برکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو) شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

Introduction

JG3051 Series intelligent pressure transmitter is a kind of instrument produced by using advanced double beam suspended MEMS single crystal silicon sensor. It has the international leading ultra-high over-voltage performance and high-precision. The circuit adopts redundant connection, full plug-in anti loose module design, and special signal processing circuit embedded in the sensor capsule to realize the personalized storage of pressure and temperature compensation. The circuit modules can be freely interchanged without recalibration. The circuit module can be used in high static pressure and high temperature. It can provide high precision and reliable pressure measurement in the range of degree, and convert it into 4~20mADC and Hart signal output. The display and configuration operation can be carried out remotely through three buttons on the panel, handheld programmer, upper computer software and mobile app.

The transmitter can be used to measure pressure, differential pressure, flow, liquid level and density. It is suitable for petroleum, chemical, metallurgy, electric power, mining, cement, pharmaceutical, food and beverage, papermaking, sewage treatment, municipal and other fields.



The transmitter can be used to measure pressure, differential pressure, flow, liquid level and density. It is suitable for petroleum, chemical, metallurgy, electric power, mining, cement, pharmaceutical, food and beverage, papermaking, sewage treatment, municipal and other fields.

Main features

It adopts advanced double beam suspended MEMS mono-crystalline silicon pressure sensor and integrated anti-high pressure overload center diaphragm, which has high stability, high precision and ultra-high over voltage performance;

The pressure and temperature compensation, personalized information processing and personalized storage circuits are embedded in the sensor capsule, which realizes the arbitrary exchange of circuit modules and does not need to be recalibrated;

The circuit adopts redundant connection and full plug-in anti loose module design, which is fast and convenient to install, safe and reliable;

The panel can display the pressure value, current value, percentage ratio, percentage light bar, sensor capsule temperature, logo, as well as the transmitter waveform curve parameters;

The display panel can adjust the display orientation within 360°, and the configuration operation can be realized by three buttons on the panel;

High reliability circuit module with overload (over-current and over-voltage) protection and lightning protection;

Anti strong electromagnetic interference; High precision: accuracy $\pm 0.05\%$, maximum accuracy $\pm 0.03\%$, maximum range compression ratio 100:1;

High stability: annual drift less than $\pm 0.05\%$, long-term drift less than $\pm 0.1\%/10$ years;

Ultra wide measurement range: 100Pa ~ 40MPa, up to 70MPa. Micro range pressure transmitter, one-way overpressure up to16MPa;

The integrated anti high pressure overload central diaphragm can increase the single side overpressure of differential pressure transmitter to the minimum of 16MPa, the maximum of 25MPa, and the bilateral overpressure can reach to 40MPa; Ultra high temperature pressure measurement: unique ultra-high temperature manufacturing process and remote transmitter can be applied to 700°C, high temperature working condition.

| tructure andworkingprinciple | 2 |
|-----------------------------------|----|
| Technical parameter | |
| Technical specifications | |
| select model | |
| nstrument wiring | 27 |
| Product size | |
| nstallation diagram | |
| recautions for installationanduse | |



Model No. JG3051

Structure and working principle

JG 3051 series pressure transmitter can be divided into: JG3051DP series differential pressure transmitter, JG3051GP series gauge pressure transmitter and JG5600AP series absolute pressure transmitter.

JG3051 DP differential pressure transmitter

JG3051DP differential pressure transmitter is mainly composed of personalized sensor components and central processing circuit module.

The personalized sensor components are mainly composed of corrosion-resistant flexible isolation diaphragm, sensor capsule, integrated anti-high-pressure overload central diaphragm, filling liquid, high-precision differential pressure sensor, high-resolution temperature sensor, sensor amplifier circuit, personalized information processing, compensation and personalized storage circuit.

The central processing circuit module is mainly composed of central processing circuit, anti-electromagnetic interference, lightning protection, input voltage limiting and output circuit.

The positive pressure end of the differential pressure sensor is connected with the high-pressure (H) cavity of the sensor capsule, and the negative pressure end is connected with the low-pressure (L) cavity of the sensor capsule. The middle adopts the anti-high-pressure overload central diaphragm isolation protection. The temperature sensor is used for the reference of temperature measurement and compensation of the sensor capsule The side flexible isolation diaphragm and filling liquid (silicone oil) are transmitted to the mono-crystalline silicon chip of differential pressure sensor, which makes the bridge of single crystal silicon chip unbalanced, and its resistance value changes, and outputs differential voltage signal, which is proportional to the detected pressure. The voltage signal is directly proportional to the detected pressure, and is subject to sensor amplification circuit, personalized information processing and temperature compensation after processing and adjusting, a standard analog signal and digital signal are output to DCS system.

JG3051 GP/AP gauge pressure/absolute pressure transmitter

JG3051GP/AP gauge pressure/absolute pressure transmitter is mainly composed of personalized sensor components and central-processing circuit module.

Personalized sensor components are mainly composed of Corrosion-resistant flexible isolation diaphragm, sensor capsule, filling-liquid, high-precision pressure sensor, high-resolution temperature sensor, sensor amplifier circuit, personalized information processing, compensation, personalized storage circuit.

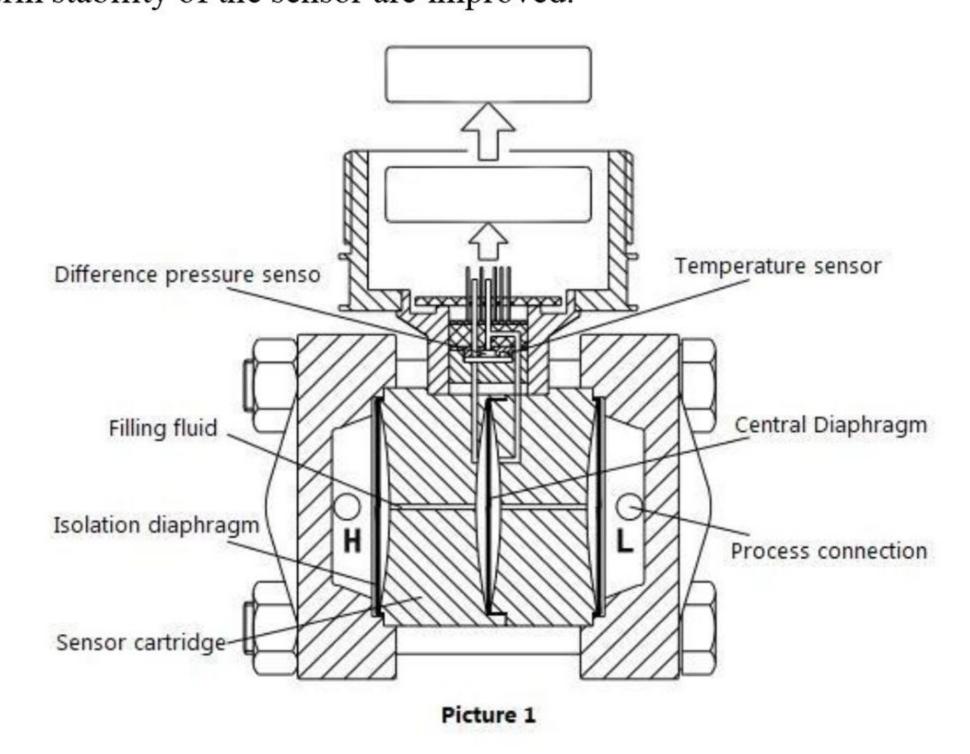
The central processing circuit module is mainly composed of central-processing circuit, anti-electromagnetic interference, lightning-protection, input voltage limiting and output circuit. The external medium pressure is transmitted to the silicon chip of pressure sensor through flexible isolation diaphragm and filling-liquid (silicone oil). The other end of pressure sensor is connected with atmosphere (for gauge pressure measurement) or vacuum (for absolute pressure measurement). Under the action of pressure, the bridge of mono-crystalline silicon chip will produce imbalance, and its resistance will change, and the differential voltage signal will be output.

The voltage signal is directly proportional to the detected pressure. After the sensor amplification circuit, personalized

It can meet the requirements of arbitrary replacement of personalized sensor components and central processing circuit module without recalibration.

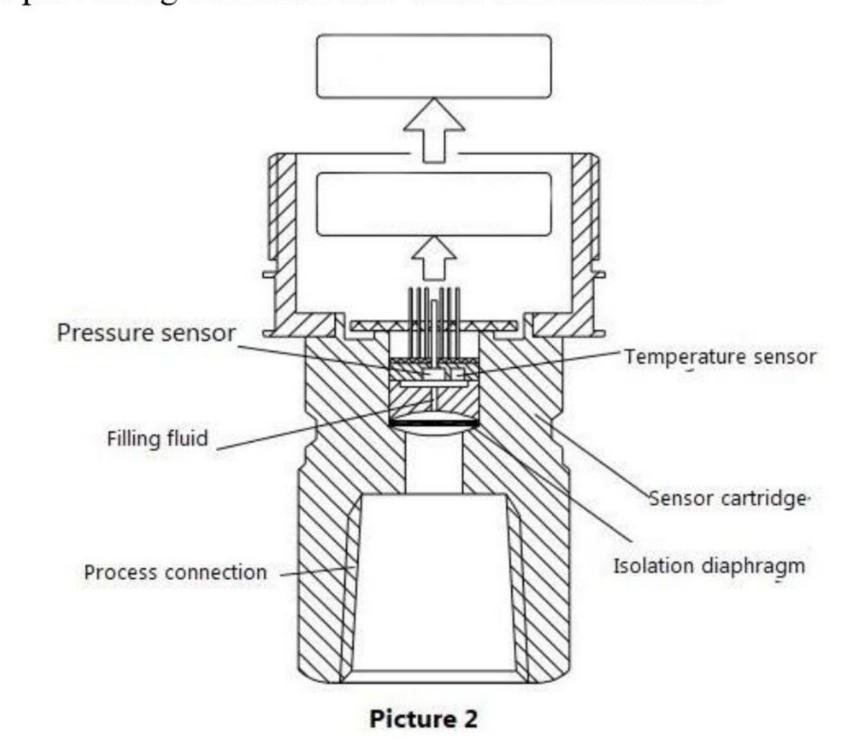
Diaphragm with resistance to high pressure overload center, when the mutation process, freezing expansion pressure (pressure shock), or a set of Tri-Valve Set mal-operation, sensor bellows hyperbaric chamber

(H) or low (L) cavity pressure rated range over the sensor, the deformation of diaphragm pressure to high pressure overload center, close to the sensor of the bellows fill liquid pressure opening, fast cut off filling liquid pressure conduction, to ensure that the sensor of mono-crystalline silicon chips are not broken down, a high-pressure shock partition and protection of no damage to the role of the differential pressure sensor, the sensor one-way overvoltage minimum can reach more than 16MPa, The performance, reliability and long - term stability of the sensor are improved.



Information-processing, temperature compensation and personalized-storage, SPI digital signal is output to the central processing circuit module.

After processing and adjusting, a standard analog signal and digital signal are output to DCS system. It can meet the requirements of arbitrary replacement of personalized sensor components and central-processing circuit module without recalibration.







Model No. JG3051

Technical specifications

General specifications

Product JG 3051 series pressure/differential pressure transmitter

Measurement parameters liquid, gas, steam

Turn down ratio 100:1

High-pressure cast aluminum or 304 stainless steel Housing material

Electrical connection 1/2 "NPT (F) or M 20×1.5

Electric

Two-wire 4~20 mADC, HART Output

General voltage 10. $5\sim45$ VDC intrinsically safe voltage 10. $5\sim26$ VDC Input voltage

Load resistance $250\sim600~\Omega$ (DC 24V, including cable resistance)

below 0.55 mF Load capacitance below 3.3 mH Load inductance

Power line spacing 150mm or more (please avoid parallel wiring) Upper limit of 20.8mA, lower limit of 3.8mA Saturation current

Upper limit 20.8mA, lower limit 3. 8mA (mode can be reset) Alarm current

Zero and full-scale points can be adjusted in-situ with three keys or can be configured with Adjustment function

it can be moved within the range of -20% to 20% of the maximum range. Zero shift

Linear output, square root output (can be adjusted remotely through configuration software) Output In line with IEEE standard 587 B class 1kV peak 10×100s, 3kV peak 8×20s, 6kV peak 1.2×50s Transient voltage terminal In line with IEEE standard 472 overvoltage tolerance SWC 2.5KV peak, 1MHz waveform

resistance

Surroundings -40~185°F (-40~85°C) Fluorine oil filling -40 to 140°F (-40 to 60°C) Ambient temperature

-40~194°F (-40~90°C) Storage temperature $-40\sim302$ °F ($-40\sim150$ °C) Process temperature DIN 40040 GPC

Weather ability

Measuring performance

 $0 \sim 700 \text{bar} (0 \sim 70 \text{MPa})$ Range Maximum $0 \sim 1000 \text{bar} (0 \sim 100 \text{MPa})$ Pressure

≥50%, reference accuracy Square root

Output accuracy 50 %~ falling point reference accuracy × 50/square root output (%)

 $\pm 0.005\% / 1V$ Power supply effect

 \pm (0. 05% of range + 0. 09% of upper limit of range) Ambient temperature effect Line pressure effect \pm (0. 025% of range + 0. 05% upper limit of range)/3.4MPa

the annual drift is less than $\pm 0.05\%$, of the upper limit of the range 0. 1%/10years Long term stability

Total Response time 90ms

The constant can be adjusted from 0 to 32.0 seconds Damping time

Explosion-proof certification

American factory mutual FM **ATEX European Certifications**

NEPSI National instrument explosion-proof safety supervision and inspection station

SIL Single sets meet SIL2 safety requirements redundant use meets SIL3 safety requirements

Machinery

316L, Hastelloy, Tantalum, Gold plating, PTFE Isolating diaphragm fluororubber, PTEF-encapsulated silastic O-ring

Silicone oil, high temperature silicone oil, vegetable oil, fluorine oil and others (according to Fill fluid

customer application)

Process connection style 1/4-18 NPT, 1/2-14 NPT

Product weight: 2.6~3.2kg

Influence of installation Changes in the installation position parallel to the diaphragm surface will not cause zero drift. If position

the installation position and the diaphragm surface change by more than 90° Zero drift in the

range of 0.4kPa can be corrected by zeroing

Allowed load resistance $0\sim600\Omega$ (at 24V DC) Note: When communicating with a handheld communicator, a

