

# AT9000 Advanced Transmitter

## Differential 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 differential 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 GTX30D/31D/32D: 0.5 to 100 kPa (range ability: 200 to 1)

#### **A diverse lineup**

- A wide range of models is available to meet user requirements. They include draft range differential pressure, standard differential pressure, high differential pressure, standard differential pressure/high static pressure, and high differential pressure/high static pressure models.

- 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  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$   
Hazardous locations  
Indoor / Outdoor Type 4X, IP67  
Factory sealed, conduit seal not required for Division applications  
Caution - Use supply wires suitable for  $5^{\circ}\text{C}$  above surrounding ambient



**FM Intrinsically safe Approval**

IS/I,II,III/1/ABCDEFG/T4;  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ;  
80395278, 80395279, 80395280; Entity; TYPE 4X; IP67  
I/O/ AEx ia/IIC/T4;  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ; 80395278,  
80395279, 80395280; Entity; TYPE 4X; IP67  
Entity Parameters:  $V_{\text{max}}(U_i)=30$  Volts,  $I_{\text{max}}(I_i)=100\text{mA}$ ,  
 $P_i=1\text{W}$ ,  $C_i=10\text{nF}$ ,  $L_i=0.5\text{mH}$

**FM Nonincendive Approval**

NI/I/2/ABCD/T4;  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ; 80395494;  
NIFW; TYPE 4X; IP67  
NI/I/2/IIC/T4;  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ; 80395494;  
NIFW; TYPE 4X; IP67  
S/II,III/1/EFG/T4;  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ;  
80395494; NIFW; TYPE 4X; P67  
Nonincendive Field Wiring Parameters:  $V_{\text{max}}(U_i)=30$   
Volts,  $C_i=10\text{nF}$ ,  $L_i=0.5\text{mH}$

**ATEX Flameproof and Dust Certifications**

 0344  KEMA 08ATEX0004

II 1/2 G Ex d IIC T6  $T_{\text{process}}=85^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$  IP66/67  
II 1/2 G Ex d IIC T5  $T_{\text{process}}=100^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$  IP66/67  
II 1/2 G Ex d IIC T4  $T_{\text{process}}=110^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$  IP66/67  
II 2 D Ex tD A21 IP66/67 T85  $T_{\text{process}}=85^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
II 2 D Ex tD A21 IP66/67 T100  $T_{\text{process}}=100^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
II 2 D Ex tD A21 IP66/67 T110  $T_{\text{process}}=110^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
Caution - Use supply wires suitable for  $5^{\circ}\text{C}$  above surrounding ambient

**ATEX Intrinsic safety and Dust Certifications**

 0344  KEMA 07ATEX0200 X

II 1 G Ex ia IIC T4  $T_{\text{PROCESS}} = 105^{\circ}\text{C}$

$-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$  IP66 / 67

ELECTRICAL PARAMETERS:  $U_i = 30\text{V}$ ,  $I_i = 93\text{mA}$ ,  
 $P_i = 1\text{W}$ ,  $C_i = 5\text{nF}$ ,  $L_i = 0.5\text{mH}$   
II 1 D Ex iaD 20 IP66 / 67 T105  $T_{\text{PROCESS}} = 105^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

**ATEX Type n and Dust Certifications**

 0344  KEMA 07ATEX0200 X

II 3 G Ex nL IIC T4  $T_{\text{PROCESS}} = 105^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$  IP66 / 67  
ELECTRICAL PARAMETERS:  $U_i = 30\text{V}$ ,  $C_i = 5\text{nF}$ ,  $L_i = 0.5\text{mH}$   
II 2 D Ex tD A21 IP66 / 67 T85  $T_{\text{PROCESS}} = 85^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
II 2 D Ex tD A21 IP66 / 67 T100  $T_{\text{PROCESS}} = 100^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$   
II 2 D Ex tD A21 IP66 / 67 T110  $T_{\text{PROCESS}} = 110^{\circ}\text{C}$   
 $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$

**NEPSI Flameproof and Dust Certifications**

Ex d IIC T6 DIP A21  $T_A 85^{\circ}\text{C}$   $T_{\text{process}}=80^{\circ}\text{C}$   $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
Ex d IIC T5 DIP A21  $T_A 100^{\circ}\text{C}$   $T_{\text{process}}=95^{\circ}\text{C}$   $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$   
Ex d IIC T4 DIP A21  $T_A 115^{\circ}\text{C}$   $T_{\text{process}}=110^{\circ}\text{C}$   $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$   
ENCLOSURE TYPE IP66/67  
Certificate No. GYJ071268

**NEPSI Intrinsic Safety Certification**

Ex ia IIC T4  $T_{\text{process}}=105^{\circ}\text{C}$   $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$   
Enclosure IP66 / 67  
Electrical Parameters:  $U_i=30\text{V}$ ,  $I_i=100\text{mA}$ ,  $P_i=1\text{W}$ ,  
 $C_i=13\text{nF}$ ,  $L_i=0.5\text{mH}$   
Certificate No. GYJ071269

**NEPSI Type n Certification**

Ex nL IIC T4  $T_{\text{process}}=110^{\circ}\text{C}$   $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$   
Enclosure IP66 / 67  
Electrical Parameters:  $U_i=30\text{V}$ ,  $I_i=100\text{mA}$ ,  $P_i=1\text{W}$ ,  
 $C_i=13\text{nF}$ ,  $L_i=0.5\text{mH}$   
Certificate No. GYJ071269

**IECEx Flameproof and Dust Certifications**

Certificate No. IECEx KEM 08.0001  
Ga/Gb Ex d IIC T6  $T_{\text{process}}=85^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$  IP66/67  
Ga/Gb Ex d IIC T5  $T_{\text{process}}=100^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$  IP66/67  
Ga/Gb Ex d IIC T4  $T_{\text{process}}=110^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$  IP66/67  
Ex tD A21 IP66/67 T85  $T_{\text{process}}=85^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
Ex tD A21 IP66/67 T100  $T_{\text{process}}=100^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
Ex tD A21 IP66/67 T110  $T_{\text{process}}=110^{\circ}\text{C}$   $-30^{\circ}\text{C} \leq T_{\text{amb}} \leq +75^{\circ}\text{C}$   
Caution - Use supply wires suitable for  $5^{\circ}\text{C}$  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.

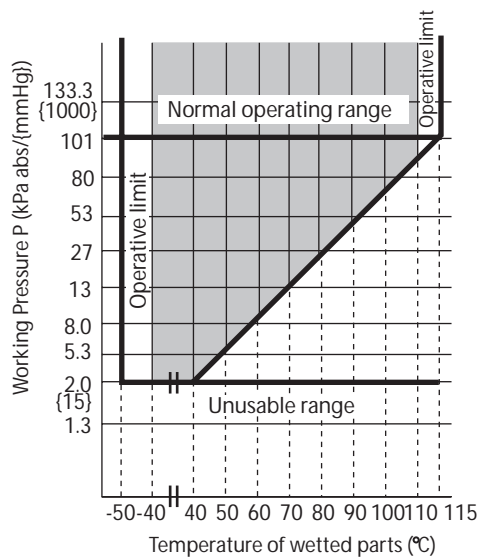
Measurement fluid	Group *	Pressure	Applicable models
Gas	1	200 bar (20 MPa)	All models except GTX32D, 42D, 72D, 82G, 82U
	2	1,000 bar (100 MPa)	All models
Liquid	1	500 bar (50 MPa)	All models
	2	1,000 bar (100 MPa)	All models

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.

