Anwoll
CONTROLS

# MONOCRYSTALLINE SILICON PRESSURE TRANSMITTER MODEL MST21


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1)Orange style 2)Blue style

The MST21 monocrystalline silicon pressure transmitter is used to measure the liquid leve density and pressure of liquid, gas or steam, then convert it to 4...20mA DC output signal. The transmitter can be operated locally with three buttons, or remotely operated by a universal hand operator, configuration software, and mobile phone APP. It can perform display and configuration adjustments without affecting the output signal of 4~20mA DC.

## Features

- Adopts MEMS monocrystalline silicon high-precision pressure sensor
- Fast response, high stability, measuring accuracy 0.075%FS
- Range ratio up to 100:1
- Reversible in-place display screen with backlit high brightness LCD display
- Local zero clearing function, local zero, full point setting adjustment

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HOUSTON TX 77041-5561

**Technical parameter**

## Standard specifications

Standard zero point as the Reference Calibration Range, stainlesssteel 316L diaphragm, silicone oil as filing liquid.

## Performance specifications

The overall performance includes but is not limited to [reference accuracy], [environmental temperature impact] and comprehensiveerror of other impact.

- Typical accuracy: ±0.075% of the upper limit of the range
- Annual stability: ±0.2% of the upper limit of the range

**1)Reference accuracy of range adjustment**

Includes linearity from zero, hysteresis and repeatability

| | | | |
|---|---|---|---|
| Linear Output Accuracy | TD≤10 | ±0.075% | Nominal range 6KPa, 40KPa,250KPa,1MPa, 3MPa,10MPa |
| | 10 < TD≤100 | ±0.0075TD% | |

Note: TD = Turn down

|URV|≥|LRV|, TD=URL/|URV|

|URV|≤|LRV|, TD=URL/|LRV|

**2)Influence of ambient temperature**

The accuracy of the range below 6Kpa is 0.075% in the normal temperature range, and the accuracy of the full temperature range of -20...70℃ is 0.15%.

**3)Power influence**

When the power supply voltage changes within 12...36V DC, the change of zero point and range does not exceed ±0.005% of the upper limit of the range/V, which can be ignored.

## Functional specifications

**1)Range selection**

Within the range of the upper and lower limits, the turn down ratio can be adjusted to select the range. For example, the upper and lower limit sare -40~40kpa. At this time, choose to adjust the turndown ratio to 10, and choose to output 0~4Kpa, or -4~4kpa. In order to ensure the accuracy, the turn down ratio should be as small as possible, generally within 10, too large will affect the accuracy.

**2)Zero setting**

Zero point and range can be adjusted to any value within the measurement range in the table, the calibration range must ≥ the minimum range.

**3)Impact of installation position**

Install at any position, the maximum does not exceed 400Pa can be corrected by clearing.

**4)Range and scope**

**Gauge pressure**

| Range/URL/LRL | | KPa | Turndown ratio |
|---|---|---|---|
| B | Range | 0.2...6 | 1...30 |
| | URL/LRL | -6...6 | |
| C | Range | 0.4...40 | 1...100 |
| | URL/LRL | -40...40 | |
| D | Range | 2.5...250 | 1...100 |
| | URL/LRL | -100...250 | |
| E | Range | 10...1000 | 1...100 |
| | URL/LRL | -100...1000 | |
| F | Range | 30...3000 | 1...100 |
| | URL/LRL | -100...3000 | |
| G | Range | 100...10000 | 1...100 |
| | URL/LRL | -100...10000 | |

**Absolute pressure**

| Range/URL/LRL | | KPa | Turndown ratio |
|---|---|---|---|
| H | Range | 0~100...250KPa | 1...3 |
| | URL/LRL | 0...250KPa | |
| I | Range | 0~0.1...1MPa | 1...10 |
| | URL/LRL | 0...1MPa | |
| J | Range | 0~0.1...3MPa | 1...30 |
| | URL/LRL | 0...3MPa | |

**5)Output**

| Signal | Type | Output |
|---|---|---|
| 4...20mA | Linear | Two-wire |
| 4...20mA+HART | Linear | Two-wire |
| RS485 | Linear | Four-wire |

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**6)Alarm current**

- Low alarm mode(minimum): 3.8mA.
- High alarm mode(maximum):20.8mA
- No alarm mode(Hold): Maintain the high-alarm mode of effective current value before failure .
- Alarm current standard setting : high-alarm mode.