Standard load (250 Ω) resistance is required

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

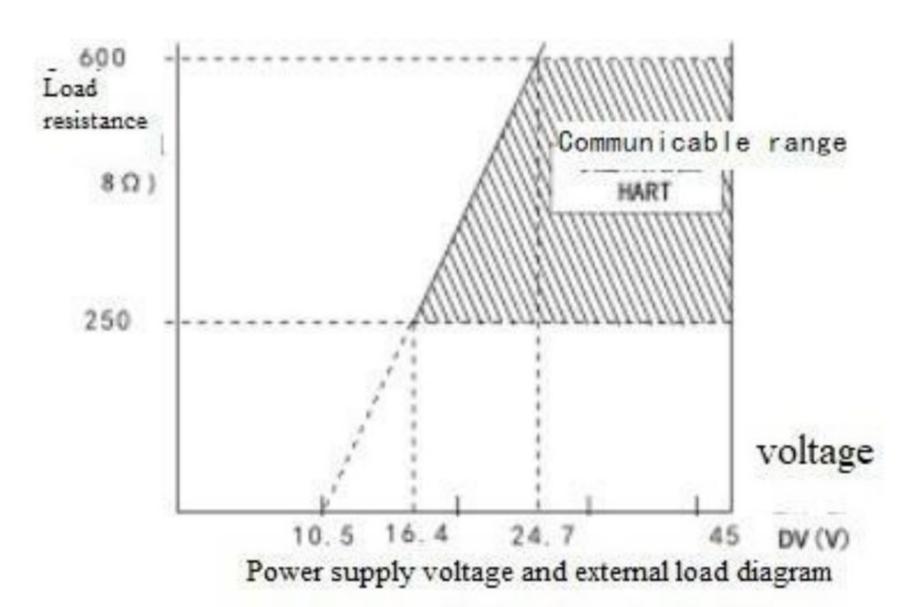
Model No. JG3051

Communication line conditions Line length, up to 2000mm (Twisted-pair cable is used when the 0.75 to 1.25mm² cable exceeds 1000mm)

Product weight: 2.6~3.2kg
Protection class IP67/IP68

Electromagnetic compatibility Amendments to EN 61326-1 (1997), specific to workplace, if installed in metal containers or

stationary pipes, are specified for A Class 1 equipment.



Temperature limit (1) Coefficient of 77°F 77°F Direct mount with Direct mount with Filling fluid (25°C) $(25^{\circ}C)$ thermal Direct mount 50 mm Thermal Optimizer Capillary 100mm Viscosity expansion Specific (2 inches) (4 inches) (cc/cc/°C) (Centimeter) gravity extension extension 200 silicone oil 0.00108 9.5 0.93 $-49 \sim 401 ^{\circ} F$ $-49 \sim 401 ^{\circ} F$ $-49 \sim 401 \, ^{\circ} \text{F}$ -49~401°F -49~401°F $(-45\sim205^{\circ}C)$ $(-45 \sim 205 ^{\circ}\text{C})$ $(-45 \sim 205 ^{\circ}\text{C})$ $(-45 \sim 205 ^{\circ}\text{C})$ $(-45\sim205^{\circ}C)$ 704 silicone oil 0.00095 32~464°F (2) 32~599°F 1.07 44 $32\sim401^{\circ}F(2)$ 32 ∼500 °F 32~599°F $(0\sim315^{\circ}C)$ $(0\sim 205^{\circ}\text{C})$ $(0\sim 240^{\circ}\text{C})$ $(0 \sim 260^{\circ}\text{C})$ $(0\sim315^{\circ}\text{C})$ Inert filling fluid 1.85 0.000864 6.5 -49∼320°F -49∼320°F $-49 \sim 320^{\circ} F$ $-49 \sim 320 \, ^{\circ} \text{F}$ $-49 \sim 320 \, ^{\circ}\text{F}$ (Halogenated $(-45 \sim 160 ^{\circ}\text{C})$ $(-45 \sim 160 ^{\circ}\text{C})$ $(-45 \sim 160 ^{\circ}\text{C})$ $(-45 \sim 160 ^{\circ}\text{C})$ $(-45 \sim 160^{\circ}\text{C})$ hydrocarbon) Syltherm R XLT 0.85 0.001199 1.6 -102~293°F -102∼293°F -102∼293°F -102∼293°F $-102 \sim 293$ °F Silicone oil $(-75 \sim 145^{\circ}C)$ $(-75 \sim 145 ^{\circ}\text{C})$ $(-75 \sim 145 ^{\circ}\text{C})$ $(-75 \sim 145 ^{\circ}\text{C})$ $(-75 \sim 145 ^{\circ}\text{C})$ Glycerin and water 1.13 0.00034 12.5 5~203°F 5~203°F 5~203°F 5~203°F 5~203°F mix Liquid (3) (4) $(-15 \sim 95 ^{\circ}\text{C})$ $(-15 \sim 95 ^{\circ}\text{C})$ $(-15 \sim 95 ^{\circ}\text{C})$ (-15∼95°C) $(-15 \sim 95 ^{\circ}\text{C})$ Propylene glycol and 1.02 2.8 0.00034 $5\sim 203^{\circ}\text{F}$ (2) 5~203°F 5~203°F 5~203°F 5~203°F water Liquid mixture $(-15 \sim 95^{\circ}C)$ $(-15 \sim 95 ^{\circ}\text{C})$ (-15∼95°C) $(-15 \sim 95 ^{\circ}\text{C})$ $(-15 \sim 95 ^{\circ}\text{C})$ (3)(4)9.8 0.92 0.001008 Neobee M-20 (4) 5~401°F 5~401°F 5~401°F 5~401°F 5~437°F (-15~205°C) (-15~225°C) (-15~225°C) (-15~225°C) (-15~225°C)

Filling liquid specifications

Picture3

Note:

- (1). The temperature limit is reduced in a vacuum environment and may be limited by the choice of seals.
- (2). The maximum process temperature is limited by the thermal conductivity of the transmitter. When the ambient temperature exceeds 77°F (25°C) it must be further reduced.
- (3). Not suitable for vacuum applications.
- (4).Food-grade filling liquid.





Model No. JG3051

Specifications

GP/AP pressure transmitter:

| Range | kPa/MPa | inH ₂ O | mbar | mmH ₂ O | Breaking pressure (MPa) |
|-------------|-------------|----------------------------------|------------------------------|------------------------------------|-------------------------|
| -40~40kPa | -40~40kPa | -160~160 | -400~400 | -4000~4000 | 10 |
| -100~400kPa | -100~400kPa | -400~1600 | -1000~4000 | $-10000 \sim 40 \times 10^3$ | 10 |
| -0.1∼4MPa | -0.1~4MPa | -400 \sim 16 × 10 ³ | $-1000\sim40\times10^{3}$ | $-10000 \sim 400 \times 10^3$ | 20 |
| -0.1~10MPa | -0.1~10MPa | $-400\sim40\times10^3$ | $-1000 \sim 100 \times 10^3$ | $-10000 \sim 1000 \times 10^3$ | 40 |
| -0.1~40MPa | -0.1~40MPa | $-400 \sim 160 \times 10^3$ | $-1000\sim400\times10^{3}$ | -10000 \sim 4000×10^3 | 60 |
| -0.1~70MPa | -0.1~70MPa | $-400 \sim 280 \times 10^3$ | $-1000 \sim 700 \times 10^3$ | $-10000 \sim 7000 \times 10^3$ | 100 |

DP differential pressure transmitter:

| Range | kPa/MPa | inH ₂ O | mbar | mmH ₂ O | Unilateral overpressure (MPa) | Bilateral overpressure (MPa) |
|-------------|-------------|--|--|---|-------------------------------|------------------------------------|
| -1∼1kPa | -1∼1kPa | -4~4 | -10~10 | -100~100 | 16 | 40 |
| -6∼6kPa | -6∼6kPa | -24~24 | -60~60 | -600~600 | 16 | 40 |
| -40~40kPa | -40~40kPa | -160~160 | -400~400 | -4000~4000 | 25 | 40 |
| -100~100kPa | -100~100kPa | -400~400 | -1000~1000 | -10000~10000 | 25 | 40 |
| -400~400kPa | -400~400kPa | -1600~1600 | -4000~4000 | -40000~40000 | 25 | 40 |
| -4~10MPa | -4~10MPa | -16×10^3 $\sim 16 \times 10^3$ | -40×10^3 $\sim 40 \times 10^3$ | -400×10^3 $\sim 1000 \times 10^3$ | 25 | 40 |

L single flange level transmitter:

| Range | kPa/MPa | inH ₂ O | mbar | mmH ₂ O | Unilateral overpressure (MPa) | Bilateral overpressure (MPa) |
|-------------|-------------|--------------------|------------|--------------------|-------------------------------|------------------------------|
| -40∼40kPa | -40∼40kPa | -40~160 | -400~400 | -4000~4000 | 25 | 40 |
| −100~100kPa | −100~100kPa | -400~400 | -1000~1000 | -10000~10000 | 25 | 40 |
| -400∼400kPa | −400~400kPa | -1600~1600 | -4000~400 | -40000~40000 | 25 | 40 |





Model No. JG3051

Order selection

| Model code | JG 3051 series pressure/JG 3051 differential pressure transmitter | | |
|------------|---|--------------------|----|
| model | Product Series | | |
| JG3051 | Pressure/differential pressure transmitter | | |
| Code | Type | | |
| GP- | Gauge | | * |
| AP- | Absolute pressure | | |
| Code | Range | | |
| 1 | 0∼40kPa | | |
| 2 | 0∼400kPa | | * |
| 3 | 0∼4MPa | | * |
| 4 | 0∼10MPa | | |
| 5 | 0~40MPa | | |
| 6 | 0~70MPa (special inquiry) | | |
| Code | output | | |
| Н | 4∼20mA HART | | * |
| P | PROFIBUSPA | | |
| F | FF | | |
| W | Wireless HART | | |
| Code | Process connection | | |
| 1 | 1/2"-14NPT (F) | | * |
| 2 | $M 20 \times 1.5 (M)$ | | |
| 3 | G 1/2"pipe (M) | | |
| 4 | 1/2"-14NPT (M) | | |
| Code | Electrical Interface | | |
| N | 1/2"-14NPT (F) | | * |
| M | $M20 \times 1.5$ (F) | | * |
| Code | Wetted Material | | |
| | Isolation diaphragm | Process connection | |
| 2 | 316L | 316L | ** |
| 3 | Hastelloy C-276 | 316L | |
| 4 | Hastelloy C-276 | Hastelloy C-276 | |
| 5 | Tantalum | 316L | |
| 6 | Gold-plated | 316L | |
| Code | Filling fluid | | |
| S | silicone oil | | * |
| F | fluorine oil | | |
| | | | |









Model No. JG3051

| Additional options(continued) |
|--|
| is connected to the isolation component |
| Equipped with two valve groups |
| Carbon steel mounting bracket |
| Stainless steel mounting bracket |
| NEPSI Explosion-proof Exd |
| NEPSI Intrinsically Safe Exia |
| FM Explosion-proof Exd |
| FM Intrinsically Safe Exia |
| ATEX Explosion-proof Exd |
| ATEX Intrinsically Safe Exia |
| External transient protection |
| Skim |
| Stainless steel housing |
| Explosion-proof metal gland |
| High accuracy0.03% |
| High temperature type (max. Temperature 200°C) |
| Provides material certification |
| Provide SIL certification |
| |

Typical model

| Product | Pressure | Measuring | output | Process | Electrical | Wetted | Filling fluid | Option 1 | Option 2 |
|-------------|----------|-----------|------------------|--------------------|--------------------|----------|---------------|---------------------|----------|
| Series | type | range | | connection | Interface | material | | | |
| JG5600 | GP | 2 | Н | 1 | N | 2 | S | D1 | SK |
| Description | Gauge | 0∼400 kPa | 4∼20 m A HART | 1/2 "-14NPT (F) | 1/2 "-14NPT (F) | 316 L | Silicone oil | Explosion- proof | Skim |

Selection considerations

Pressure transmitter factory accuracy: 0.05% standard HART communication protocol; The factory precision of the absolute pressure transmitter: 0.2% standard HART communication protocol;

SK option should be used for oxygen, while fluorine oil filling should be selected for isolation liquid. Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa.

Select the Explosion-proof option standard with 304 blind plug, explosion-proof metal gran head should be selected;

Standard pressure class PN160;

Note: The ***** is marked as a regular option.

The measuring range is the upper and lower limit range of the measuring sensor, and the selection of engineering range should not exceed this range;

If required to connect to remote isolation module, process interface, diaphragm material, filling fluid are selected according to the general option.

The ambient temperature of fluorinated oil is -10°C ~ 60°C;

The absolute pressure transmitter with remote transmission isolation module should be designed to prevent vacuum.



