C S
CODE AND SPECIFICATIONS SHEET

# Micro differential pressure transmitter

# JUN-E80

JUN-E80 differential differential pressure transmitter is an ultra-high performance differential pressure transmitter carefully developed by using the world's advanced pressure sensor technology and packaging process, with a measurement accuracy of ± 0.025%. The transmitter has a built-in mono-crystalline silicon sensor, export and the DC 4 ～ 20mA signal corresponding to the measured pressure.

The product is suitable for the pressure measurement of gas, liquid, steam and other process fluids, and can be used in the environment with explosion-proof requirements.

By mutual communication with intelligent terminals, various functions can be set, adjusted and monitored for export signals.

## Standard layout

### Export

Export Signal: DC 4 ～ 20mA

Output signal range: DC3.8～20.8mA (maximum)

### Supply voltage

DC16.5～55V (See Figure 1 for details)

### Load impedance

0～2199 Ω is the working status (See Figure 1 for details)

250～600 Ω HART communication

### Communication mode

HART、PROFIBUS-PA、FOUNDATION Field-bus

### Determine the pressure range

| Scope code | Range | Measurement range |
|---|---|---|
| G01 | 1kPa | Minimum range 200Pa,-1～1kPa |

### Installation location impact

The change of the installation position in the parallel direction with the diaphragm will not cause the effect of zero drift. If the change of the installation position and the membrane is more than 90℃, the zero effect within the range of <0.4kPa will occur, which can be adjusted by adjustment with no range influence.

### Maximum working pressure

See Table 1 for details

### Withstand voltage; pressurization

See Table 1 for details

### Use the temperature range

Use range: -40～85℃

Integrated LCD display: -20～70℃

Temperature range: silicone oil-filled sensor-40-120℃ filled with inert filling fluid-45-160℃

### Use humidity range

5%～100%RH@ 40℃

### Storage temperature range

-40～110℃,Integrated LCD display: -40～85℃

### Levels of protection

IP67

### Failure alarm signal

When the added pressure exceeds the upper limit of range, export alarm current value, lower limit to 3.8mA and upper limit to 20.8mA.

### Precision

±0.025%、±0.05%、±0.075%、±0.1%(See Table 2 for details)

### Temperature characteristic

Total impact volume in the range of-20 to 80℃:

± (0.1+0.1TD)% range upper limit

### Time index

The total damping time constant is equal to the sum of the damping time constants of the electronic circuit component and the sensing membrane box. Damping time of electronic circuit components: 0～100S range adjustable. Damping time of the sensing membrane box: 0.2S.

**Long-term stability**

±0.15%range Upper limit / 10 years

**Quick operation menu**

| Function | Explain |
|---|---|
| PV zero clearing | So that the current simulation export corresponds to the zero pressure value |
| zero (point) adjustment | The actual export was set to 4mA using the reference pressure |
| Full point adjustment | The actual export was set to 20mA using the reference pressure |
| Factory data reset | During a debugging error, restore the factory backup data |

**Material quality**

Provide liquid solution for various anti-corrosive material quality.

The liquid diaphragm material quality: 316L stainless steel, 316L stainless steel gold-plated, Harbin C, etc

O-type sealing ring material quality: nitrile rubber, fluorine rubber, polytetrafluoroethylene with line box material quality: aluminum alloy exterior spraying epoxy resin

Flanged and exhaust drain valve material quality: 316 stainless steel

**Seal into the liquid**

Silicone oil, inert filling fluid, etc

**Pressure import interface**

Inner thread 1 / 4-18 NPT

**Distribution interface**

M20*1.5 、1/2NPT

**Weight:**

About 4kg (excluding mounting bracket, process connection accessories)