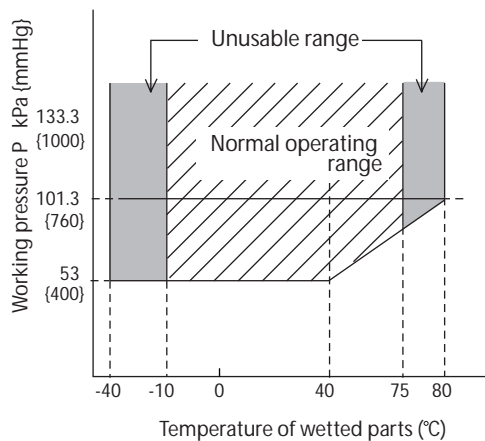
**Measuring span / Setting range / Working pressure range**

Model	Measuring Span	Measuring range	Working Pressure Range
GTX 15D	0.1 to 2 kPa {10 to 200 mmH <sub>2</sub> O}	-1 to 1 kPa {-100 to 100 mmH <sub>2</sub> O}	-70 to 210 kPa {-0.7 to 2.1 kgf/cm <sup>2</sup> }
GTX 30D	0.5 to 100 kPa {50 to 10160 mmH <sub>2</sub> O}	-100 to 100 kPa {-10160 to 10160 mmH <sub>2</sub> O}	2.0 kPa abs to 3.5 MPa {15 mmHg abs to 35 kgf/cm <sup>2</sup> } *2
GTX 31D	0.5 to 100 kPa {50 to 10160 mmH <sub>2</sub> O}	-100 to 100 kPa {-10160 to 10160 mmH <sub>2</sub> O}	2.0 kPa abs to 21 MPa {15 mmHg abs to 210 kgf/cm <sup>2</sup> } *1, *2, *3 (For vacuum pressure, see Figure 1, 2)
GTX 32D	0.5 to 100 kPa {50 to 10160 mmH <sub>2</sub> O}	-100 to 100 kPa {-10160 to 10160 mmH <sub>2</sub> O}	2.0 kPa abs to 42 MPa {15 mmHg abs to 420 kgf/cm <sup>2</sup> } *4 (For vacuum pressure, see Figure 1, 2)
GTX 40D	35 to 700 kPa {0.35 to 7 kgf/cm <sup>2</sup> }	-100 to 700 kPa {-1 to 7 kgf/cm <sup>2</sup> }	2.0 kPa abs to 3.5 MPa {15 mmHg abs to 35 kgf/cm <sup>2</sup> } *2
GTX 41D	35 to 700 kPa {0.35 to 7 kgf/cm <sup>2</sup> }	-100 to 700 kPa {-1 to 7 kgf/cm <sup>2</sup> }	2.0 kPa abs to 21 MPa {15 mmHg abs to 210 kgf/cm <sup>2</sup> } *1, *2, *3 (For vacuum pressure, see Figure 1, 2)
GTX 42D	35 to 700 kPa {0.35 to 7 kgf/cm <sup>2</sup> }	-100 to 700 kPa {-1 to 7 kgf/cm <sup>2</sup> }	2.0 kPa abs to 42 MPa {15 mmHg abs to 420 kgf/cm <sup>2</sup> } *4 (For vacuum pressure, see Figure 1, 2)
GTX 71D	0.25 to 14 MPa {2.5 to 140 kgf/cm <sup>2</sup> }	-0.1 to 14 MPa {-1 to 140 kgf/cm <sup>2</sup> }	2.0 kPa abs to 20 MPa {15 mmHg abs to 210 kgf/cm <sup>2</sup> } *1, *2, *3 (For vacuum pressure, see Figure 1, 2)
GTX 72D	0.25 to 14 MPa {2.5 to 140 kgf/cm <sup>2</sup> }	-0.1 to 14 MPa {-1 to 140 kgf/cm <sup>2</sup> }	2.0 kPa abs to 42 MPa {15 mmHg abs to 420 kgf/cm <sup>2</sup> } *4 (For vacuum pressure, see Figure 1, 2)

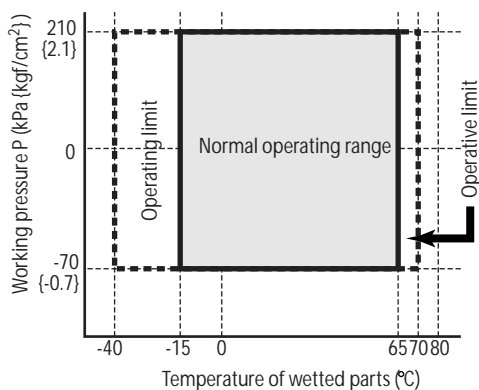
- Note) 1) In case these models are installed in countries requiring CE Marking, maximum working pressure is limited to 20MPa (200kgf/cm<sup>2</sup>).  
 2) With PVC wetted parts, the maximum working pressure is 1.5 MPa {15 kgf/cm<sup>2</sup>}.  
 3) With 304 SST bolts and nuts, the maximum working pressure is 10MPa {100 kgf/cm<sup>2</sup>}.  
 4) With 304 SST bolts and nuts, the maximum working pressure is 23.3 MPa {233 kgf/cm<sup>2</sup>}.



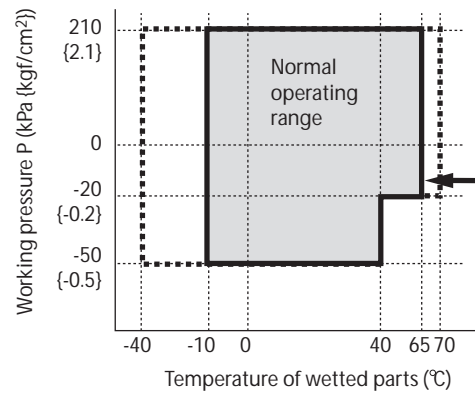
**Figure 1** Working pressure and temperature of wetted parts section (for general purpose models)



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



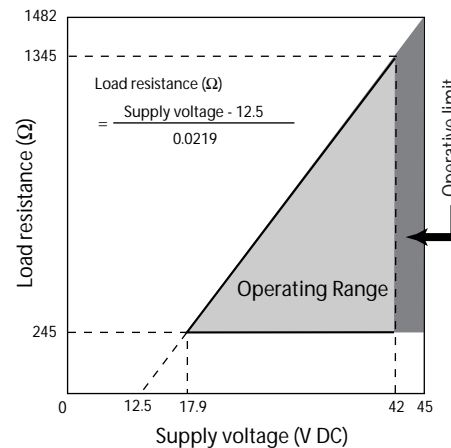
**Figure 3** Working pressure and temperature of wetted parts section (for model GTX15D regular type)



**Figure 4** Working pressure and temperature of wetted parts section (for model GTX15D oxygen service)

### Supply voltage and load resistance

17.9 to 42V DC. A load resistance of 250  $\Omega$  or more is necessary between loops. See Figure 5.