Model No. JG3051

| Model code | JG 3051 series pressu | re/JG3051 differential pressure transmitter | | | | | |
|------------|-----------------------|---|--------------------|----------|--|--|--|
| model | Product Series | | | | | | |
| JG 3051 | Pressure/differential | pressure transmitter | | | | | |
| Code | Туре | | | | | | |
| DP- | Differential pressure | | | | | | |
| Code | Range | | | | | | |
| 1 | 0∼40kPa | | | | | | |
| 2 | 0∼400kPa | | | ** | | | |
| 3 | 0∼4MPa | | | * | | | |
| 4 | $0\sim 10 \text{MPa}$ | | | | | | |
| 5 | $0\sim$ 40MPa | | | | | | |
| 6 | 0∼70MPa (special | inquiry) | | | | | |
| Code | output | | | | | | |
| H | 4∼20mA HART | | | * | | | |
| P | PROFIBUSPA | | | | | | |
| F | FF | | | | | | |
| W | Wireless HART | | | | | | |
| Code | Process connection | | | | | | |
| 1 | 1/2"NPT (M) | | | | | | |
| 2 | 1/4"-18NPT (F) | | | * | | | |
| 3 | 1/2"-14NPT (M) | | | | | | |
| Code | Electrical Interface | | | | | | |
| N | 1/2"-14NPT (F) | | | ※ | | | |
| M | $M20 \times 1.5 (F)$ | | | * | | | |
| Code | Wetted Material | | | | | | |
| | Isolation diaphragm | | Process connection | | | | |
| 2 | 316L | | 316 | * | | | |
| 3 | Hastelloy C-276 | | 316 | | | | |
| 4 | Hastelloy C-276 | | Hastelloy C-276 | | | | |
| 5 | Tantalum | | 316 | | | | |
| 6 | MONEL metal | | 316 | | | | |
| 7 | Gold-plated | | 316 | | | | |
| 8 | other | | other | | | | |
| Code | Filling fluid | | | | | | |
| S | silicone oil | | | * | | | |
| F | fluorine oil | | | | | | |







Model No. JG3051

| Code | Additional options(continued) | | | | | |
|------|--|--|--|--|--|--|
| S1 | Connect to 1 piece remote isolation unit (directly installed or with capillary tube) | | | | | |
| S2 | Connect to 2-piece remote isolation assembly (mounted directly or with capillary) | | | | | |
| S3 | Equipped with three valve groups | | | | | |
| S5 | Equipped with five valve groups | | | | | |
| B1 | Carbon steel mounting bracket | | | | | |
| B2 | Stainless steel mounting bracket | | | | | |
| D1 | NEPSI Explosion-proof Exd | | | | | |
| I1 | NEPSI Intrinsically Safe Exia | | | | | |
| D2 | FM Explosion-proof Exd | | | | | |
| I2 | FM Intrinsically Safe Exia | | | | | |
| D3 | ATEX Explosion-proof Exd | | | | | |
| I3 | ATEX Intrinsically Safe Exia | | | | | |
| T1 | Built-in wiring terminals for overcurrent, overvoltage and lightning protection | | | | | |
| SK | Skim | | | | | |
| SS | Stainless steel housing | | | | | |
| EG | Explosion-proof metal gland | | | | | |
| HA | High accuracy 0.03% | | | | | |
| OM | O-ring material coated with FEP silicone rubber (anticorrosive and organic solvent) | | | | | |
| MC | Provides material certification | | | | | |
| SL | Provide SIL certification | | | | | |
| | | | | | | |

Typical model

| Product Series | Type | Range | output | Process connection | Electrical Interface | Wetted material | | Option 1 | Option 2 | Option 3 |
|-------------------|--------------|-----------------|------------------|---------------------|-------------------------|--------------------|--------------|--|---------------|---|
| JG3051 | DP | 4 | Н | 1 | N | 2 | S | B1 | D1 | T1 |
| Description | Differential | -100~ 100kPa | 4∼20 m A HART | 1/4 "-18 NPT (F) | 1/2 "-14 NPT (F) | 316 L | Silicone oil | Carbon steel mounting bracket | NEPSI Ex d | Overcurrent, overvoltage lightning protection |

Selection considerations

When the process connection is 1/2 "-14NPT (F), the factory is equipped with elliptical flange, material 316;

Differential pressure sensors with measuring range of 6 kPa and 1 kPa are used to measure the pressure. The measured pressure is connected to the H side, and the L side is equipped with stainless steel noise-cancelling plug to prevent the influence of instantaneous change of environmental pressure on the measurement. Differential pressure transmitter factory accuracy 0. 5%, standard with HART communication protocol. The factory precision of 1kPa range section is 0.2% (range ratio \leq 2) and 0.5% (range ratio \leq 10). Factory precision of 6kPa range section: 0.05% (range ratio \leq 4), 0.2% (range ratio \leq 10), 0.5% (range ratio \leq 20);

Select the Explosion-proof option standard equipped with 304 blind plug, explosion-proof metal gran head should be selected; Standard pressure grade PN160;

The ambient temperature of fluorinated oil is -10°C ~60°C; The standard sealing ring is fluororubber (Viton). OM is selected for the application of ammonia, liquid ammonia and organic solvent, and PTEF-encapsulated rubber ring (liquid FEP) is adopted.

For oxygen, SK should be selected, while the isolation liquid should be filled with fluorine oil. The operating temperature should not exceed 60°C, and the operating pressure should not exceed 5MPa;

Note: The ***** is marked as a regular option.

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افیاکو)



EFSACO-under License of JINGE

Model No. JG3051

| Model code | JG 3051 series pressure/JG 3051 differential pressure transmitte | r | |
|------------|--|-----------|----|
| model | Product Series | | |
| JG 3051 | Pressure/differential pressure transmitter | | |
| Code | Pressure type | | |
| L- | Single flange liquid level | | |
| Code | Range | | |
| 1 | -40~40kPa | | |
| 2 | -100~400kPa | | * |
| 3 | -400~400kPa | | |
| Code | output | | |
| Н | 4∼20mA HART | | * |
| P | PROFIBUSPA | | |
| F | FF | | |
| W | Wireless HART | | |
| Code | Process connection | | |
| 1 | 1/4"-18NPT (F) | | * |
| 2 | 1/2"-14NPT (M) | | |
| Code | Electrical Interface | | |
| N | 1/2"-14NPT (F) | | ** |
| M | $M20 \times 1.5 (F)$ | | * |
| Code | Flange standard | | |
| A | ASME B16.5 | | * |
| E | EN 1092-1 | | * |
| Code | Flange diameter | | |
| | ASME B16.5 | EN 1092-1 | * |
| A | 2" | DN50 | * |
| В | 3" | DN80 | ** |
| C | 4" | DN100 | ** |
| Code | Pressure Level | | |
| | ASME B16.5 | EN1092-1 | |
| 1- | 150lb | PN10/16 | ** |
| 2- | 300lb | PN25/40 | ** |
| 3- | 600lb | PN63 | |
| Code | Flange body material | | |
| -S | 304 | | ** |
| -D | 316 | | * |
| -L | 316L | | * |
| -Z | Other | | |
| | | | |











Model No. JG3051

| Code | Diaphragm material (continued from previous page) | | |
|------|---|-----------|----|
| L | 316L | | * |
| Н | C-276 | | |
| I | Ti | | |
| D | Duplex 2205 sst | | |
| U | Duplex 2507 sst | | |
| T | Ta | | |
| M | MONEL 400 | | |
| N | Ni | | |
| G | MONEL 400 | | |
| Z | other | | |
| Code | Sealing surface | | |
| R | Raised Face | | * |
| M | M Face | | |
| F | F Face | | |
| J | RJ Face | | |
| T | T-mortise | | |
| G | Groove Face | | |
| Code | Filling fluid | | |
| A | Syltherm XLT | -75∼145°C | |
| C | 704 silicone oil | 0~315°C | |
| D | 200 silicone oil | -45∼205°C | ** |
| Н | Fluorine oil | -45∼160°C | |
| G | Glycerine aqueous solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Extend section length | | |
| | ASME B16.5 | EN1092-1 | |
| 1 | NO | | |
| 2 | 2" | 50mm | |
| 4 | 4" | 100mm | |
| 6 | 6" | 150mm | |
| 8 | 8" | 200mm | |
| Z | customization | | |

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

| Code | Additional options(continued) |
|---------------------|--|
| S1 | Connect to 1 piece remote isolation unit (directly installed or with capillary tube) |
| D1 | NEPSI Explosion-proof Exd |
| I 1 | NEPSI Intrinsically Safe Exia |
| D2 | FM Explosion-proof Exd |
| I2 | FM Intrinsically Safe Exia |
| D3 | ATEX Explosion-proof Exd |
| I3 | ATEX Intrinsically Safe Exia |
| T1 | Built-in wiring terminals for overcurrent, overvoltage and lightning protection |
| SK | Skim |
| SS | Stainless steel housing |
| MC | Provides material certification |
| SL | Provide SIL certification |

Typical model

| Product Series | Type | Range | Output | Electrical Interface | IH Ian Ge | Flange diameter | Pressure Level | Flange body materia 1 | Diaphr agm material | Sealing surface | Filling | | Selectio n 1 |
|-------------------|-------------------------------------|----------|---------------------|-------------------------|-----------------|--------------------|-------------------|--------------------------------|---------------------------|----------------------|------------------------|----|-----------------|
| JG 3051 | L | 3 | Н | N | A | В | 1 | -L | Н | R | D | 1 | SK |
| Description | Single flange transmitt er | 0~400kPa | 4∼20 m A HART | 1/2 "-14 NPT (F) | ASME B 16. 5 | 3 " | 150 lb | 316 L | C- 276 | RF Protrusi on | 200 silicone oil | no | Skim |

Selection considerations

Single flange transmitter factory precision 0.05% ~0.15%, standard HART communication protocol;

For oxygen application, SK option should be selected, while fluorine oil filling should be selected for isolation liquid. Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa;

Select the Explosion-proof option standard with 304 blind plug, explosion-proof metal gran head should be selected;

Note: The ***** is marked as a regular option.

With the Option of S1, order an additional piece of remote isolation module with capillary tube to form a double-flange level transmitter directly mounted on the High side;

The ambient temperature of fluorinated oil is -10°C~60°C.



Model No. JG3051

Remote transmission technical data

Features

The measured pressure is transmitted from the diaphragm to the filling liquid and then directly or indirectly through the capillary tube to the pressure transmitter measurement chamber. The diaphragm and capillaries and the measuring chamber of the transmitter are filled with filling fluid without gas.

Transmit response

The transmission response characteristics of remote transmission sealing components are as follows:

- Temperature error
- Adjustment time

Temperature error

Temperature errors are caused by changes in the filling fluid and temperature changes. The selection of a suitable remote seal must calculate the temperature error. Below is an overview of the effects of temperature errors and how to calculate them. The following conditions can cause temperature errors:

- Diaphragm stiffness
- Filling fluid used
- Influence of filling fluid at process flange or pressure transmitter connection rod.
- Capillary inner diameter: The larger the inner diameter, the greater the temperature error
- Capillary length: The longer the capillary, the greater the temperature error

Diaphragm stiffness

The stiffness of the diaphragm has a decisive effect. The larger the diameter of the diaphragm, the softer it is, the more sensitive the filled liquid is to temperature, and the smaller the temperature error is. Therefore, for small range applications, a larger diameter diaphragm must be selected. In addition to the stiffness of the diaphragm, other factors also have important effects:

- Diaphragm thickness
- Diaphragm material
- coating

Filling fluid

Each filling fluid has a different sensitivity to temperature. The temperature error can be reduced by selecting a suitable filling liquid, but the filling liquid should have a suitable temperature range and working pressure. In addition, the filling liquid must not be harmful to the human body. Since the filling fluid is located under the diaphragm, in the capillary tube and in the transmitter process flange (or in the connecting rod), the temperature error must be calculated separately.

For low pressure applications and commissioning, it is recommended to use a vacuum protective diaphragm remote transmission seal assembly.

Diaphragm type



Flush Flange Seals (FFW)



Flush Small Flange Seals (RFW)



Extended Flange Seals (EFW)



Flat seals (PFW)



Threaded seal (RTW)

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

Model code JG3051 series remote transmission isolation module

| Model | Series | | |
|----------|--------------------------------------|-----------|------------|
| G 3051 | Remote transmission isolation module | | |
| Code | Diaphragm type | | |
| FFW- | Flush flange seal | | |
| Code | Flange Standard | | |
| A | ASME B16.5 | | ** |
| E | EN1092-1 | | ** |
| Code | Flange diameter | | |
| | ASME B16.5 | EN1092-1 | |
| A | 1" | DN25 | |
| В | 1 1/2" | DN40 | |
| C | 2" | DN50 | * |
| D | 2 1/2" | DN65 | |
| Е | 3" | DN80 | ** |
| F | 4" | DN100 | |
| Z | Specific | | |
| Code | Pressure Level | | |
| | ASME B16.5 | EN 1092-1 | |
| 1 | 150 lb | PN10/16 | * |
| 2 | 300lb | PN25/40 | ** |
| 3 | | PN63 | |
| 4 | 600 lb | PN100 | |
| 5 | 900 lb | PN160 | |
| 6 | 1500lb | | |
| 7 | 2500lb | | |
| Code | Flange body material | | |
| S | 304 | | * |
| D | 316 | | ··· ··· |
| <u> </u> | 316L | | * |
| Z. | other | | |
| Code | Diaphragm material | | |
| T | 316L | | * |
| H | C-276 | | /··\ |
| Ī | Ti | | |
| D | Duplex 2205sst | | |
| U | Duplex 2203sst Duplex 2507 sst | | |
| Τ | Ta | | |
| M | MONEL 400 | | |
| N | Ni | | |
| G | 316 L gold-plated | | |
| Z | Other | | |



Flush Flange Seals (FFW)



Model No. JG3051

| Code | Sealing surface (continued from previous page) | | |
|--------|---|------------|----|
| R | Raised Face | | * |
| A | M Face | | |
| ₹ - | F Face | | |
| | RJ Face | | |
| 3 | Tongue Face Groove Face | | |
| Code | | | |
| A / | Filling fluid Syltherm VI T | 75 ~ 145°C | |
| A | Syltherm XLT | -75~145°C | |
| 2 | 704 silicone oil | 0~315°C | ×. |
| D | 200 silicone oil | -45~205°C | * |
| H | Fluorine oil | -45∼160°C | |
| G | Glycerine solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Diaphragm position | | |
| DV/DL | Vertical direct mounting/horizontal direct mounting | | * |
| H | High side | | * |
| L | Low side | | |
| В | High and low side are the same | | * |
| Code | Capillary | | |
| XX | Capillary length (m) <15m | | |
| Code | Options | | |
| GO | Diaphragm gold plating | | |
| PV | Capillary coated PVC | | |
| T | Diaphragm thickening | 150µm | |
| CP | Diaphragm coated PTFE | | |
| SK | Skim | | |
| WR | Matching flushing ring | | |
| | | | |
| VP | VP anti-vacuum design | | |

Typical model

| Product Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange body material | Diaphrag m material | Sealing surface | Filling fluid | Diaphragm position | Capillar y | Option 1 |
|----------------|--------------------|--------------------|--------------------|-------------------|-------------------------|---------------------------|-----------------|------------------|--------------------------------------|---------------|-----------------------------|
| JG 3051 | FFW | A | Е | 2 | L | Н | R | D | DL | 03- | PV |
| Description | Flush diaphragm | ASME B 16. 5 | 3" | 300 lb | 316 L | C- 276 | RF | DC200 | Horizontal direct installation | 3m | Capillary coating PVC |

Selection considerations

Explosion-proof, high-temperature, high-vacuum requires full welding process;

0.05 mm diaphragm for DN25/DN40/DN50,0.1 mm diaphragm for DN80 /DN100;

When the working pressure is less than -50kPa, the remote transmission isolation component needs to be selected to prevent vacuum;

Select High side for single flange with capillary pressure transmitter;

Less than 5kPa is not recommended in the form of isolated components;

The longest capillary length of the isolation diaphragm

Note: The ***** is marked as a regular option.