## Additional instructions

**ATEX explosion-proof certification**

Grade 1, zone 1 / 2, Group G, and Ex db IIC T6 Ga/Gb

-30℃≤Tamb≤+75℃ Process temperature≤85℃

Grade 1, zone 1 / 2, Group G, and Ex db IⅡIC T5 Ga/Gb

-30℃≤Tamb≤+80℃ Process temperature≤100℃

Grade 1, zone 1 / 2, Group G, and Ex db IC T4 Ga/Gb

-30℃≤Tamb≤+80℃ Process temperature≤110℃

Grade 1, zone 2, Group D, and Ex tb ⅢC T85℃ Db

-30℃≤Tamb≤+75℃ Process temperature≤ 85℃

Grade 1, zone 2, Group D, and Ex tb IIIC T100℃ Db

-30℃≤Tamb≤+75℃ Process temperature≤100℃

Grade 1, zone 2, Group D, and Ex tb ⅢC T110℃ Db

-30℃≤Tamb≤+75℃ Process temperature≤110℃

Note 1 to use a power cord suitable for working at a temperature 5℃ higher than the surrounding area

**ATEX Intrinsic Safety Certification**

Grade 1, zone 1, Group G, and Ex ia IIC T4 Ga

-30℃≤Tamb≤+60℃ Process temperature=105℃

Electrical parameters：Ui=30 V,Li=93mA, Pi=1W,Ci=5nF,Li=0.5mH

Grade 1, Zone 1, Group D, Ex ia ⅢC T105℃ Da

-30℃≤Tamb≤+60℃ Process temperature=105℃

Grade 1, zone 1, Group G, and Ex ia IIC T4 Ga

-30℃≤Tamb≤+60℃ Process temperature=110℃

Electrical parameters：Ui=30V,Ci=5nF,Li=0.5mH

**NEPSI Burst isolation certification**

Ex d IC T6 Gb; Ex tD A21 T85℃

-30℃≤Tamb≤+75℃ Process temperature=80℃

Ex d IC T5 Gb; Ex tD A21 T100℃

-30℃≤Tamb≤+80℃ Process temperature=95℃

Ex d IIC T4 Gb; Ex tD A21 T115℃

-30℃≤Tamb≤+80℃ Process temperature=110℃

**NEPSI Intrinsic Safety Certification**

Ex ia IIC T4 Ga

-40℃≤Tamb≤+60℃ Process temperature=105℃

Ex ia IIC T4 Gc

-40℃≤Tamb≤+60℃ (Process temperature=105℃

Electrical parameters:

Ui=30V,Li=100mA,Pi=1W,Ci=13nF,Li=0.5mH

(Use a power cord suitable for working at a temperature 5℃ higher than the ambient temperature)

**IECEX Explosion certification**

Ex d IC T6 Ga/Gb

-30℃≤Tamb≤+75℃ Process temperature≤85℃

Exd IC T5 Ga/Gb

-30℃≤Tamb≤+80℃ Process temperature≤100℃

Exd IIC T4 Ga/Gb

-30℃≤Tamb≤+80℃ Process temperature≤110℃

Ex tb IIIC T85℃ Db

-30℃≤Tamb≤+75℃ Process temperature≤85℃

Ex tb IIIC T100℃Db

-30℃≤ Tamb≤+75℃ Process temperature≤100℃

Ex tb IIIC T110℃Db

-30℃≤ Tamb≤+75℃ Process temperature≤110℃

(Note 1 to use a power cord suitable for working at a temperature 5℃ higher than the surrounding area)

**IECEX Intrinsic safety certification**

Ex ia IIC T4 Ga

-30℃≤Tamb≤+60℃ Process temperature=105℃

Electrical parameters:

Ui=30V,Li=93mA,Pi=1W,Ci=5nF,Li=0.5mH

Ex ia IIIC T105℃ Da

-30℃≤Tamb≤+60℃ Process temperature=105℃

Ex ic IIC T4 Gc

-30℃≤Tamb≤+60℃ Process temperature=110℃

Electrical parameters: Ui=30V,Ci=5nF,Li=0.5mH

**Electromagnetic compatibility (EMC)**

EN 61326- 1:2013

EN 61326-2-3:2013

EN 61326-2-5:2013

Electromagnetic compatibility directive: 2014/30/EU

**RoHS attestation**

EN 50581:2012

EN 62321:2013

**Debug method**

HART hand operator, local button

The HART manipulator can configure almost all instrument parameters.

The local button can perform various functional configurations of the transmitter: zero (point) adjustment, setting the upper and lower limits of pressure and no pressure, unit selection, damping setting, export selection, etc.