**Figure 5** Supply voltage vs. load resistance characteristics

Note) For communication with HART communicator or Comm-Pad, a load resistance of 250  $\Omega$  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
- 15 to 65°C for general purpose model (model GTX15D)
- 15 to 85°C for general purpose model (model GTX32D/42D/72D)
- 10 to 75°C for oxygen and chlorine models
- 10 to 65°C for oxygen and chlorine model (model GTX15D)

-25 to 80°C for model with digital indicators  
 -15 to 65°C for model with digital indicators (model GTX15D)  
 -15 to 80°C for model with digital indicators (model GTX132D/42D/72D)

**Operative limits**

-50 to 93°C for general purpose models  
 -40 to 70°C for general purpose model (model GTX15D)  
 -25 to 93°C for general purpose model (model GTX32D/42D/72D)  
 -40 to 80°C for oxygen and chlorine models  
 -30 to 85°C for models with digital indicators  
 -40 to 70°C for models with digital indicators (model GTX15D)  
 -25 to 85°C for models with digital indicators (model GTX132D/42D/72D)

**Transportation and storage conditions**

-50 to 85°C for general purpose models  
 -15 to 65°C for general purpose model (model GTX15D)  
 -15 to 85°C for general purpose model (model GTX32D/42D/72D)

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

-40 to 110°C for general purpose models  
 -15 to 65°C for general purpose model (model GTX15D)  
 -15 to 110°C for general purpose model (model GTX32D/42D/72D)  
 -20 to 75°C for oxygen and chlorine models  
 -15 to 65°C for oxygen and chlorine model (model GTX15D)  
 -15 to 75°C for oxygen and chlorine model (model GTX32D/42D/72D)

**Operative limits**

-50 to 115°C for general purpose models  
 -40 to 70°C for general purpose model (model GTX15D)  
 -20 to 115°C for general purpose model (model GTX32D/42D/72D)  
 -40 to 80°C for oxygen and chlorine models  
 -40 to 70°C for oxygen and chlorine models (model GTX15D)  
 -20 to 80°C for oxygen and chlorine models (model GTX32D/42D/72D)

**Ambient humidity limits**

5 to 100% RH

**Stability against supply voltage change**

± 0.005% FS/V

**Response time**

Below 100 msec. (model GTX30D/31D, 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 GTX30D/31D/32D/40D/41D/42D)

**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.

**Adapters for anticorrosion materials**

These are adaptor flanges to connect 82 mm pipes made of anticorrosion materials [excluding ASTM B575 (Equivalent to Hastelloy C-276)] to 54 mm general-purpose pipes.

**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 Instrument 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 flange**

SCS14A (Equivalent to 316 SST) or 316 SST, 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 GTX30D)

**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 GTX15D**

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

<b>Reference accuracy (*4)</b>	Linear output: $\pm\left(0.15 + 0.15 \times \frac{1.0}{\chi}\right) \%$ When output is 50 to 100%: same as linear output Square-root output: When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range) Change of 30°C (Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts) $\pm\left(0.19 + 0.56 \times \frac{1.0}{\chi}\right) \%$
<b>Static pressure effect (Shift with respect to Setting range) Change of 70 kPa {0.7 kgf/cm<sup>2</sup>}</b>	Zero shift: $\pm\left(0.03 + 0.4 \times \frac{1}{\chi}\right) \%$ Combined shift: (including zero and span shifts) $\pm\left(0.03 + 0.45 \times \frac{1}{\chi}\right) \%$

**Model GTX30D/31D (for regular type)**

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

<b>Reference accuracy (*3)(*4)</b>	Linear output: $\pm 0.04\%$ (For $\chi \geq 10.0 \text{ kPa}$ {1000mmH <sub>2</sub> O}) $\pm\left(0.008 + 0.032 \times \frac{10}{\chi}\right) \%$ (For $\chi < 10 \text{ kPa}$ {1000 mmH <sub>2</sub> O}) Square-root output: When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range) (*3) Change of 30°C (Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts) $\pm 0.15\%$ (For $\chi \geq 12.5 \text{ kPa}$ {1250 mmH <sub>2</sub> O}) $\pm\left(0.075 + 0.075 \times \frac{12.5}{\chi}\right) \%$ (For $\chi \leq 12.5 \text{ kPa}$ {1250 mmH <sub>2</sub> O})
<b>Static pressure effect (Shift with respect to Setting range) (*3) Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift: $\pm\left(0.03 + 0.17 \times \frac{A}{\chi}\right) \%$ Combined shift: (including zero and span shifts) $\pm\left(0.03 + 0.37 \times \frac{A}{\chi}\right) \%$ <div style="text-align: right;">A = 12.5 (GTX30D/31D), = 20 (GTX32D)</div>

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 GTX30D/31D (for oxygen / chlorine service)**

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

<b>Reference accuracy</b> <b>(*3)(*4)</b>	Linear output:	$\pm 0.075\%$ (For $\chi \geq 50.0kPa$ {5000mmH <sub>2</sub> O}) $\pm 0.1\%$ (For $50.0kPa$ {5000mmH <sub>2</sub> O} > $\chi \geq 5.0kPa$ {500 mmH <sub>2</sub> O}) $\pm \left(0.025 + 0.075 \times \frac{5.0}{\chi}\right) \%$ (For $\chi < 5.0kPa$ {500 mmH <sub>2</sub> O})
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range)</b> <b>Change of 30°C (*3)</b> <b>(Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm 0.44\%$ (For $\chi \geq 12.5kPa$ {1250 mmH <sub>2</sub> O}) $\pm \left(0.19 + 0.25 \times \frac{12.5}{\chi}\right) \%$ (For $\chi \leq 12.5kPa$ {1250 mmH <sub>2</sub> O})
<b>Static pressure effect (Shift with respect to Setting range) (*3)</b> <b>Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left(0.03 + 0.17 \times \frac{20}{\chi}\right) \%$
	Combined shift: (including zero and span shifts)	$\pm 0.4\%$ (For $\chi \geq 20.0kPa$ {2000 mmH <sub>2</sub> O}) $\pm \left(0.03 + 0.37 \times \frac{20}{\chi}\right) \%$ (For $\chi < 20.0kPa$ {2000 mmH <sub>2</sub> O})

**Model GTX30D/31D**

(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</b> <b>(*3)(*4)</b>	Linear output:	$\pm 0.2\%$ (For $\chi \geq 10kPa$ {1000mmH <sub>2</sub> O}) $\pm \left(0.125 + 0.075 \times \frac{10}{\chi}\right) \%$ (For $\chi \geq 10kPa$ {1000 mmH <sub>2</sub> O})
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range)</b> <b>Change of 30°C (*3)</b> <b>(Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm \left(0.55 + 0.65 \times \frac{20.0}{\chi}\right) \%$
<b>Static pressure effect (Shift with respect to Setting range) (*3)</b> <b>Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left(0.03 + 0.62 \times \frac{20.0}{\chi}\right) \%$
	Combined shift: (including zero and span shifts)	$\pm \left(0.55 + 0.45 \times \frac{20.0}{\chi}\right) \%$ ( $\chi \geq 20.0kPa$ {2000 mmH <sub>2</sub> O}) $\pm \left(0.18 + 0.82 \times \frac{20.0}{\chi}\right) \%$ ( $\chi < 20.0kPa$ {2000 mmH <sub>2</sub> O})

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

\*4: Reference accuracy at calibrated condition.