2" is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;

The length is directly indicated when the capillary length is XX, and the unit is meter;

Diaphragm position option DV/DL for table pressure/absolute pressure (GP/AP), H, L, B for differential pressure (DP);

For oxygen use, SK option should be selected, while the isolating liquid should be filled with fluorine oil.

Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa.





Model No. JG3051

Model code JG 3051 series remote transmission isolation module

| Model | Series | | |
|---------|--------------------------------------|-----------|----|
| JG 3051 | Remote transmission isolation module | | |
| RFW- | Flush small flange seal | | |
| Code | Flange Standard | | |
| A | ASME B16.5 × | | |
| E | EN 1092-1 | | * |
| Code | Flange diameter | | |
| | ASME B16.5 | EN 1092-1 | |
| A | 1/2" | DN15 | |
| В | 3/4" | DN20 | * |
| C | 1" | DN25 | * |
| D | 1 1/2" | DN40 | |
| Z | specific | | |
| Code | Pressure Level | | |
| | ASME B16.5 | EN1092-1 | |
| 1 | 150lb | PN10/16 | |
| 2 | 300lb | PN25 /40 | |
| 3 | | PN63 | |
| 4 | 600lb | PN100 | |
| 5 | 900lb | PN160 | |
| 6 | 1500lb | | |
| 7 | 2500lb | | |
| S- | 304 | | ** |
| D- | 316 | | * |
| L- | 316L | | ** |
| Z- | Other | | |
| Code | Diaphragm material | | |
| L | 316L | | * |
| Н | C-276 | | |
| I | Ti | | |
| D | Duplex 2205sst | | |
| U | Duplex 2507sst | | |
| T | Ta | | |
| M | MONEL400 | | |
| N | Ni | | |
| G | 316L gold-plated | | |
| Z | Other | | |



Flush Small Flange Seals (RFW)



Model No. JG3051

EFSACO

| Code | Sealing surface (continued from previous page) | | |
|------------|---|-----------|----|
| R | Raised Face | | * |
| M | M Face | | |
| F | F Face | | |
| J | RJ Face | | |
| T | Tongue Face | | |
| G | Groove Face | | |
| Code | Filling fluid | | |
| A | Syltherm XLT | -75∼145°C | |
| C | 704 silicone oil | 0~315°C | |
| D | 200 silicone oil | -45∼205°C | * |
| Н | Fluorine oil | -45∼160°C | |
| G | Glycerine solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Diaphragm position | | |
| DV/DL | Vertical direct mounting/horizontal direct mounting | | ** |
| H | High side | | * |
| L | Low side | | |
| В | High and low side are the same | | * |
| Code | Capillary | | |
| XX | Capillary length (m) <15m | | |
| Code GO | Options Diaphragm gold plating | | |
| PV | Capillary coated PVC | | |
| IT | Diaphragm thickening | 150μm | |
| CP | Diaphragm coated PTFE | | |
| SK | Skim | | |
| WR | Matching flushing ring | | |
| VP | VP anti-vacuum design | | |

Typical model

| Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange body material | Diaphragm material | Sealing surface | Filling fluid | Diaphragm position | Capillar y | Option 1 |
|-------------|--------------------|--------------------|--------------------|-------------------|-------------------------|-----------------------|------------------|------------------------|--------------------------------|---------------|-----------------------|
| JG 3051 | FFW | A | Е | 2 | L- | Н | R | D | DV | 05- | PV |
| Description | Flush diaphragm | ASME B 16. 5 | 3 " | 300 lb | 316 L | C- 276 | RF protrusion | 200 silicone oil | Horizontal direct installation | 5m | Capillary coating PVC |

Selection considerations

Explosion-proof, high-temperature and high-vacuum requirements adopt all-welding process;

Diaphragm 0.05mm for DN25/DN40/DN50,diaphragm0.1mm for DN80/DN100;

When the working pressure is < -50kPa or absolute pressure transmitter is equipped with remote transmission isolation module, anti-vacuum design should be selected;

Single flange with capillary pressure transmitter select High side;

Less than 5kPa is not recommended in the form of isolated components;

The longest capillary length of the isolation diaphragm 2"is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;

Note: The ***** is marked as a regular option.

The length of capillary is directly indicated when X is selected, and the unit is meter;

Diaphragm position option DV/DL for gauge pressure/absolute pressure (GP/AP), H\L\B for differential pressure (DP);

The length is directly indicated when the capillary length is XX, and the unit is meter;

For oxygen use, SK option should be selected, while the isolating liquid should be filled with fluorine oil. Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa.

The longest capillary length of the isolation diaphragm 2"is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;





Model No. JG3051

Model code JG 3051 series remote transmission isolation module

| Model | Series | | | |
|----------------|------------------------------------|-----------|----------------|-------------|
| JG 3051 | Remote transmission isolation i | nodule | | |
| Code | Diaphragm type | | | |
| EFW- | Flush small flange seal | | | |
| Code | Flange Standard | | | |
| A. | ASME B16.5 | | | |
| Ξ | EN 1092-1 | | | * |
| Code | Flange diameter | | | |
| | ASME B16.5 | EN 1092-1 | Extension diam | eter |
| 1 | 1 1/2" | DN40 | φ37.5 | |
| 3 | 2" | DN50 | φ48 | * |
| | 2 1/2" | DN65 | φ58 | |
|) | 3" | DN80 | φ71 | * |
| E | 4" | DN100 | φ94 | |
| Code | Pressure Level | | | |
| | ASME B16.5 | | EN 1092-1 | |
| | 150 lb | | PN10/16 | ** |
| | 300lb | | PN25/40 | * |
| _ | | | PN63 | |
| | 600 lb | | PN100 | |
| | 900 lb | | PN160 | |
| | 1500lb | | | |
| | 2500lb | | | |
| Code | Flange body material | | | |
| - | 304 | | | |
|)- | 316 | | | |
| /- - | 316L | | | |
| <u>-</u> | other | | | |
| Code | Extension length | | | |
| | ASME B16.5 | EN 1092-1 | | \• / |
| | 2" | 50mm | | ** |
| | 4" | 100mm | | |
| | 6" | 150mm | | |
| * | 8" Carata an ana 1a | 200mm | | |
| | Custom made | | | |
| Code | Diaphragm material | | | * |
| , Г | 316L C 276 | | | * |
| | C-276 Ti | | | |
|) | | | | |
| T | Duplex 2205 sst Duplex 2507 sst | | | |
| | Ta | | | |
| ¶ | MONEL 400 | | | |
| J | Ni Ni | | | |
| ì | 316 L gold-plated | | | |
| | Other | | | |
| | Cuici | | | |



Extended Flange Seals (EFW)



Model No. JG3051

| Code | Sealing surface | | |
|--------------|---|-----------|----|
| R | Raised Face | | * |
| M | M Face | | |
| \mathbf{F} | F Face | | |
| J | RJ Face | | |
| T | Tongue Face | | |
| G | Groove Face | | |
| Code | Filling fluid | | |
| A | Syltherm XLT | -75∼145°C | |
| C | 704 silicone oil | 0~315°C | |
| D | 200 silicone oil | -45∼205°C | ** |
| Н | Fluorine oil | -45∼160°C | |
| G | Glycerine solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Diaphragm position | | |
| DV/DL | Vertical direct mounting/horizontal direct mounting | | ** |
| Н | High side | | ** |
| L | Low side | | |
| В | High and low side are the same | | ** |
| Code | Capillary | | |
| XX | Capillary length (m) <15m | | |
| Code | Options | | |
| GO | Diaphragm gold plating | | |
| PV | Capillary coated PVC | | |
| IT | Diaphragm thickening | 150μm | |
| CP | Diaphragm coated PTFE | | |
| SK | Skim | | |
| WR | Matching flushing ring | | |
| PE | Insert extension section with PTFE casing | | |
| VP | VP anti-vacuum design | | |
| VI | v i anu-vacuum uesign | | |

Typical model

| Product Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange Body material | | Diaphragm material | Sealing surface | Filling fluid | Diaphragm position | Capillar y | Option 1 |
|-------------------|------------------------|--------------------|--------------------|-------------------|-------------------------|-----|-----------------------|-----------------|---------------|--------------------|---------------|-----------------------|
| JG1 3051 | RFW- | A | D | 2 | L- | 4 | L | R | D | В | 06- | PV |
| Description | Extension flange Seals | ASME B 16. 5 | 3" | 300 lb | 316 L | 4 " | 316 L | RF | DC200 | Double side | 6m | Capillary coating PVC |

Selection considerations

Explosion-proof, high-temperature and high-vacuum requirements adopt all-welding process;

Diaphragm 0.05mm was used for DN25/DN40/DN50, and diaphragm 0.1mm was used for DN80/DN100.

When the working pressure is < -50kPa or absolute pressure transmitter is equipped with remote transmission isolation module, anti-vacuum design should be selected; Single flange with capillary pressure transmitter select High side;

Less than 5kPa is not recommended in the form of isolated components;

Note: The ***** is marked as a regular option.

The longest capillary length of the isolation diaphragm 2" is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;

The length is directly indicated when the capillary length is XX, and the unit is meter;

Diaphragm position option DV/DL for table pressure/absolute pressure (GP/AP), H, L, B for differential pressure (DP); For oxygen use, SK option should be selected, while the isolating liquid should be filled with fluorine oil. Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa.





Model No. JG3051

Model code JG 3051 series remote transmission isolation module

| Model | Series | | |
|---------|---------------------------------|-----------|----|
| JG 3051 | Remote transmission isolation m | odule | |
| Code | Diaphragm type | | |
| PFW- | Flat seal | | |
| Code | Flange Standard | | |
| A | ASME B16.5 | | * |
| E | EN 1092-1 | | * |
| Code | Flange diameter | | |
| | ASME B16.5 | EN 1092-1 | |
| A | 1" | DN25 | |
| В | 1 1/2" | DN40 | * |
| C | 2" | DN50 | ** |
| D | 2 1/2" | DN65 | |
| E | 3" | DN80 | ** |
| F | 4" | DN100 | |
| Z | Specific | | |
| Code | Pressure Level | | |
| | ASME B16.5 | EN 1092-1 | |
| 1 | 150 lb | PN10/16 | * |
| 2 | 3001b | PN25/40 | * |
| 3 | | PN63 | |
| 4 | 600 lb | PN100 | |
| 5 | 900 lb | PN160 | |
| 6 | 1500lb | | |
| 7 | 2500lb | | |
| Code | Flange body material | | |
| S- | 304 | | |
| D- | 316 | | |
| L- | 316L | | |
| Z- | other | | |
| Code | Diaphragm material | | |
| L | 316L | | ** |
| Н | C-276 | | |
| I | Ti | | |
| D | Duplex 2205sst | | |
| U | Duplex 2507sst | | |
| M | MONEL400 | | |
| G | 316 L gold-plated | | |
| Z | Other | | |
| | | | |



Flat seal



Model No. JG3051

| Code | Sealing surface (continued from previous page) | | |
|------|--|------------|----|
| R | Raised Face | | * |
| M | M Face | | |
| F | F Face | | |
| J | RJ Face | | |
| T | Tongue Face | | |
| G | Groove Face | | |
| Code | Filling fluid | | |
| A | Syltherm XLT | -75 ∼145°C | |
| C | 704 silicone oil | 0~315°C | |
| D | 200 silicone oil | -45∼205°C | ** |
| H | Fluorine oil | -45∼160°C | |
| G | Glycerine solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Diaphragm position | | |
| H | High side | | * |
| L | Low side | | |
| В | High and low side are the same | | * |
| Code | Capillary | | |
| XX | Capillary length (m) <15m | | |
| Code | Options | | |
| GO | Diaphragm gold plating | | |
| PV | Capillary coated PVC | | |
| IT | Diaphragm thickening | 150μm | |
| CP | Diaphragm coated PTFE | | |
| SK | Skim | | |
| WR | Matching flushing ring | | |

Typical model

VP

| Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange body material | Diaphra gm material | Sealing surface | Filling fluid | Diaphragm position | Capilla ry | Option 1 |
|-------------|-------------------|--------------------|--------------------|-------------------|----------------------------|---------------------------|--------------------|------------------|--------------------|---------------|------------------------------|
| JG3051 | PFW | A | Е | 2 | L | Н | R | D | Н | 02- | GO |
| Description | Flat diaphragm | ASME B 16. 5 | 3" | 300 lb | 316 L | C- 276 | RF protrusion | DC200 | High side | 2m | Diaphragm gold plating |

Selection considerations

Explosion-proof, high-temperature and high-vacuum requirements adopt all-welding process;

Diaphragm 0.05 mm was used for DN25/DN40/DN50, and diaphragm 0.1 mm was used for DN80/DN100.

VP anti-vacuum design

When the working pressure is < -50kPa or absolute pressure transmitter is equipped with remote transmission isolation module, anti-vacuum design should be selected;

Single flange with capillary pressure transmitter select High side;

Less than 5kPa is not recommended in the form of isolated components;

Note: The ***** is marked as a regular option.

The longest capillary length of the isolation diaphragm 2" is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;

The length is directly indicated when the capillary length is XX, and the unit is meter;

For oxygen use, SK option should be selected, while the isolating liquid should be filled with fluorine oil. Operating temperature should not exceed 60°C, and operating pressure should not exceed 5MPa.

