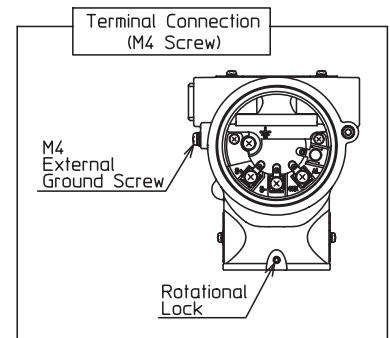
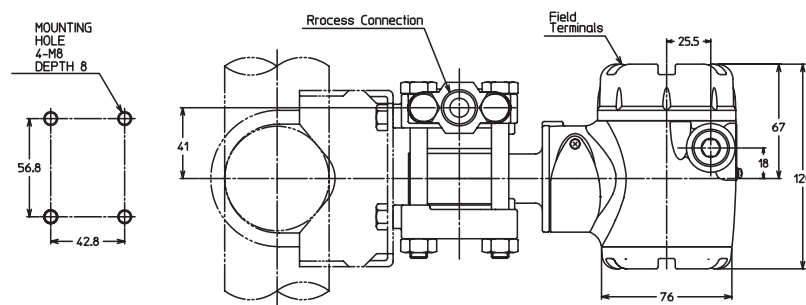
Model GTX82G





**Model GTX60G/71G (Material (center body): Tantalum, 316L SST)****Process connection: Top or bottom side**

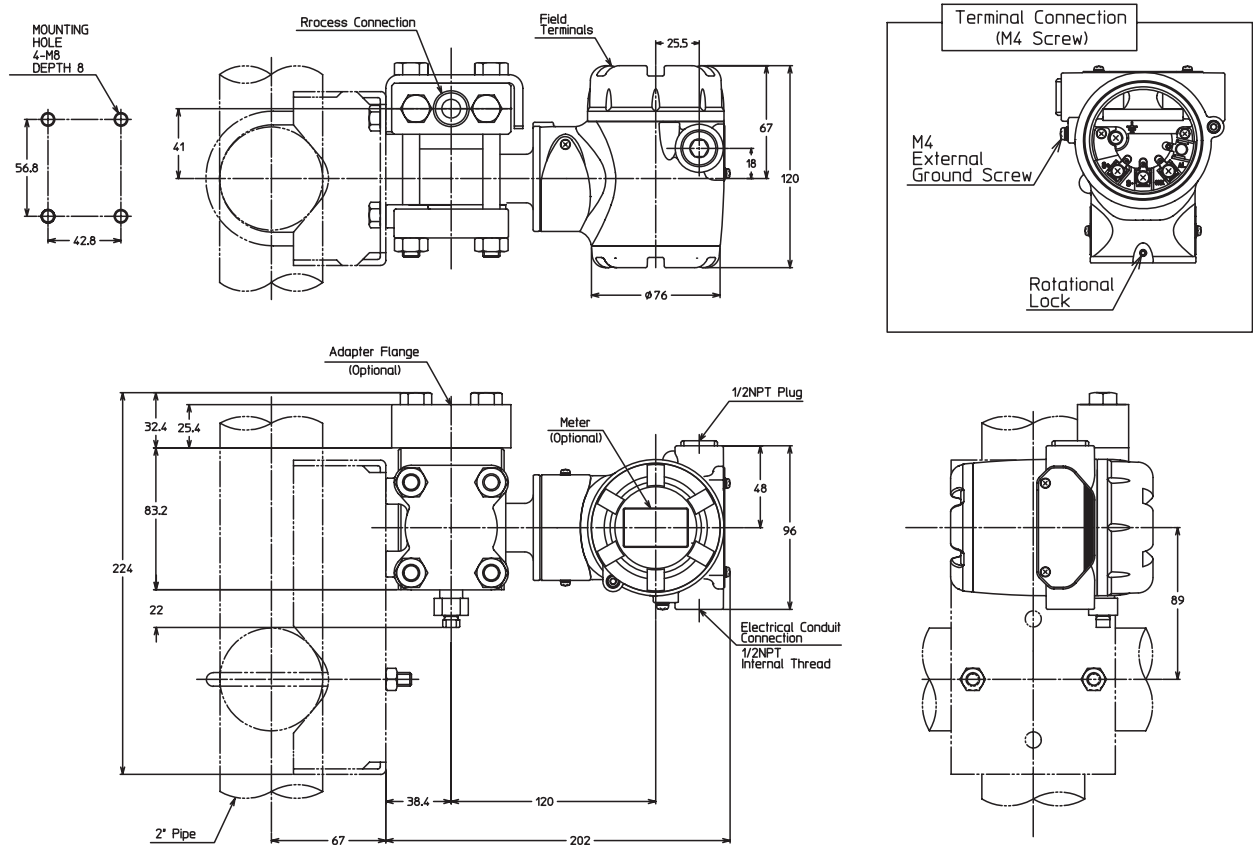
(Unit : mm)



Model GTX60G(Material (Meter body cover, Vent/Drain plugs: PVC)

Process connection: Top or bottom side

(Unit : mm)



*Note*

*Specifications are subject to change without notice.*

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