**Model GTX32D**

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

<b>Reference accuracy (*4)</b>	Linear output:	$\pm 0.075\%$ (For $\chi \geq 50.0kPa$ {5000mmH <sub>2</sub> O}) $\pm 0.1\%$ (For $50.0kPa$ {5000mmH <sub>2</sub> O} > $\chi \geq 5.0kPa$ {500 mmH <sub>2</sub> O}) $\pm \left( 0.025 + 0.075 \times \frac{5.0}{\chi} \right) \%$ (For $\chi < 5.0kPa$ {500 mmH <sub>2</sub> O})
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range) (*3) Change of 30°C</b>	Combined shift: (including zero and span shifts)	$\pm 0.41\%$ (For $\chi \geq 12.5kPa$ {1250 mmH <sub>2</sub> O}) $\pm \left( 0.18 + 0.23 \times \frac{12.5}{\chi} \right) \%$ (For $\chi \leq 12.5kPa$ {1250 mmH <sub>2</sub> O})
<b>Static pressure effect (Shift with respect to Setting range) (*3) Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left( 0.03 + 0.17 \times \frac{20}{\chi} \right) \%$
	Combined shift: (including zero and span shifts)	$\pm 0.4\%$ (For $\chi \geq 20.0kPa$ {2000 mmH <sub>2</sub> O}) $\pm \left( 0.03 + 0.37 \times \frac{20}{\chi} \right) \%$ (For $\chi < 20.0kPa$ {2000 mmH <sub>2</sub> O})

**Model GTX40D/41D/42D**

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

<b>Reference accuracy (*3)(*4)</b>	Linear output:	$\pm 0.1\%$ (For $\chi \geq 140kPa$ {1.4 kgf/cm <sup>2</sup> }) $\pm \left( 0.025 + 0.075 \times \frac{140}{\chi} \right) \%$ (For $\chi < 140kPa$ {1.4 kgf/cm <sup>2</sup> })
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<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)	$\pm 0.41\%$ (For $\chi \geq 210kPa$ {2.1 kgf/cm <sup>2</sup> }) $\pm \left( 0.18 + 0.23 \times \frac{210}{\chi} \right) \%$ (For $\chi < 210kPa$ {2.1 kgf/cm <sup>2</sup> })
<b>Static pressure effect (Shift with respect to Setting range) (*3) Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left( 0.03 + 0.17 \times \frac{700}{\chi} \right) \%$
	Combined shift: (including zero and span shifts)	$\pm 0.33\%$ (For $\chi \geq 700kPa$ {7.1 kgf/cm <sup>2</sup> }) $\pm \left( 0.03 + 0.37 \times \frac{700}{\chi} \right) \%$ (For $\chi < 700kPa$ {7.1 kgf/cm <sup>2</sup> })

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

\*4: Reference accuracy at calibrated condition.

**Model GTX40D/41D**

(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</b> <b>(*3)(*4)</b>	Linear output:	$\pm 0.2\%(\chi \geq 140kPa \{1.4 \text{ kgf/cm}^2\})$ $\pm \left(0.125 + 0.075 \times \frac{140}{\chi}\right) \% \text{ (For } \chi < 140kPa \{1.4 \text{ kgf/cm}^2\})$
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range)</b> <b>Change of 30°C (*3)</b> <b>(Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm 1.20\%(\chi \geq 210kPa \{2.1 \text{ kgf/cm}^2\})$ $\pm \left(0.55 + 0.65 \times \frac{210}{\chi}\right) \% \text{ (For } \chi < 210kPa \{2.1 \text{ kgf/cm}^2\})$
<b>Static pressure effect (Shift with respect to Setting range) (*3)</b> <b>Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left(0.03 + 0.295 \times \frac{700}{\chi}\right) \%$
	Combined shift: (including zero and span shifts)	$\pm \left(0.08 + 0.495 \times \frac{700}{\chi}\right) \%$

**Model GTX71D/72D**

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

<b>Reference accuracy</b> <b>(*3)(*4)</b>	Linear output:	$\pm 0.15\% \text{ (For } \chi \geq 3.5MPa \{35 \text{ kgf/cm}^2\})$ $\pm \left(0.1 + 0.05 \times \frac{3.5}{\chi}\right) \% \text{ (For } \chi < 3.5MPa \{35 \text{ kgf/cm}^2\})$
	Square-root output:	When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range)</b> <b>Change of 30°C (*3)</b> <b>(Range from -5 to 55°C)</b>	Combined shift: (including zero and span shifts)	$\pm 0.41\% \text{ (For } \chi \geq 3.5MPa \{35 \text{ kgf/cm}^2\})$ $\pm \left(0.18 + 0.23 \times \frac{3.5}{\chi}\right) \% \text{ (For } \chi < 3.5MPa \{35 \text{ kgf/cm}^2\})$
<b>Static pressure effect (Shift with respect to Setting range) (*3)</b> <b>Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift:	$\pm \left(0.03 + 0.17 \times \frac{7}{\chi}\right) \%$
	Combined shift: (including zero and span shifts)	$\pm 0.4\% \text{ (For } \chi \geq 7MPa \{70 \text{ kgf/cm}^2\})$ $\pm \left(0.03 + 0.37 \times \frac{7}{\chi}\right) \% \text{ (For } \chi < 7MPa \{70 \text{ kgf/cm}^2\})$

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

\*4: Reference accuracy at calibrated condition.

**Model GTX71D/72D**

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

<b>Reference accuracy</b> (*3)(*4)	Linear output: $\pm 0.2\%$ (For $\chi \geq 3.5\text{MPa}$ {35 kgf/cm <sup>2</sup> }) $\pm \left( 0.15 + 0.05 \times \frac{3.5}{\chi} \right) \%$ (For $\chi < 3.5\text{MPa}$ {35 kgf/cm <sup>2</sup> }) Square-root output: When output is 50 to 100%: same as the linear output When output is 7.1 to 50%: linear output $\times \frac{50}{\text{square-root} \cdot \text{output}} \%$ When output is less than 7.1%: dropout
<b>Ambient Temperature effect (Shift from the set range)</b> <b>Change of 30°C (*3)</b> (Range from -5 to 55°C)	Combined shift: (including zero and span shifts) $\pm 1.20\%$ (For $\chi \geq 3.5\text{MPa}$ {35 kgf/cm <sup>2</sup> }) $\pm \left( 0.55 + 0.65 \times \frac{3.5}{\chi} \right) \%$ (For $\chi < 3.5\text{MPa}$ {35 kgf/cm <sup>2</sup> })
<b>Static pressure effect (Shift with respect to Setting range) (*3)</b> <b>Change of 7 MPa {70 kgf/cm<sup>2</sup>}</b>	Zero shift: $\pm \left( 0.03 + 0.295 \times \frac{7}{\chi} \right) \%$ Combined shift: (including zero and span shifts) $\pm \left( 0.45 + 0.125 \times \frac{7}{\chi} \right) \%$ (For $\chi \geq 7\text{MPa}$ {70 kgf/cm <sup>2</sup> }) $\pm \left( 0.08 + 0.495 \times \frac{7}{\chi} \right) \%$ (For $\chi < 7\text{MPa}$ {70 kgf/cm <sup>2</sup> })

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

\*4: Reference accuracy at calibrated condition.

**MODEL SELECTION****Model GTX15D(Standard type for lowest differential pressure)**

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

Basic Model No.