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

Model code JG3051 series remote transmission isolation module

| Model | Series | | |
|---------|---------------------------------|------------|----------|
| JG 3051 | Remote transmission isolation m | odule | |
| Code | Diaphragm type | | |
| RTW- | Threaded seal | | |
| Code | Thread Standard | | |
| A | ASME B16.5 | | ** |
| E | EN 10226-1 | | * |
| Code | Process caliber | | |
| | ASME B1.20.1 | EN 10226-1 | |
| A | 1/2"-14NPT(F) | G1/2 " | * |
| В | 3/4"-14NPT(F) | | |
| C | 1"-11.5NPT(F) | | |
| D | 1 1/2"-11.5NPT(F) | | |
| Е | 1/2"-14NPT(M) | R1/2" | ** |
| F | 3/4"-14NPT(M) | | |
| G | 1"-11.5NPT(M) | | |
| Н | 1 1/2"-11.5NPT(M) | | |
| Z | Specific | | |
| Code | Pressure Level | | |
| | ASME B1.20.1 | EN 10226-1 | |
| 1 | 2500psi | 172bar | ※ |
| 2 | 5000psi | 344bar | |
| 3 | 10000psi | | |
| Code | Flange body material | | |
| S- | 304 | | |
| D- | 316 | | |
| L- | 316L | | |
| Z- | other | | |
| Code | Diaphragm material | | |
| L | 316L | | * |
| H | C-276 | | |
| I | Ti | | |
| D | Duplex 2205sst | | |
| U | Duplex 2507sst | | |
| M | MONEL400 | | |
| G | 316 L gold-plated | | |
| Z | Other | | |
| | | | |



Threaded seal



Model No. JG3051

| Code | Sleeve material (continued from previous page) | | |
|-------|---|-----------|----------|
| L | 316L | | |
| Н | C-276 | | |
| M | MONEL400 | | |
| I | Ti | | |
| D | Duplex 2205sst | | |
| U | Duplex 2507 sst | | |
| Z | Other | | |
| Code | Filling fluid | | |
| A | Syltherm XLT | -75∼145°C | |
| C | 704 silicone oil | 0~315°C | |
| D | 200 silicone oil | -45∼205°C | * |
| Н | Fluorine oil | -45∼160°C | |
| G | Glycerine solution | -15∼95°C | |
| N | Neobee M-20 | -15∼225°C | |
| P | Propylene glycol aqueous solution | -15∼95°C | |
| Code | Diaphragm position | | |
| DV/DL | Vertical direct mounting/horizontal direct mounting | | ※ |
| H | High pressure side | | |
| L | Low side | | |
| В | High and low side are the same | | ** |
| Code | Capillary | | |
| XX- | Capillary length (m) <15m | | |
| Code | Options | | |
| GO | Diaphragm gold plating | | |
| PV | Capillary coated PVC | | |
| IT | Diaphragm thickening | 150μm | |
| CP | Diaphragm coated PTFE | | |
| SK | Skim | | |
| WR | Matching flushing ring | | |
| VP | VP anti-vacuum design | | |

Typical model

| Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange body material | Diaphrag m material | Under material | Filling fluid | Diaphragm position | Capillary | Option 1 |
|-------------|-------------------|--------------------|---------------------|-------------------|-------------------------|---------------------------|-------------------|------------------|-----------------------|-----------|-----------------------|
| JG 3051 | RTW | A | В | 1 | S | Н | L | D | Н | 02- | PV |
| Description | Threaded seal | ASME B 1.20.1 | 3/4" -14 NPT (F) | 2500 psi | 304 | C- 276 | 316 L | DC200 | High side | 2 | Capillary coating PVC |

Selection considerations

Explosion-proof, high-temperature and high-vacuum requirements adopt all-welding process;

Diaphragm 0.05mm was used for DN25/DN40/DN50, and diaphragm 0.1mm was used for DN80/DN100.

When the working pressure is < -50kPa or absolute pressure transmitter is equipped with remote transmission isolation module, anti-vacuum design should be selected;

Single flange with capillary pressure transmitter select

Note: The ***** is marked as a regular option.

High-pressure side;

Less than 5kPa is not recommended in the form of isolated components;

The longest capillary length of the isolation diaphragm 2" is suggested to be 6m, and the longest capillary length of the isolation diaphragm 3" is suggested to be 15m;

The length is directly indicated when the capillary length is XX, the unit is meter.





Model No. JG3051

Model code JG3051 series remote transmission isolation module

| Model | Series | | |
|-------------|--------------------------------------|-----------|-----|
| JG 3051 | Remote transmission isolation module | | 192 |
| Code | Diaphragm type | | |
| ODW- | Integrated density seal | | |
| | | | |
| A | ASME B16.5 | | * |
| E | EN 1092-1 | | * |
| Code flange | | | |
| | ASME B16.5 | EN 1092-1 | |
| A | 3" | DN80 | |
| В | 4" | DN100 | ** |
| C | 5" | | |
| D | 6" | | |
| Z | Specific | | |
| Code | Pressure Level | | |
| | ASME B16.5 | EN 1092-1 | |
| 1 | 150 lb | PN10/16 | * |
| 2 | 3001b | PN25/40 | * |
| 3 | | PN63 | |
| 4 | 600 lb | PN100 | |
| 5 | 900 lb | PN160 | |
| 6 | 1500lb | | |
| 7 | 2500lb | | |
| Code | Flange body material | | |
| S- | 304 | | ** |
| D- | 316 | | ** |
| L- | 316L | | ** |
| Z- | other | | |
| Code | Support rod material | | |
| S | 304 | | ** |
| L | 316L | | |
| Н | C-276 | | |
| I | Ti | | |
| Code | Diaphragm material | | |
| L | 316L | | |
| H | C-276 | | |
| I | Ti | | |
| T | Ta | | |
| M | MONEL 400 | | |
| Z | other | | |
| Code | Diaphragm material | | |
| R | Raised Face | | * |
| M | M Face | | |
| F | F Face | | |
| J | RJ Face | | |
| T | Tongue Face | | |
| G | Groove Face | | |
| | | | |



Model No. JG3051

| Code | Filling fluid | | |
|---------|--|-------------|----|
| A | Syltherm XLT | -75 ∼ 145°C | |
| C | 704 silicone oil | 0 ~ 315°C | |
| D | 200 silicone oil | -45 ~ 205°C | ** |
| Н | Fluorine oil | -45 ∼ 160°C | |
| G | Glycerine solution | -15 ~ 95°C | |
| N | Neobee M-20 | -15 ~ 225°C | |
| P | Propylene glycol aqueous solution | -15 ~ 95°C | |
| Code | Mounting type | | |
| T | Top mounting | | * |
| D | Double flanged side mounting | | |
| S | Single flange side mounting | | ** |
| P | Pipe mounting | | |
| Code | Diaphragm spacing/Insertion depth | | |
| XXX/XXX | Diaphragm spacing/Insertion depth (mm) | | |
| Code | Option | | |
| -CP | Composed of PTFE | | |
| -SK | Degrease | | |
| ~ | B | | |

Typical model

| Series | Diaphragm type | Flange standard | Flange diameter | Pressure Level | Flange body material | Support rod material | Diaphragm material | Sealing surface | Filling fluid | Mounting type | Diaphra gm spacing | Option |
|-------------|-------------------|--------------------|--------------------|-------------------|-------------------------|-------------------------|-----------------------|--------------------|------------------|-----------------|--------------------------|----------|
| JG 3051 | PFW | A | E | 2 | L- | L | Н | R | D | T | 002 | -SK |
| Description | Flat Diahragm | ASME B 16. 5 | 4" | 300 lb | 316 L | 316L | C- 276 | RF | DC200 | Top mounting | 2 | Degrease |

Selection considerations

The correct position of the transmitter on the process pipe depends on the medium under test. In order to obtain the best installation, the following conditions should be considered:

Generally, flanges above DN80 are used in the process of top loading and single flange side loading. Flanges above DN50 are adopted in the double flanges side mounting process; Flanges above DN25 shall be used in pipeline installation process;

The diameter of the diaphragm is generally above 50mm; Diaphragm spacing is generally required to be above 500mm; The insertion depth is generally greater than the diaphragm spacing of more than 200mm;

Note: Marked with \times is a general option

The side spacing of single flange installation generally requires more than 150mm;

For oxygen application, SK should be selected, while the isolating liquid should be filled with fluorine oil. The operating temperature should not exceed 60°C, and the operating pressure should not exceed 5MPa;

For double flange side installation and pipe installation there is no insertion depth, just confirm the diaphragm spacing. Just one JG5600DP is required.





شرکت دانش بنیان تجهیزات فراصنعت آرمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

JG3051 Integrated valve sets

JINGE offers various types of 2, 3 and 5 integrated valve sets. Type 2 valve sets design matching static pressure and liquid level use; Type 3 and 5 valve sets are designed for differential pressure.

Flange connection

Flange design conforms to the IEC61518 Standard flange seal is carbon fluoride FK Mo-ring. Flange seal and flange bolt in valve set.





The body design

Integral structure for increased strength, High finish inside.

Features

Stainless steel body pressure maximum 414bar (6000psIg) Temperature -65°F~450°F (-54°C~232°C) adopts Teflon packing.

Temperature $-65^{\circ}F \sim 1200^{\circ}F$ ($-54^{\circ}C \sim 649^{\circ}C$) using graphite packing. Grease for stem threads is isolated from system media.





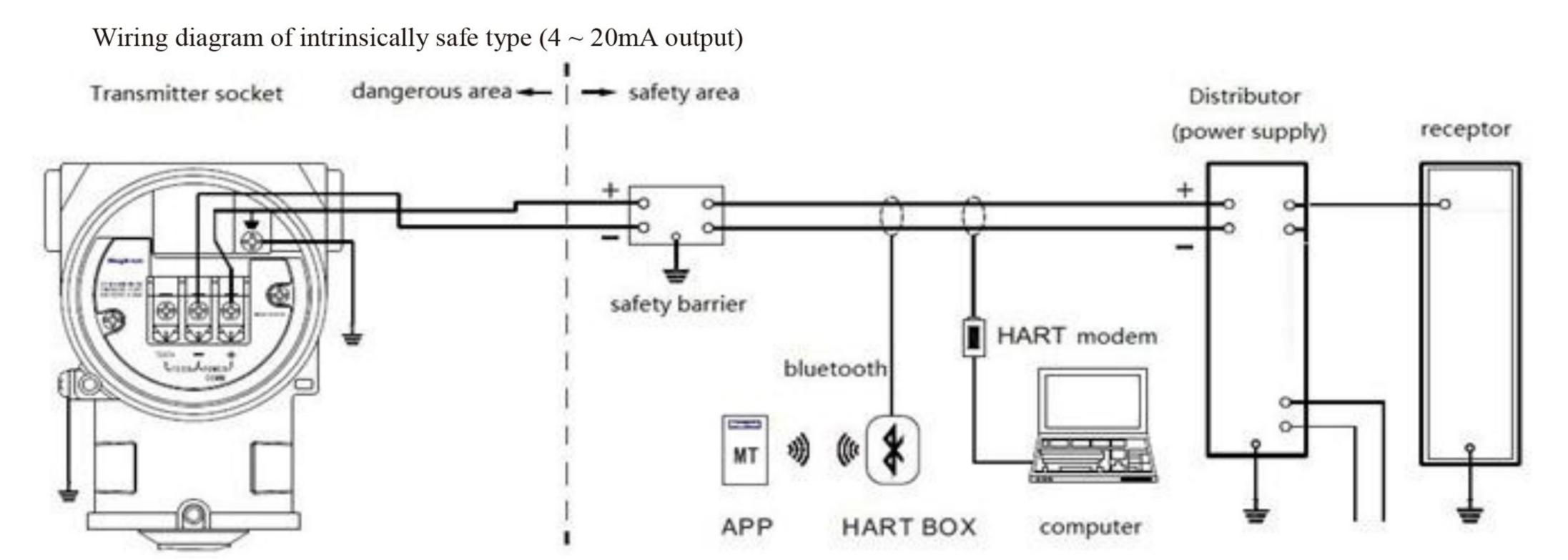
JG5600 series type spectrum with type 2, 3, 5 valve sets for material 304, PN320 Type 2 valve set process interface 1/2"NPT(F) inlet, 1/2"NPT(M) outlet.

Type 3 and type 5 valve set process interface for 1/2 "NPT (F), with two 1/2" NPT (M) - Φ 14 x 2 connector.



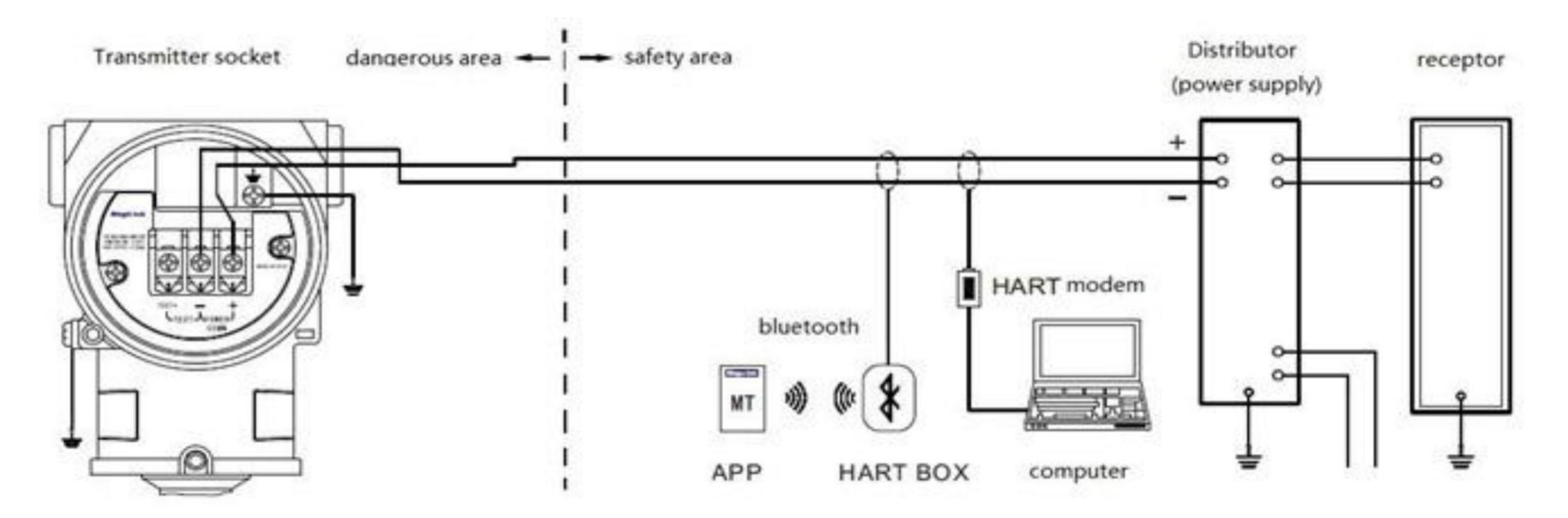
Model No. JG3051

Wiring diagram



Picture 4

Wiring diagram of common type and Explosion-proof type (4 ~ 20mA output)