**Display interface**

| Identification | Explain |
|---|---|
| PV | The main screen displays process variables, the secondary screen displays percentage and progress bar. |
| mA | The main screen shows the current value, and the secondary screen shows the percentage and progress bar。 |
| % | Home screen display percentage, secondary screen display percentage and progress bar. |

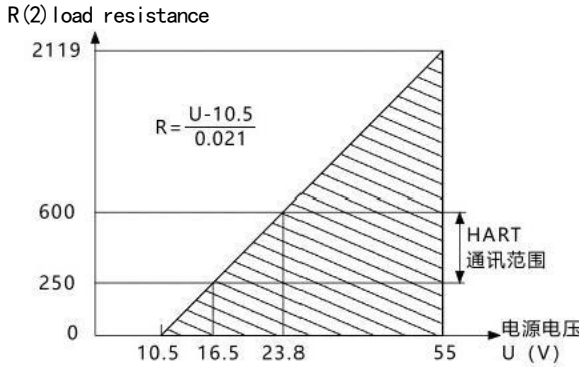



**Figure 1. Power supply and load conditions**

**Maximum use pressure and pressure resistance**

| Range | Static pressure range | One-way high-pressure side overload | One-way LV side overload |
|---|---|---|---|
| 1kPa | 25MPa | 25MPa | 16MPa |

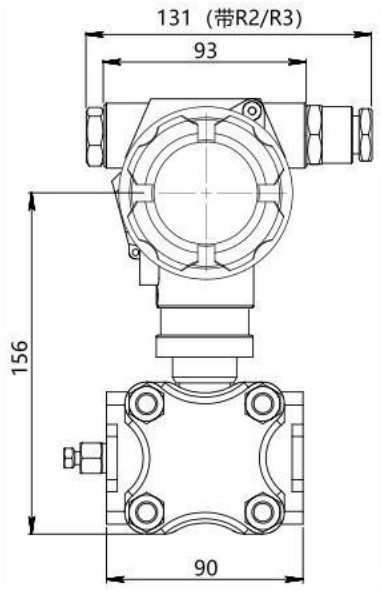
**Table 1 Maximum use pressure**

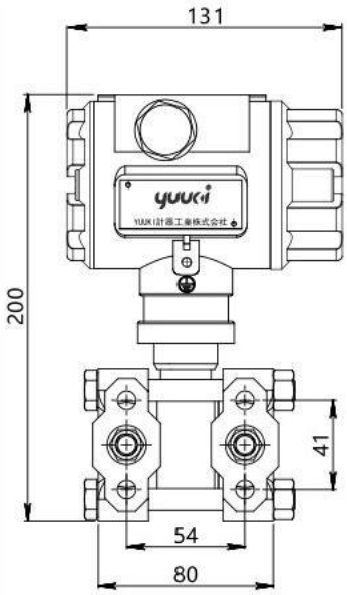
| | |
|---|---|
| According to the standard and test base conditions, including linear, retarded, repetitive calibration temperature: 20℃± 5℃ | |
| Linear transmission and the output accuracy | ± 0.025%, if TD> 10 (Note 10), ± (0.0025 TD)% |
| | ± 0.05%, if TD> 10 (Note 1), then ± (0.005 TD)% |
| | ±0.075%, ± (0.0075 TD) if TD> 10% |
| | ± 0.1%, ± (0.01 TD) if TD> 10% |
| The square root export accuracy is 1.5 times the linear reference accuracy | |
| Note 1: TD= max. range / regulatory range | |

**Table 2 refers to the accuracy**

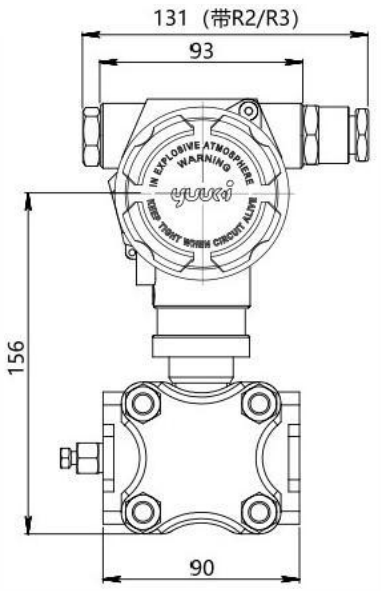
## Overall dimension drawing (in mm)