	Measuring span	0.1 to 2.0 kPa (10 to 200 mmH <sub>2</sub> O)	GTX15D
--	----------------	---	--------

## 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		
		SCS14A	316 SST	A	
IV	Material (center body)	316 SST (Diaphragm:316L SST)			A
V	Process connections	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			A
		Vertical piping, bottom connection			B
		Horizontal piping, front connection			C
VII	Bolt/nut	304 SST			B

## Selection II

I	Electrical connection	1/2 NPT, Watertight	A	
		M20, Watertight *1	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)	3	
		304 SST (L form)	4	

Note) \*1 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

(Continued)

(Continued from previous page)

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

Option		
	No options	XX
	Adapter flange for corrosion-resistant application (316L SST or Tantalum for the wetted parts of centerbody)	A1
	With external Zero/Span adjustment *11*5	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	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 XX "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 GTX30D(Standard type for standard differential pressure)****Model GTX40D(Standard type for high differential pressure)**

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

Basic Model No.

	Measuring span	0.5 to 100kPa (50 to 10160mmH <sub>2</sub> O)	GTX30D
		35 to 700kPa (0.35 to 7kgf/cm <sup>2</sup> )	GTX40D

## 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
		SCS14A	316 SST
IV	Material (center body)	316 SST (Diaphragm:316L SST)	A
		ASTM B575 (Equivalent to Hastelloy C-276)	B
V	Process connections	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	A
		Vertical piping, bottom connection	B
		Horizontal piping, front connection	C
VII	Bolt/nut	304 SST	B

## Selection II

		-	
I	Electrical connection	1/2 NPT, Watertight	A
		M20, Watertight *3	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)	3
		304 SST (L form)	4

Note) \*3 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.

(Continued)

(Continued from previous page)

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

Option		
	No options	XX
	Adapter flange for corrosion-resistant application (316L SST or Tantalum for the wetted parts of centerbody)	A1
	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 XX "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 GTX31D(High static pressure type for standard differential pressure)****Model GTX41D(High static pressure type for high differential pressure)****Model GTX71D(High static pressure type for highest differential pressure)**

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

Basic Model No.

	Measuring span	0.5 to 100kPa (50 to 10160mmH <sub>2</sub> O)	GTX31D
		35 to 700kPa (0.35 to 7kgf/cm <sup>2</sup> )	GTX41D
		0.25 to 14MPa (2.5 to 140kgf/cm <sup>2</sup> )	GTX71D

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
		PVC *4*9	PVC *4*9*10*11
IV	Material (center body)	316 SST (Diaphragm:316L SST)	A
		ASTM B575 (Equivalent to Hastelloy C-276) *8*13	B
		Tantalum *1*6	C
		316L SST *1*6	D
V	Process connections	Rc 1/2, with adapter flange *10	A
		Rc 1/4, with adapter flange	B
		Rc 1/4, without adapter flange	C
		1/2 NPT internal thread, with adapter flange *10	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*11	A
		Vertical piping, bottom connection *6*11	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 *12	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) \*1 In case Manifold valve is used and in case code C, D is used, please select code A1 of Option.

\*2 Applicable for wetted parts of material (center body); 316 SST (GTX31D, 41D, 71D) and ASTM B575 (GTX31D, 41D).

\*3 Applicable for wetted parts of material (center body); Tantalum (GTX31D, 41D, 71D), 316L SST (GTX31D, 41D, 71D) and ASTM B575 (GTX71D).

\*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 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 (centerbody) should be selected.

\*8 Please select A1 of option, when a wetted parts ASTM B575 of GTX71D is selected for assembling a manifold valve.

\*9 In case GTX71D, code C cannot be selected.

\*10 In case PVC is selected, code A, or D of Process connections should be selected.

\*11 In case PVC is selected, code A, or B of Process installation should be selected.

\*12 Not applicable for the combination with code F1 "FM Explosion proof" of Explosion proof.



\*13 When a wetted parts ASTM B575 of GTX71D is selected, code A or B of process installation should be selected.

(Continued)

(Continued from previous page)

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

Option	-
No options	XX
Adapter flange for corrosion-resistant application (316L SST or Tantalum for the wetted parts of centerbody)	A1
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) \*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 XX "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.

**Model GTX32D(High static pressure type for standard differential pressure)****Model GTX42D(High static pressure type for high differential pressure)****Model GTX72D(High static pressure type for highest differential pressure)**

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

Basic Model No.

	Measuring span	0.5 to 100kPa (50 to 10160mmH <sub>2</sub> O)	GTX32D
		35 to 700kPa (0.35 to 7kgf/cm <sup>2</sup> )	GTX42D
		0.25 to 14MPa (2.5 to 140kgf/cm <sup>2</sup> )	GTX72D

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
V	Process connections	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-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)

(Continued from previous page)

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

Option		
	No options	XX
	Adapter flange for corrosion-resistant application (316L SST or Tantalum for the wetted parts of centerbody)	A1
	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 XX "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.

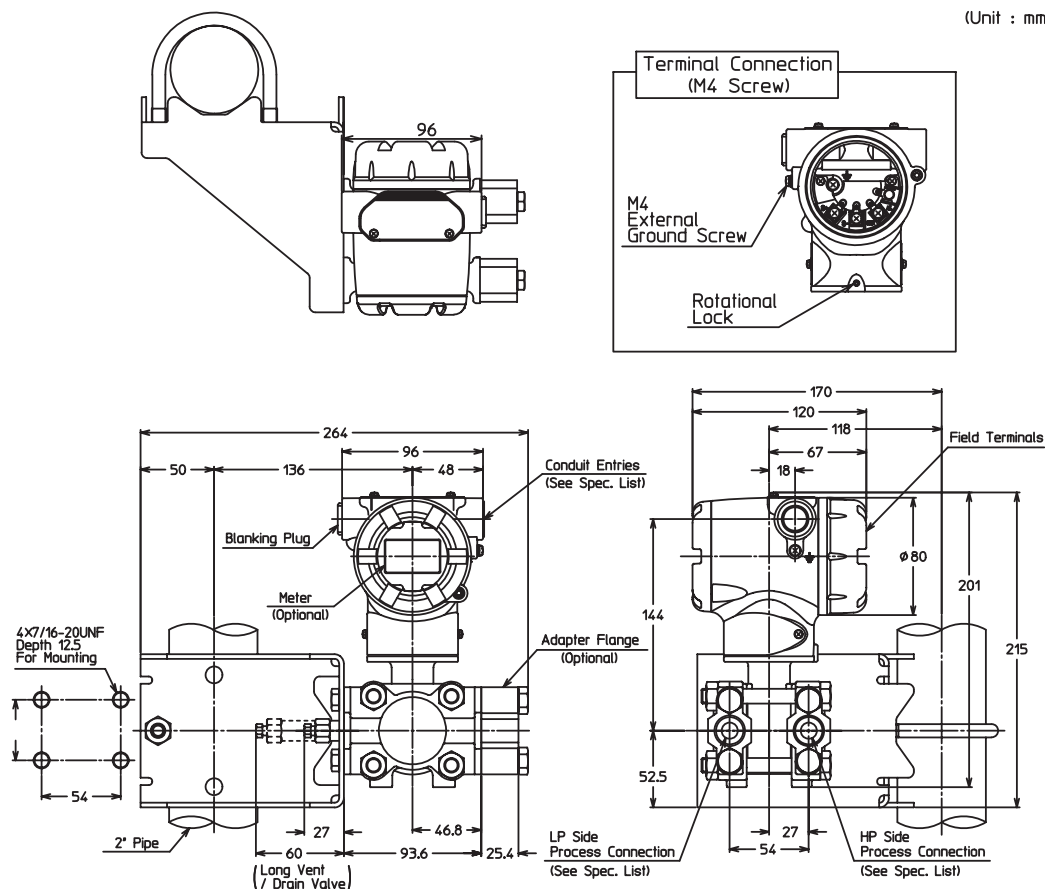
\*11 Not applicable for the combination with code X "None" of Indicator. Please select "With indicator".