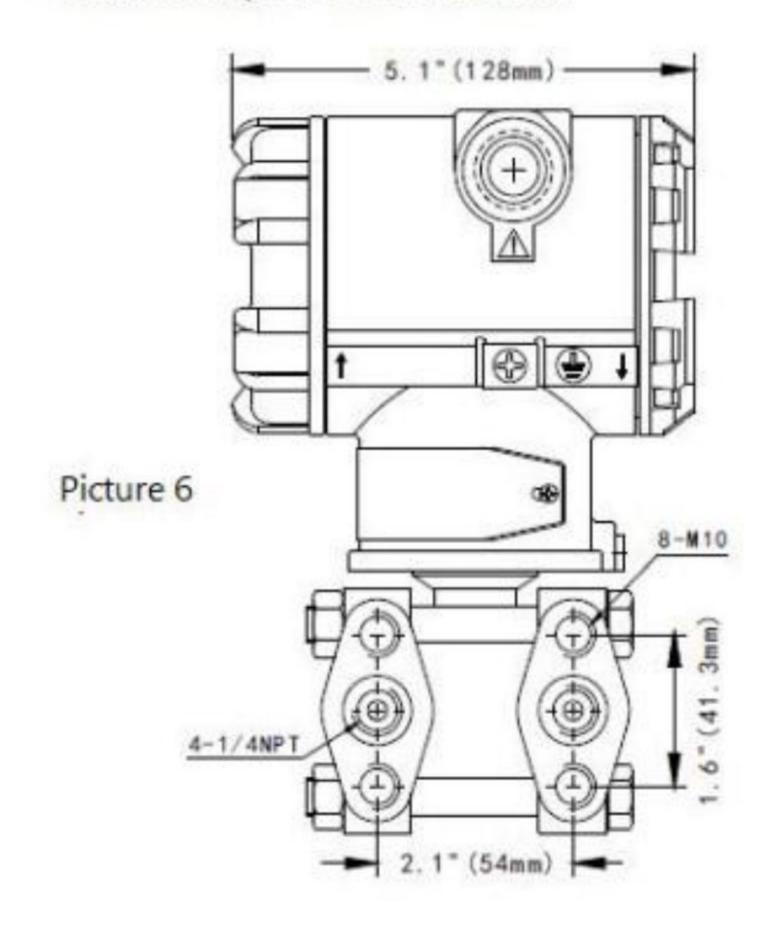
Picture 5

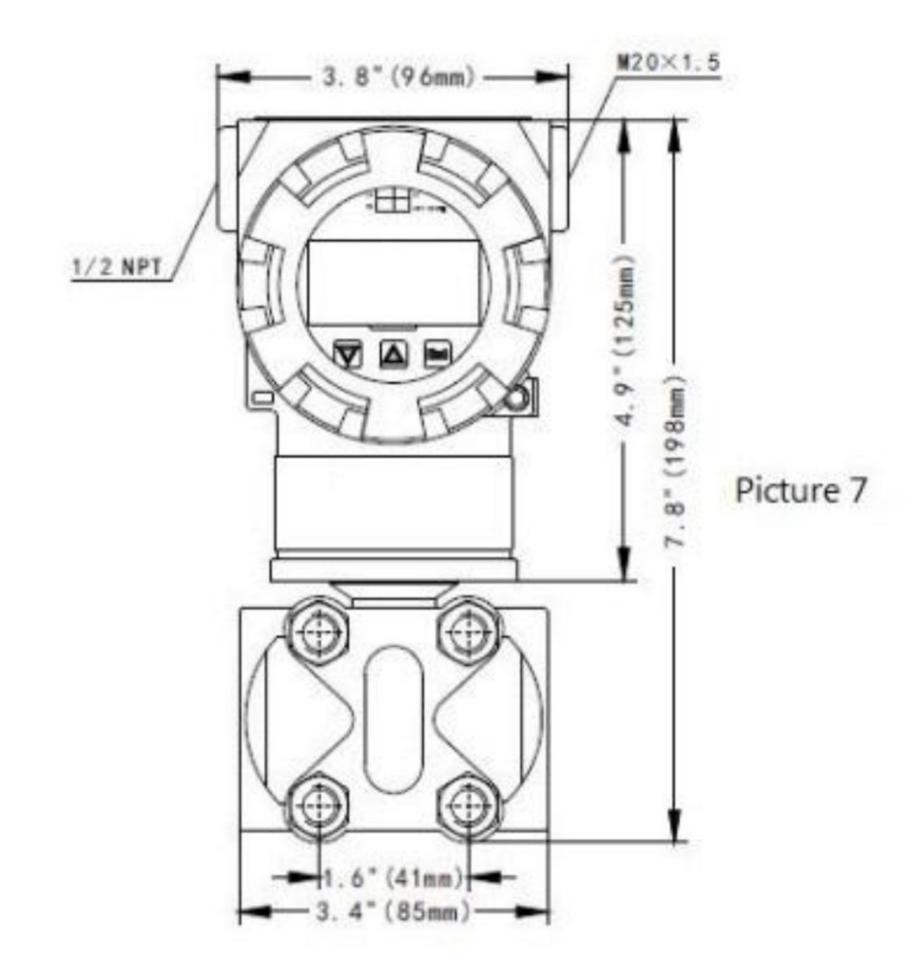


Model No. JG3051

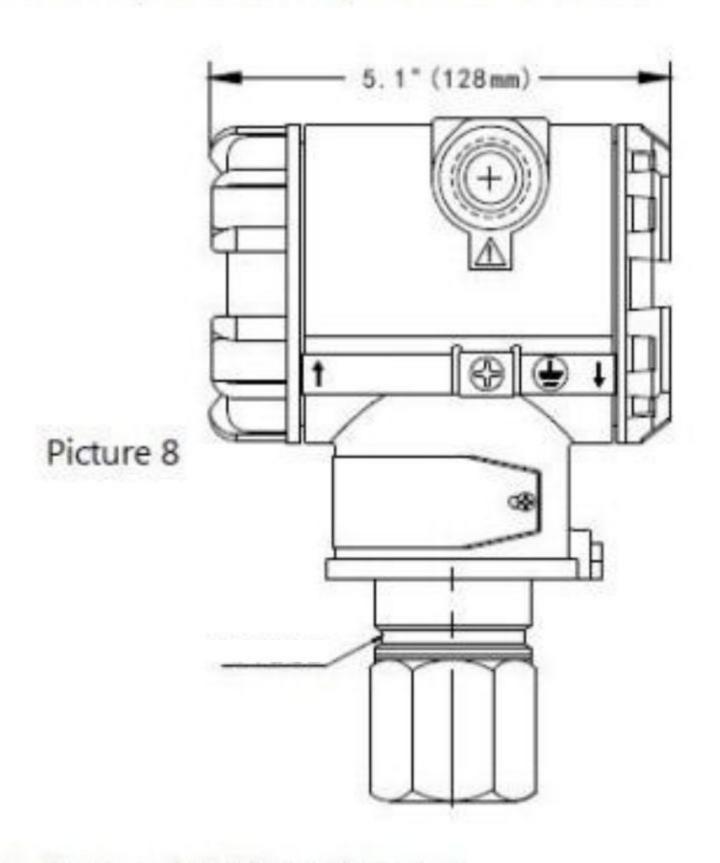
Product size chart

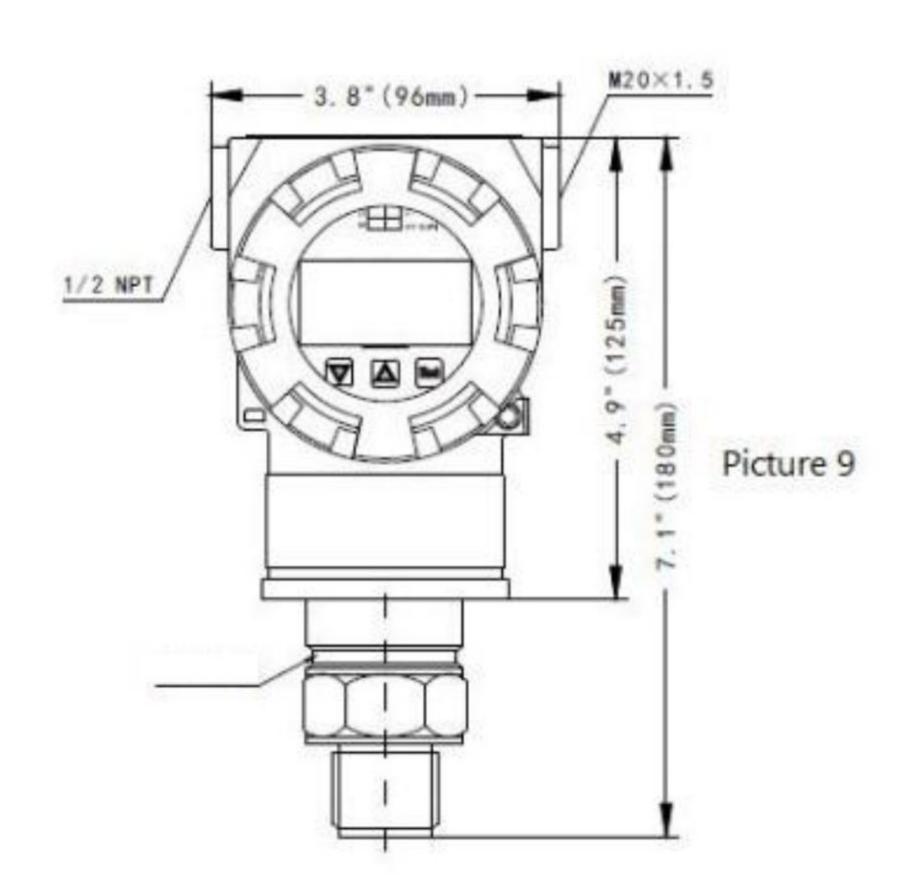
Differential pressure transmitter



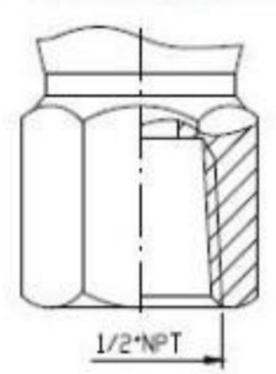


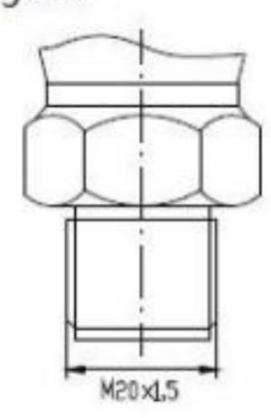
Directly connected pressure transmitter

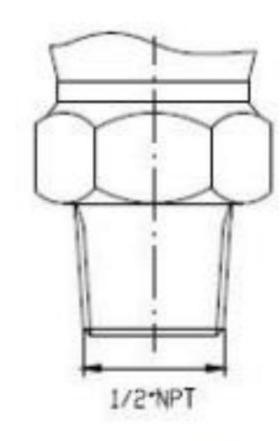


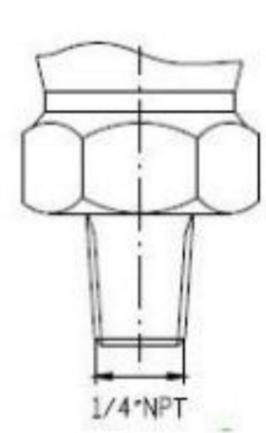


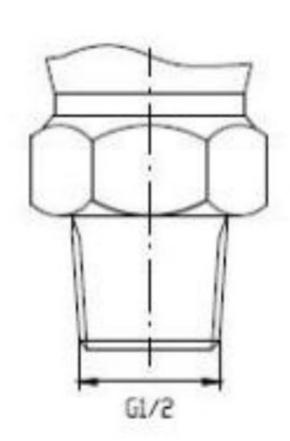
Process interface diagram











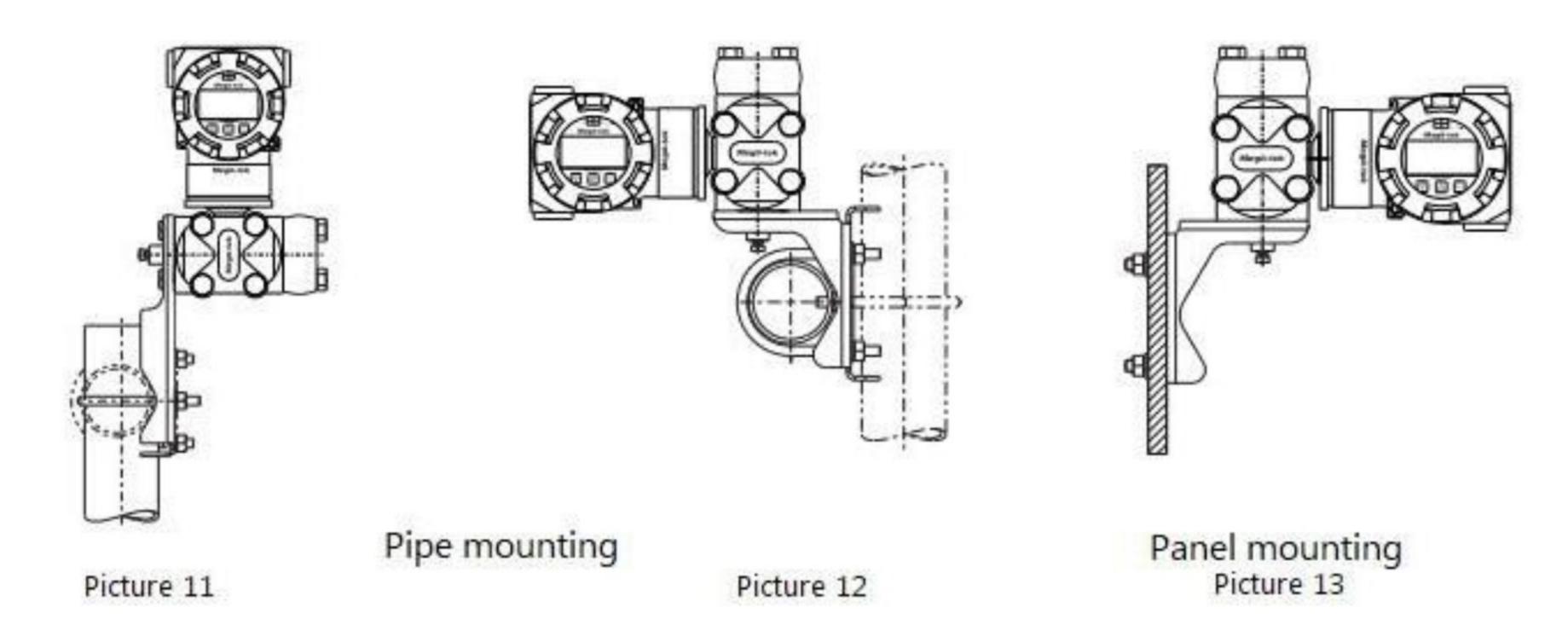
Picture 10



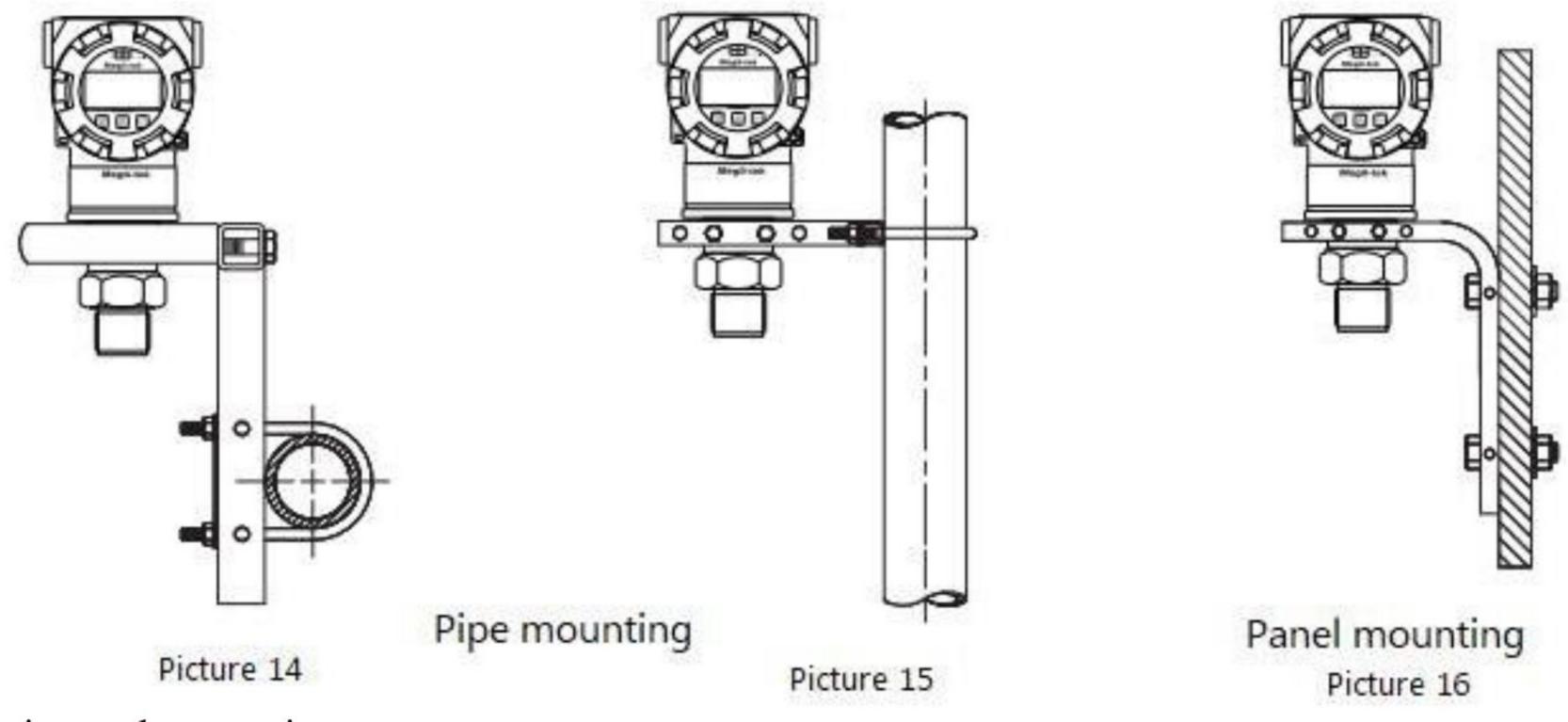
Model No. JG3051

Installation Diagram

Differential pressure transmitter



Directly connected pressure transmitter



Installation location and precautions

The correct position of the transmitter on the process pipe depends on the medium under test. In order to obtain the best installation, the following conditions should be considered:

Prevent transmitter from coming into contact with corrosive or over heated medium;