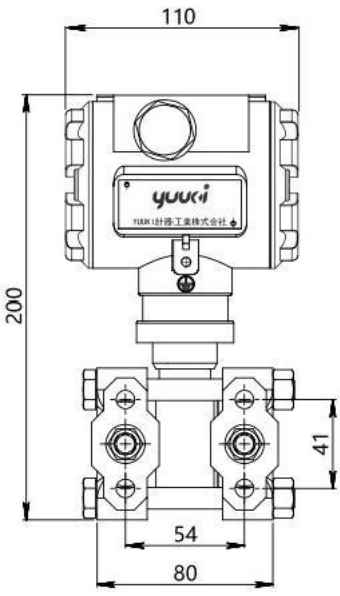
Overall size drawing with display function



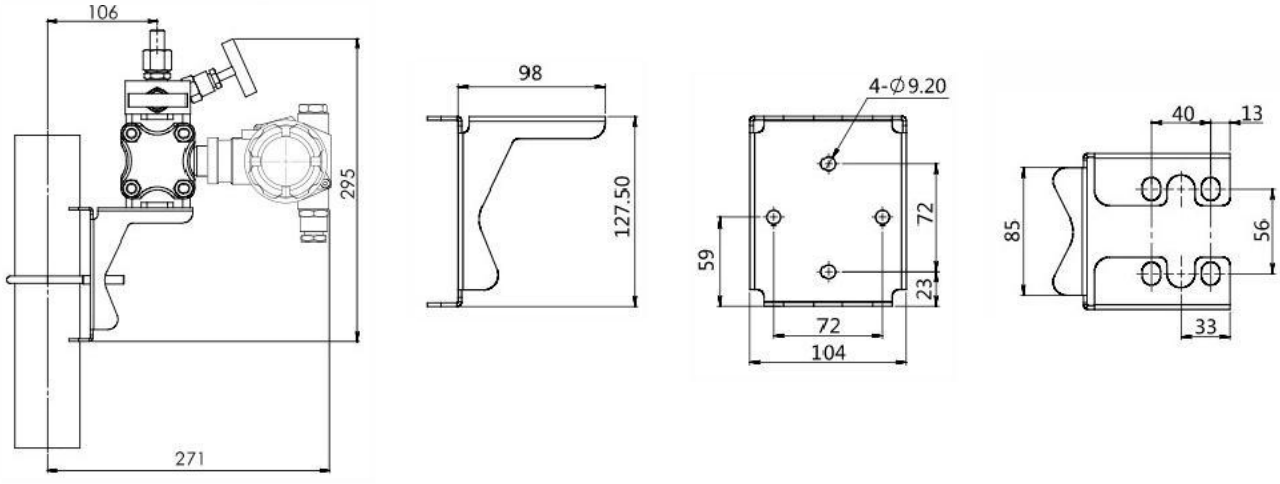




Size drawing of the whole machine without display function

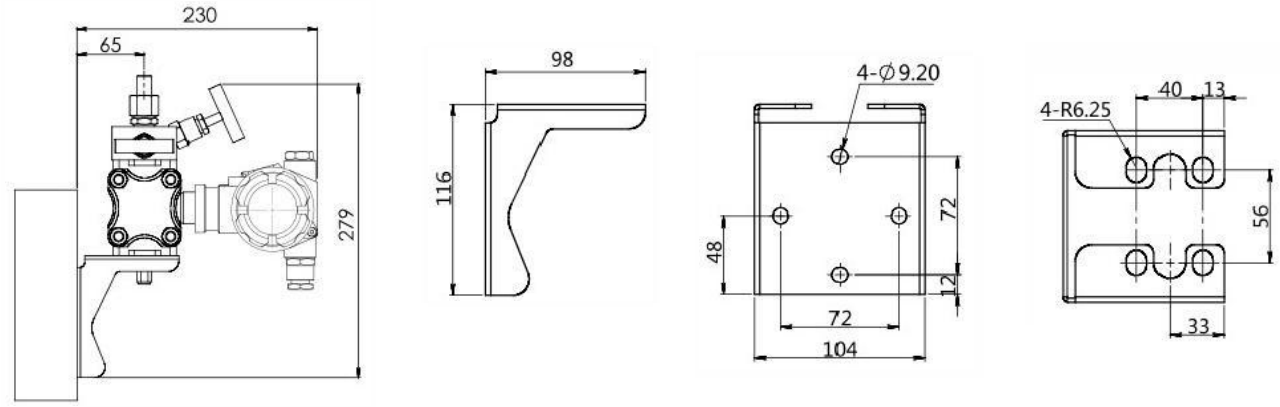


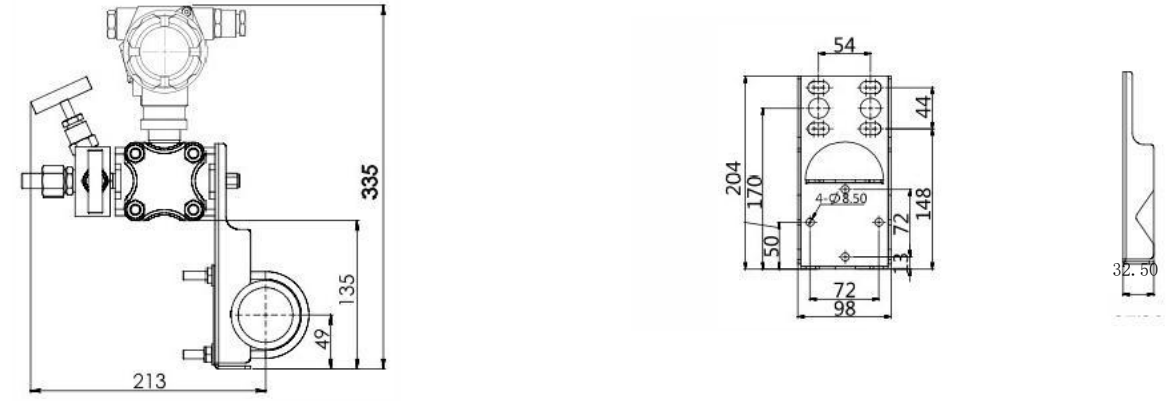
Installation dimensions of pipe bent bracket




Installation dimensions of plate bending bracket




Installation dimensions of flat bracket



| Order number | Project | Code | Content |
|---|---|---|---|
| 1 | Model | JUN-E80 | Micro differential pressure transmitter |
| 2 | Accuracy | A | ±0.05% |
| | | B | ±0.075% |
| | | C | ±0.1% |
| | | D | ±0.025% |
| 3 | Range | G01 | 0～1kPa ,Minimum range 200Pa |
| 4 | Communication mode | H | 4～20mA + HART, made in two lines |
| | | P | PROFIBUS-PA (ask separately for delivery date) |
| | | F | FOUNDATION Field-bus (Request separately) |
| 5 | Explosion-proof | N | No explosion-proof function |
| | | G | PCEC explosion suppression |
| | | D | NEPSI explosion suppression |
| | | A | NEPSI Ben Ann |
| | | E | ATEX explosion suppression |
| | | B | ATEX Ben Ann |
| | | M | IECEX explosion suppression |
| | | W | IECEX Ben Ann |
| 6 | Show | N | No display |
| | | L | LCD liquid-crystal display |
| | | O | OLED display (ask later) |
| 7 | Connect the fluid section diaphragm material quality | S | And 316L stainless steel |
| | | U | The 316L stainless steel is gold-plated |
| | | H | Hastelloy C |
| 8 | Type O sealing ring material quality | N | Acrylonitrile-butadiene rubber |
| | | F | Fluorine-rubber |
| | | P | Teflon |
| 9 | Seal into the liquid | S | Silicone oil, applicable to the direct contact temperature range of-40 to 120℃ |
| | | D | Inert filling fluid for direct contact temperature range-45 to 160℃ |
| 10 | Treatment of the solution site | 0 | No special treatment |
| | | 1 | No oil treatment |
| | | 2 | Water ban treatment |
| 11 | Pressure import connection | H1 | Process connection internal thread 1 / 4-18 NPT, exhaust drain valve at the rear end of the flange |