**DIMENSIONS**

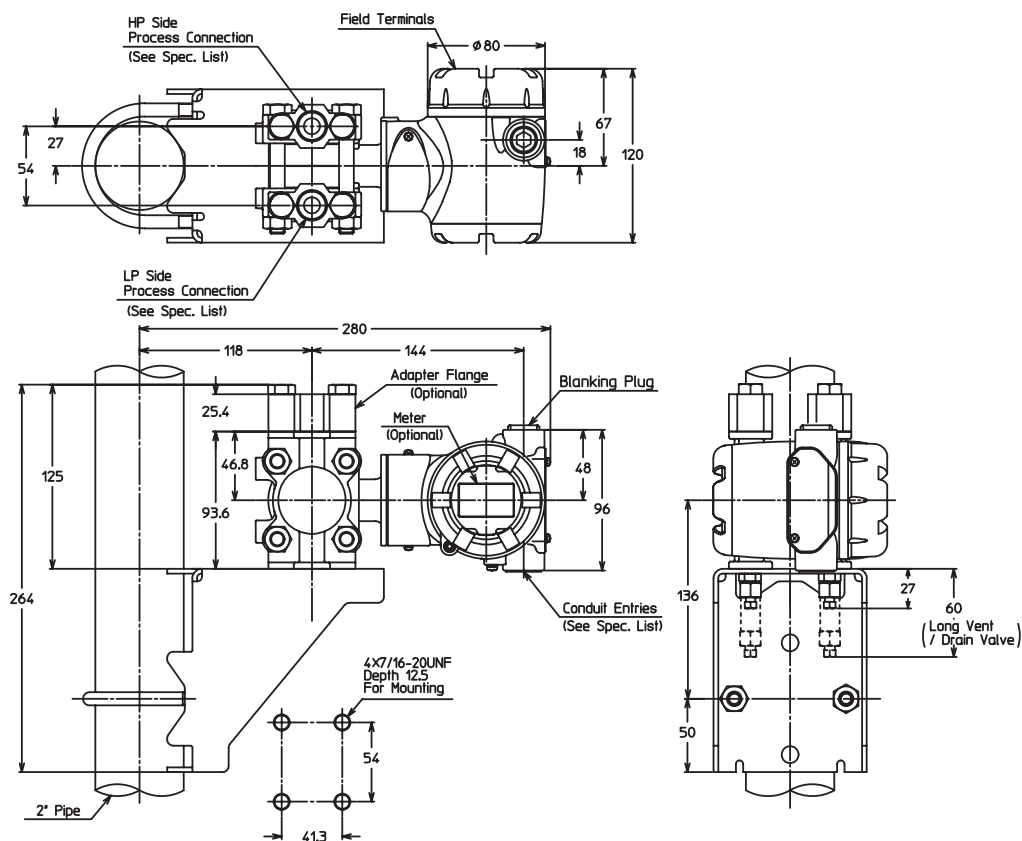
**Model GTX 31D/41D (Material (center body): 316 SST, ASTM B575)**  
**GTX 71D (Material (center body): 316 SST)**

Process Connection : Front Side

(Unit : mm)