To prevent the deposition of fine solid particles in the pressure guide tube;

The pressure guide tube should be as short as possible;

The hydraulic column head in both sides of the pressure guide tube should be kept in balance;

The pressure guide pipe should be installed in the place with small temperature gradient and temperature fluctuation;

When installing pressure taking pipe outdoors, adequate anti-freezing protection measures should be taken.

For example: heat tracing of pipeline;

The inclined installation Angle of pressure extraction pipeline should be at least 10%;

Do not use hard or sharp objects to clean or contact the diaphragm seal ring;

The site should take protective measures to prevent shake or low temperature ice in the pressure tube.

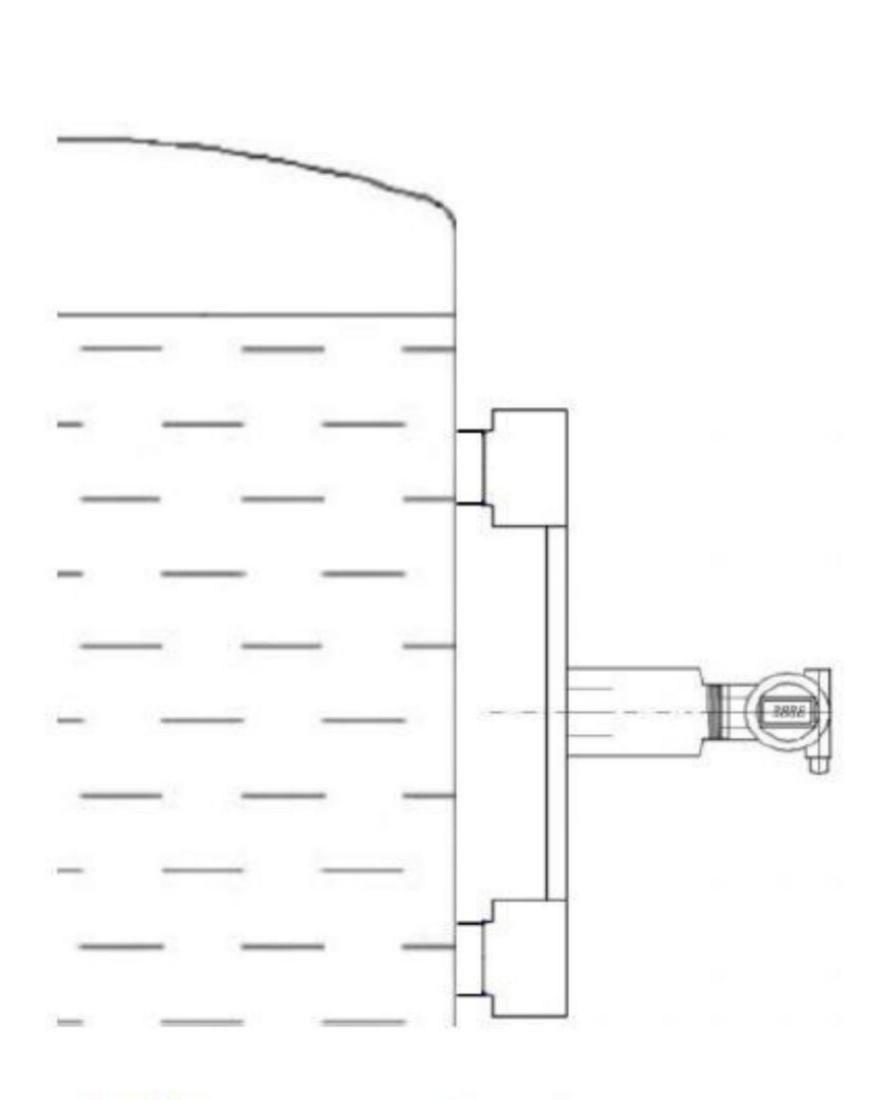
شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



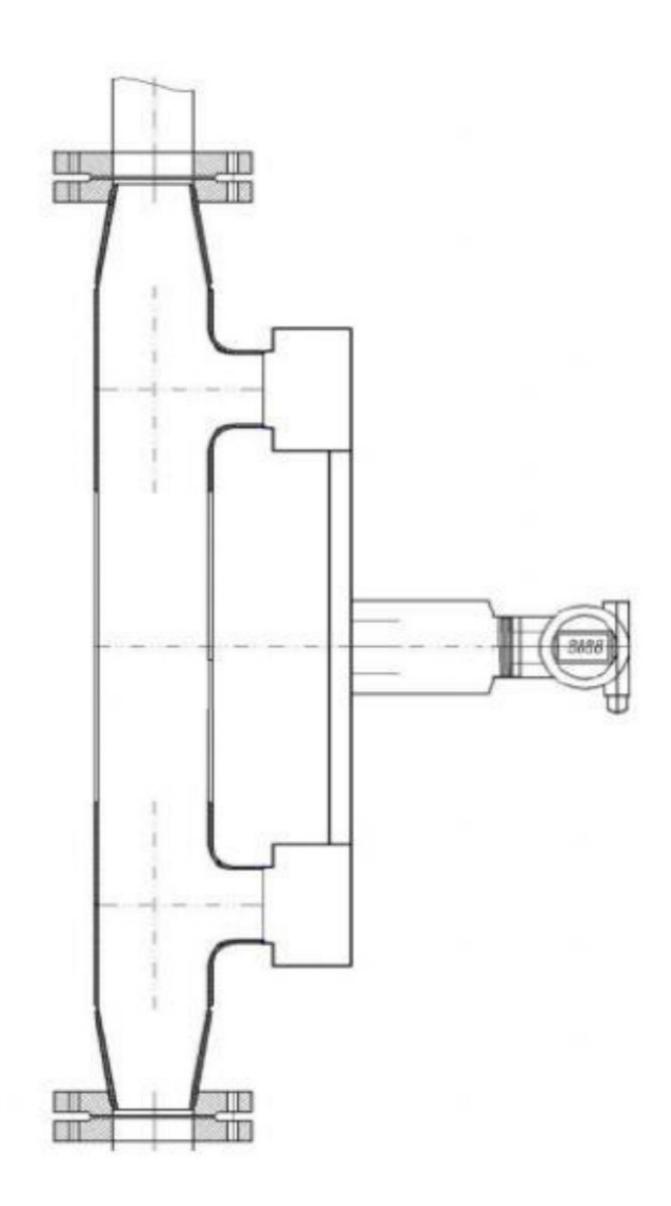
EFSACO-under License of JINGE

Model No. JG3051

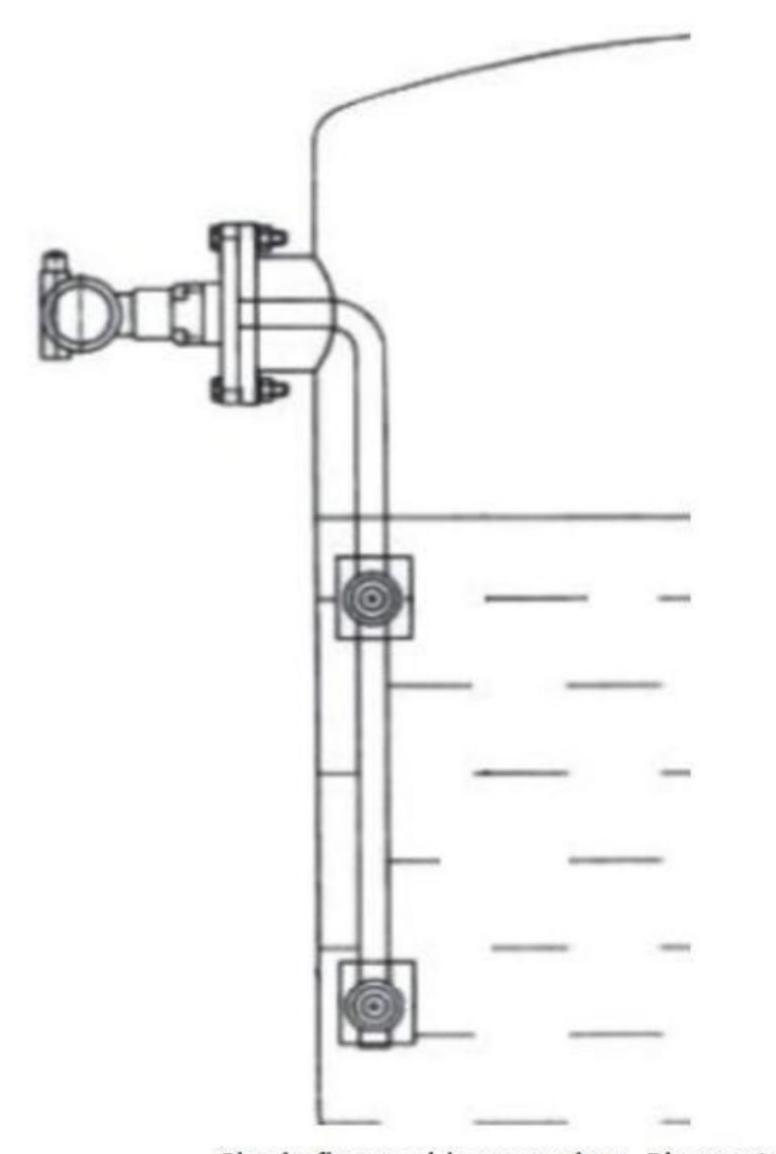
Integrated density seal Installation Diagram