| Order number | Project | Code | content |
|---|---|---|---|
| | | H2 | Process connection internal thread 1 / 4-18 NPT, exhaust drain valve is located at the lower side of the flange |
| | | H3 | Process connection internal thread 1 / 4-18 NPT, exhaust drain valve is located on the upper part of the flange side |
| | | H4 | Vertical mounting flange, process connection inner thread 1 / 4-18 NPT, with exhaust drain valve |
| 12 | Distribution connection | T1 | Two M20 * 1.5 internal threads |
| | | R1 | Two M20 * 1.5 internal thread electrical interfaces, with M20 * 1.5 waterproof connector on one side and PVC material quality plug head on the other side |
| | | R2 | One inner thread 1 / 2 NPT, the other side with stainless steel material quality plug |
| | | R3 | One side internal thread M20 * 1.5, the other side with stainless steel material quality plug turning joint |
| 13 | Additional options-pressure-in connection accessories | -A1 | M20 * 1.5 external thread and lead pipe Φ 14 * 2 * 30, SUS 304 material quality |
| | | -A2 | Adapter 1 / 2-14 NPT inner thread, SUS 304 material quality |
| 14 | Additional options-Fixed mounting fitting | -B1 | 2 ″ Pipe bending bracket, with carbon steel material quality mounting assembly |
| | | -B2 | Plate bending bracket, with carbon steel material quality mounting assembly |
| | | -B3 | 2 ″ Pipe flat bracket with carbon steel material quality mounting assembly |
| | | -B4 | U-bracket, 2 ″ tube mounting |
| 15 | Additional option-Check the report | -Q2 | Provide a nationally recognized third-party verification report |

## Matters need attention

To better perform the performance of the transmitter, please pay attention to the following before use and read the instructions.

### Note for transmitter installation

| Notice |
| --- |
| When installing the transmitter, ensure that the sealing gasket is connected in the process, not from the transmitter to the process fluid (such as fitting flange connection, connecting pipe<br>Lane, flange) connected prominent, if the sealing gasket protruding outside, may lead to liquid leakage and output errors. Do not use the transmitter beyond the specified pressure, temperature range and operating conditions of the product specification, otherwise it may cause the leakage of the product and cause serious accidents.<br>When wiring in dangerous areas, please follow the operation method specified in the explosion-proof standard instructions. |

| Notice |
| --- |
| Please do not stand on the installed transmitter, take it as a foot.foot may occur splash, causing fluid splash injury personnel.<br>Be careful of the glass display, do not use tools to hit the glass part of the digital watch head, breaking the glass may cause body injury.<br>The transmitter is heavy, please carefully install and wear safety shoes.<br>The collision transmitter may damage the sensor module. |

### Wiring notice matters

| Warning |
| --- |
| To prevent a short circuit, please do not use wet hands or in a live state of the wiring work. |

| notice |
| --- |
| Please connect correctly according to the technical specification. Wrong wiring will cause instrument failure or irreparable damage.<br>Please use the power supply that meets the technical specification. Using the inappropriate power supply can cause instrument failure or irreparable damage. |

### Use the HART protocol equipment notice matters

If the instrument is operated by the helper (HART Communicator, etc.), set the communication interval of the server (DCS, equipment management system) for more than 8 seconds, or stop the communication between the server and the instrument. If the server communicates with the instrument repeatedly within 8 seconds, the instrument may not accept the request of the helper (may not be able to communicate with the instrument)。

If the electrical noise interference in the surrounding environment affects the HART communication with the server, please take corresponding measures, such as separating the signal cable from the noise source, improving the grounding or replacing the signal shielding cable, etc. If an analog signal of 4-20 mA is used, the use will not be affected even if the HART communication is disturbed by the noise

△ Before using the product, please read the operation manual carefully.
△ Changes in some appearance or specifications due to improvement without notice.