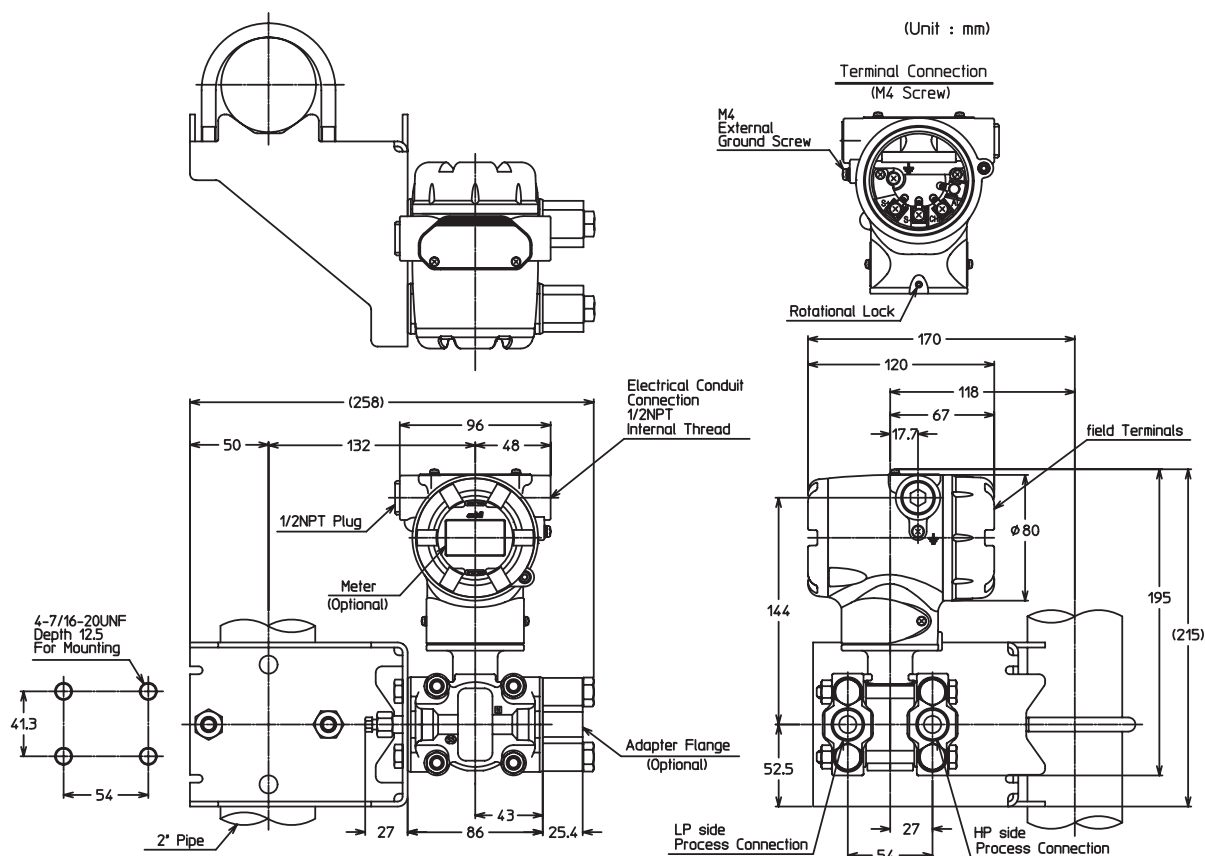
Process Connection : Top or Bottom Side



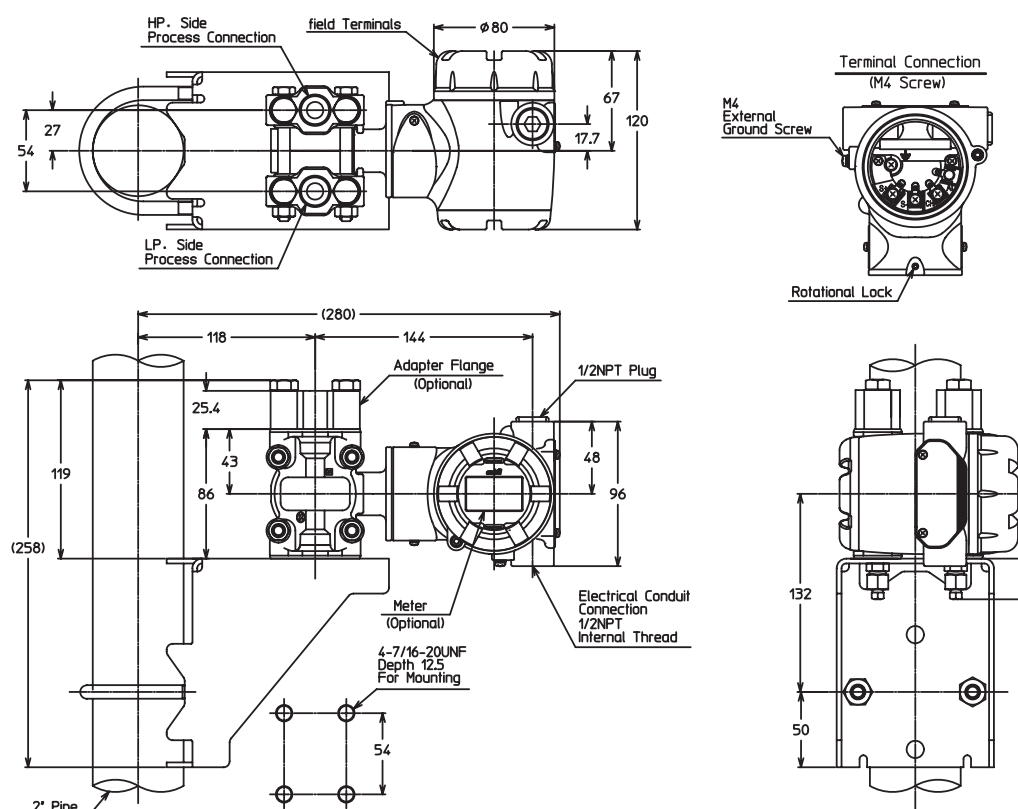
**Model GTX 15D (Material (center body): 316 SST)**