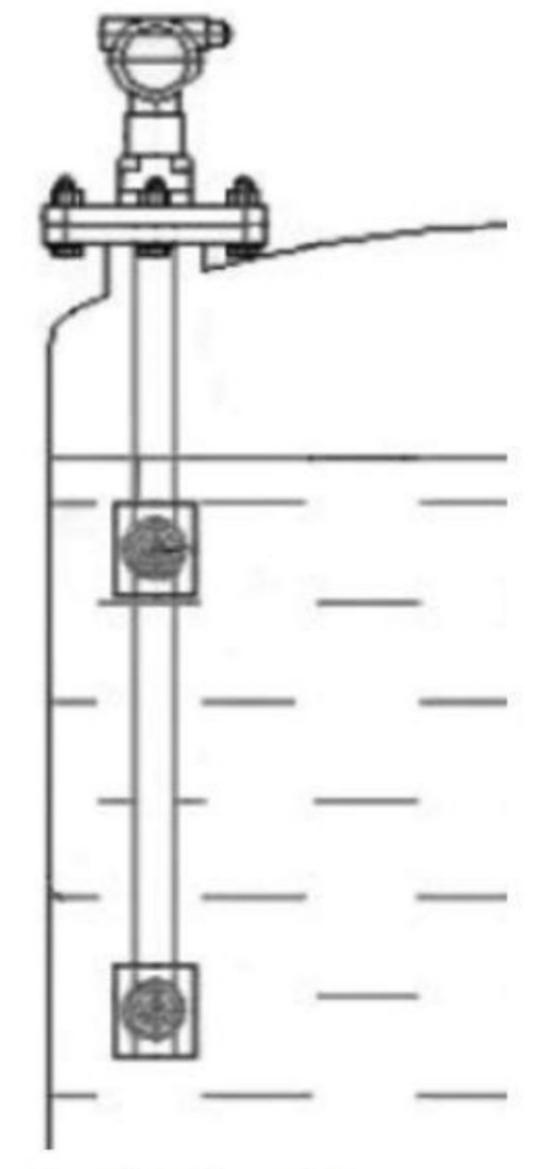
Double flanged side mounting Picture 17



Pipe mounting Picture 19



Single flange side mounting Picture 18



Top mounting Picture 20

شرکت دانش بنیان تجهیزات فراصنعت ارمان (افعاکو)



EFSACO-under License of JINGE

Model No. JG3051

Precautions for installation and use

In order to ensure the normal operation of the pressure transformer, its transmitter housing must be effectively grounded. For pressure transmitter selection built-in lightning protection, earth connected should meet the grounding resistance less than 10 Ω . There are earth terminals inside and outside the connecting cavity of the pressure transmitter shell, which can be used for connect-earth at will .The installation and use should comply with the electrical code requirements of various countries;

The range of ambient temperature for product use should be -40°C ~85°C;

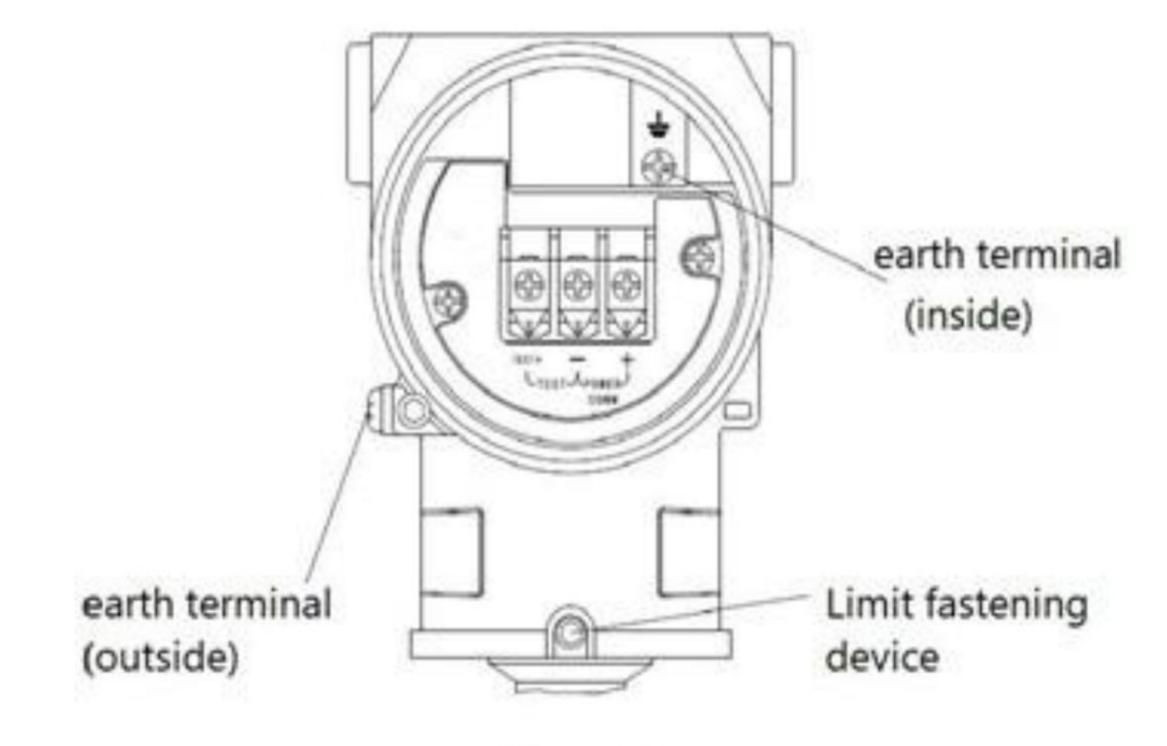
Flare-proof products in the field of use, maintenance must comply with the "power off after the opening of the cap" rules;

When the intrinsically safe product is installed and used on site, it must be matched and connected with the safety grid recognized by the explosion-proof inspection institution to form the intrinsically safe explosion-proof system.

Directions of the rotating transformer unit

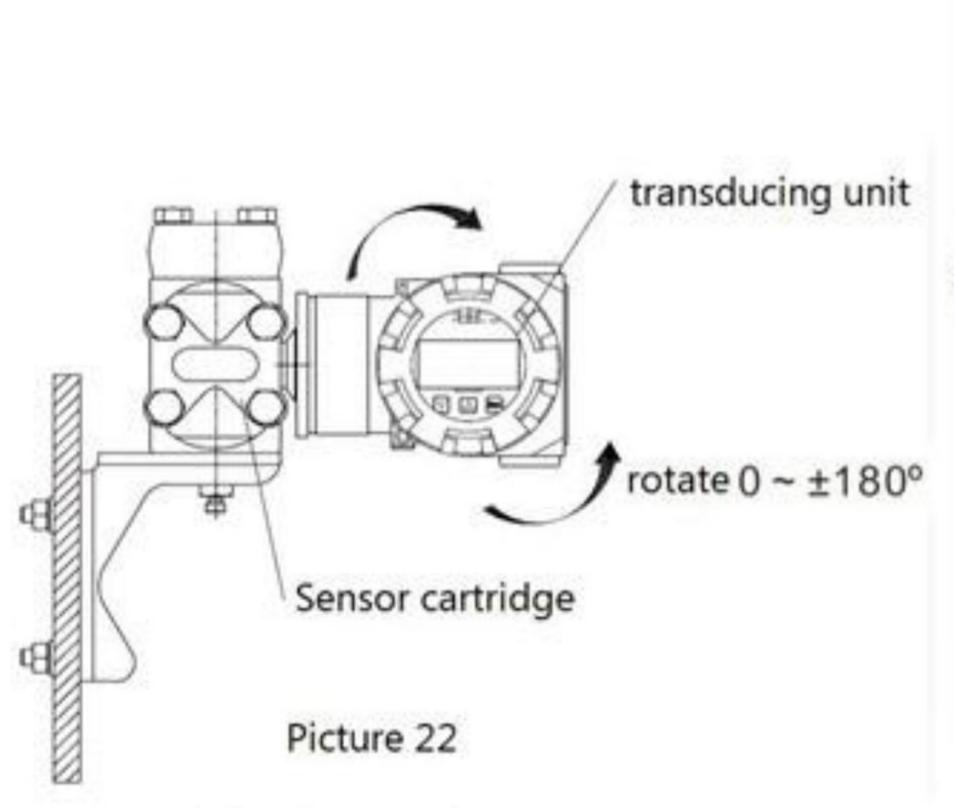
The maximum rotation of the transformer unit of the pressure transmitter is 360° . According to the installation position of the transmitter, it can be rotated from the starting position of the factory to \pm 180° or 360°, and any Angle within the above range can be fixed. See the above diagram for the limit fastening device.

- 1. First, remove the limiting fastening of the transformer feeding unit component and the sensor film box by hand with the hexagon socket plate;
- 2. Slow rotating transformer feeding unit parts stop at the specified position.

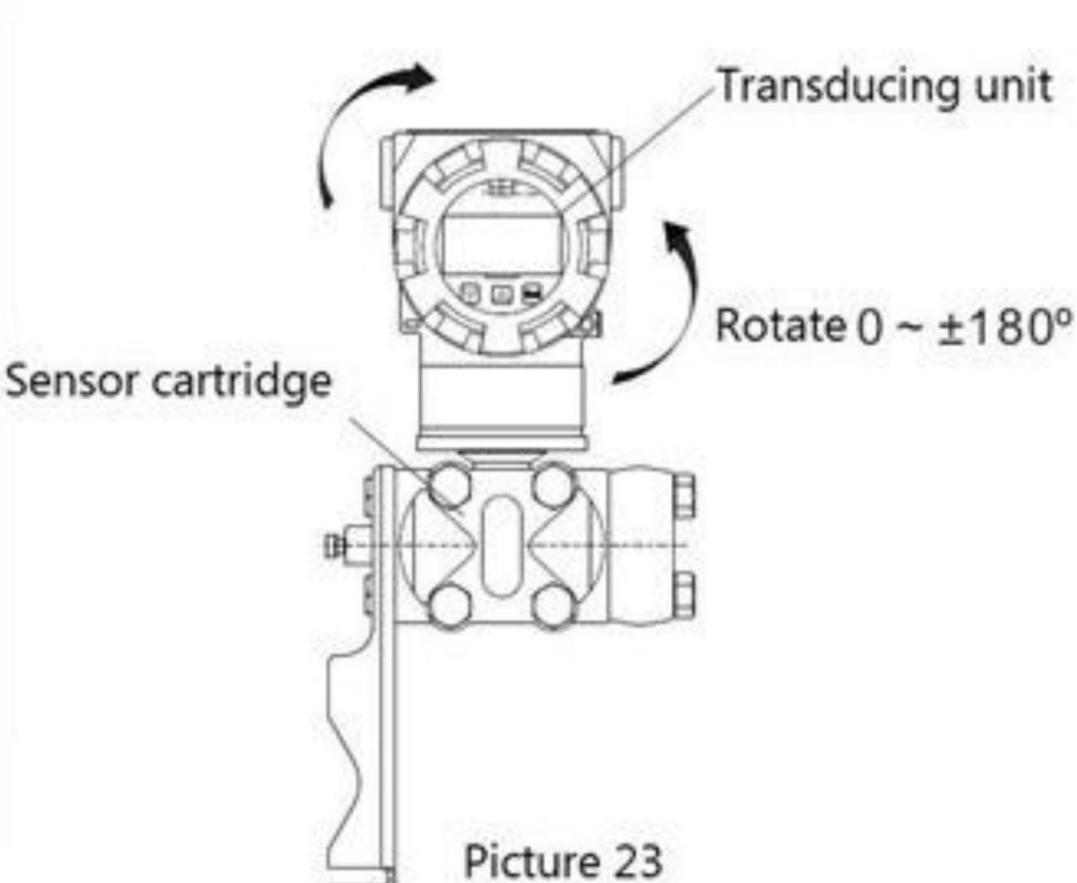


Picture 21

- 3. When rotating the transformer feeding unit component, the upper limit Angle range of the transformer feeding unit component and the sensor film box shall not be exceeded;
- 4. Tighten the limit fastening screw of the transformer feeding unit component and sensor film box with an inner hexagon plate;
- 5. When the window of the transformer unit component is in the front position, the high pressure cavity is on the left side.



Vertical piping installation type



Horizontal piping installation type





Model No. JG3051

Precautions for explosion-proof remarks

- 1. The connection cable between the transmitter and the safety gate is a two-core shielded cable (the cable must have a cable sheath). The core wire has a cross- sectional area ≥0.5mm, and its shielding layer is grounded in a safe place and insulated from the product shell. Cable wiring should eliminate the effect of electromagnetic interference as much as possible, and make the cable distribution. Parameters controlled within 0.06F/mH;
- 2. The safety grid shall be installed in a safe place, and its installation, use and maintenance must follow the safety grid operation instructions;
- 3. The user is not allowed to change the electrical components of the product as well;
- 4. The installation, use and maintenance of the product shall comply with the relevant provisions of the product operation manual;
- 5. The introduction cable of the Explosion-proof product shall conform to $8 \sim 8.5$ mm. The pressing nut shall be tightened to make the sealing ring tighten the cable when used on site.
- 6. The product has redundant inlet ports, and blind plugs conforming to industry application standards must be used.

Measurement mode

- 1. When measuring liquid flow, the pressure outlet should be opened on the side of the process pipeline to avoid the accumulation of fine solid particles. At the same time, the transmitter should be installed next to or below the pressure inlet, so that the bubbles can be discharged into the process pipeline;
- 2. When measuring the gas flow rate, the pressure outlet should be opened at the top or side of the process pipeline. And the transmitter should be installed next to or above the process pipeline,
- so that accumulated liquid can easily flow into the process pipeline;
- 3. When measuring steam flow, the pressure outlet is opened on the side of the process pipe, and the transmitter is installed below the pressure outlet, so that the condensate can be filled in the pressure guide pipe.

Special Remarks

- 1. When measuring steam or other high temperature media, its temperature should not exceed the transmitter use limit temperature;
- 2. When the measured medium is steam, the pressure guide tube should be filled with water to prevent the steam from contacting the transmitter directly;
- 3. Use a transmitter equipped with a drain valve in

-the pressure chamber. The pressure outlet should be opened on the side of the process pipeline. When the measured medium is liquid, the outlet valve of the transmitter shall be installed above in order to discharge the gas in the measured medium. When the measured medium is gas, the transmitter drain valve should be installed below to discharge the accumulated liquid