**GTX 30D/40D (Material (center body): 316 SST, ASTM B575)**

Process Connection : Front Side

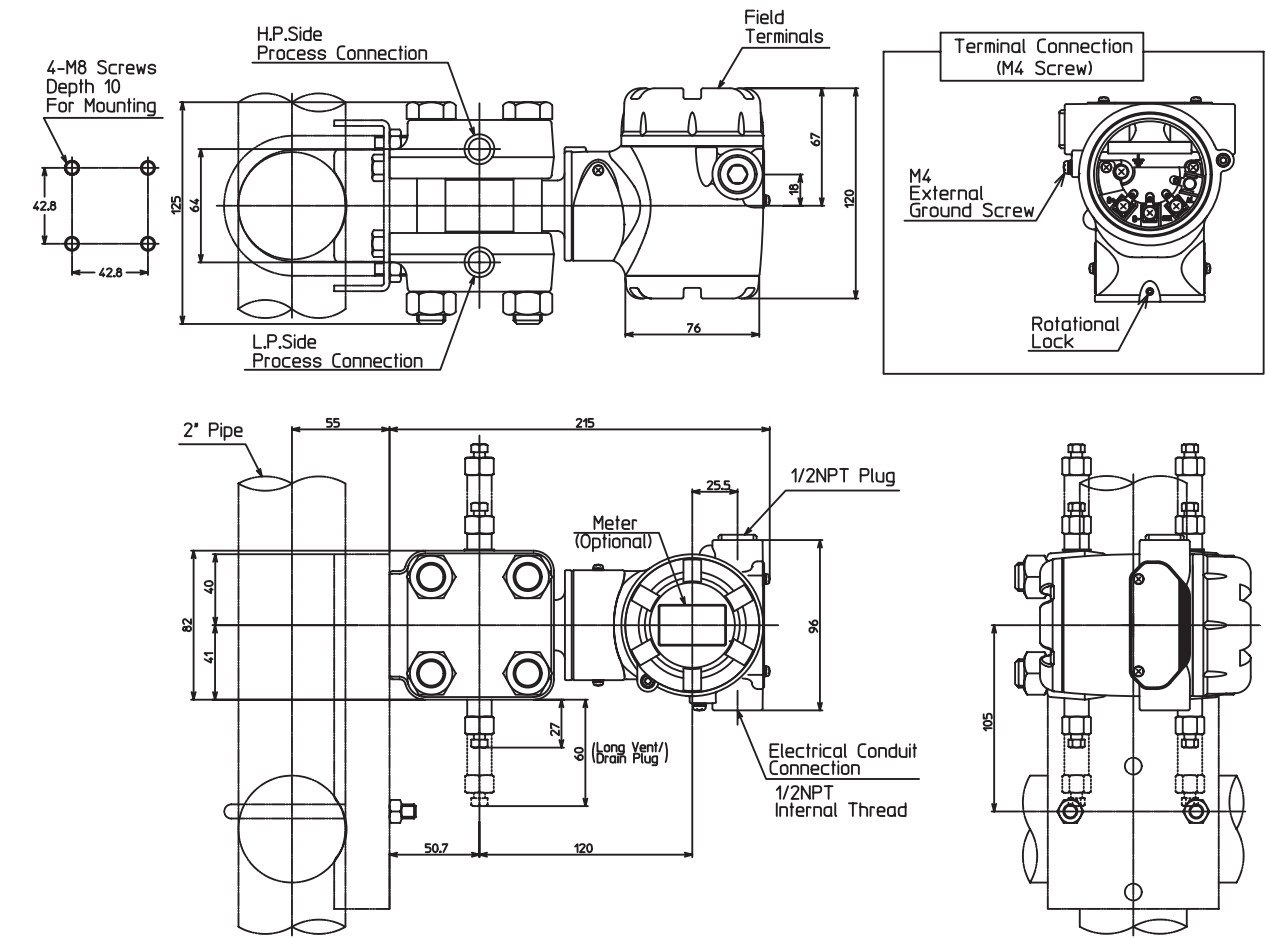


Process Connection : Top or Bottom Side



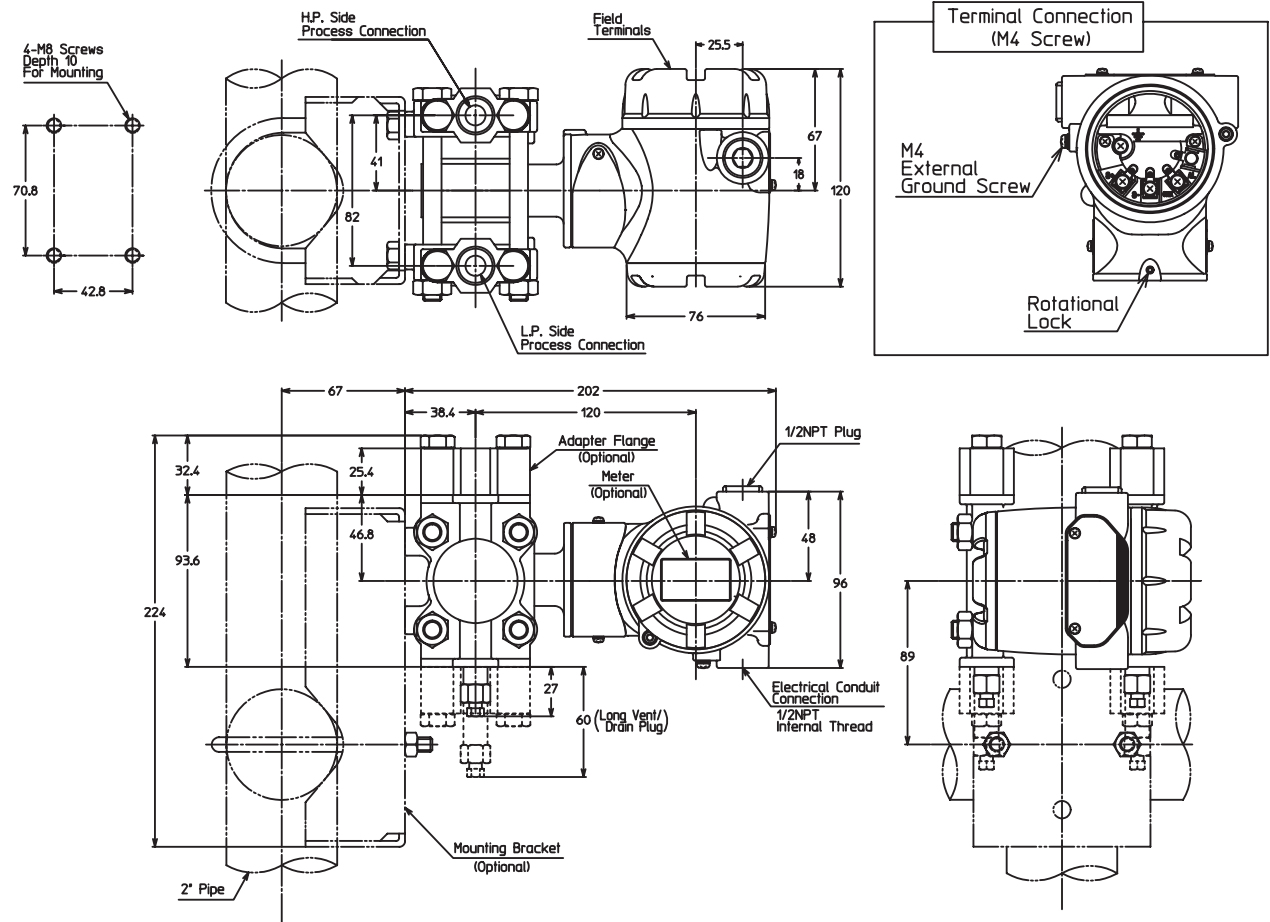
Model GTX 32D/42D/72D

(Unit : mm)



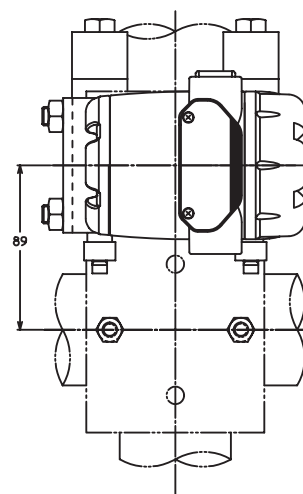
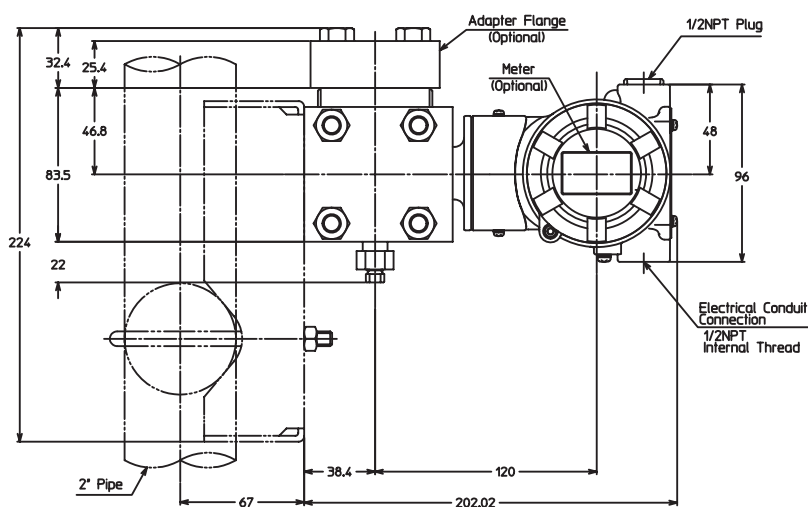
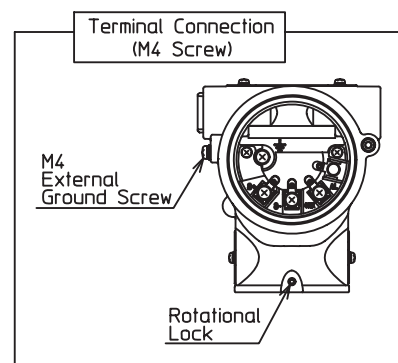
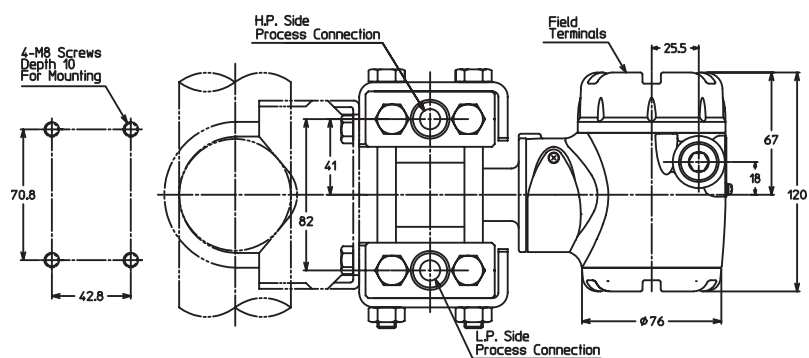
**Model GTX 31D/41D (Material (center body): Tantalum, 316L SST)**  
**GTX 71D (Material (center body): Tantalum, 316L SST, ASTM B575)**

(Unit : mm)



## GTX 31D/41D (Material (Meter body cover, Vent/Drain plugs: PVC)

(Unit : mm)



Specifications are subject to change without notice.

**azbil**

**Yamatake Corporation**  
**Advanced Automation Company**

1-12-2 Kawana, Fujisawa-shi  
 Kanagawa-ken 251-8522 Japan

URL: <http://www.azbil.com>

No part of this publication may be reproduced or duplicated without the prior written permission of Yamatake Corporation.

May 2008 -Y/Y  
 Apr. 2010 (rev.9) -Y/Y