**7)Response time**

- The total damping constant time; equal to the sum of the damping time of electronic circuit components and the sensor case.
- Electronic circuit component damping time: 0-60S range adjustable.
- Sensing case damping time: ≤0.2S.
- Power-on start-up time after power failure: ≤5S
- Data recovery to normal use time: ≤2S.

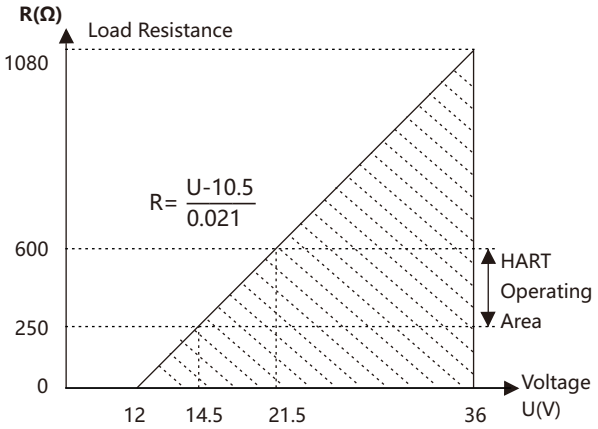
**8)Ambient temperature**

| Item | Operating conditions |
|---|---|
| Working temperature | -20...+70℃[-4...+158℉] with display |
| Storage temperature | -40...+85℃[-40...+185℉] |
| Working humidity | 5...100%RH@40℃ |
| Production grade | IP65 |
| Dangerous place | ExdIICT6 |

## Installation

**1)Power supply and load conditions**

| Item | Operating conditions |
|---|---|
| Standard/flameproof | 14.5...36VDC.The load resistance during communication is 250...600Ω |
| RS485 | 12...36VDC |




**2)Electronic connection**

| Type | Directions |
|---|---|
| Electrical connection | Aluminum alloy junction box, two outlets with internal thread M20*1.5, the main body is blue, and the cover is white. |
| Outlet protection | One end is equipped with M20*1.5 waterproof connector, the other end is equipped with plug PVC material,applicable wire diameter 6-8 mm protection grade IP65. |
| | Explosion-proof configuration, one end is equipped with NPT1/2 female thread , the other end is equipped with plug, stainlesss teel material applicable wire diameter 6-8 mm, protection grade IP65. |
| | Explosion-proof configuration, one end is equipped with M20*1.5 female thread, the other end is equipped with plug, stainlesss teel material, applicable wire diameter 6-8 mm, protection grade IP65. |

## Physical specifications

| | |
|---|---|
| Sensor case | Stainless steel 316L |
| Diaphragm | Stainless steel 316L,Hastelloy, Tantalum |
| Process connection | Stainless steel 304,stainless steel 316L |
| Thread specification | M20*1.5,G1/2, NPTF1/2, others |
| Transmitter shell | Aluminum alloy material |
| Shell seal | NBR |
| Name plate | Stainless steel 304 |

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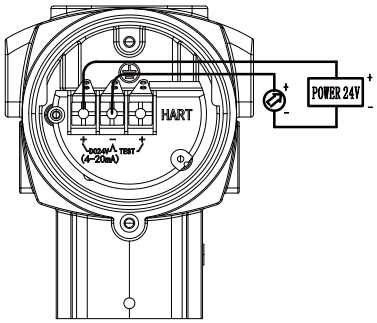
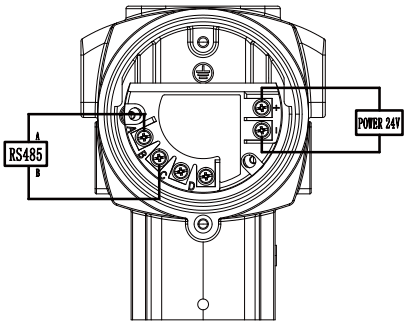
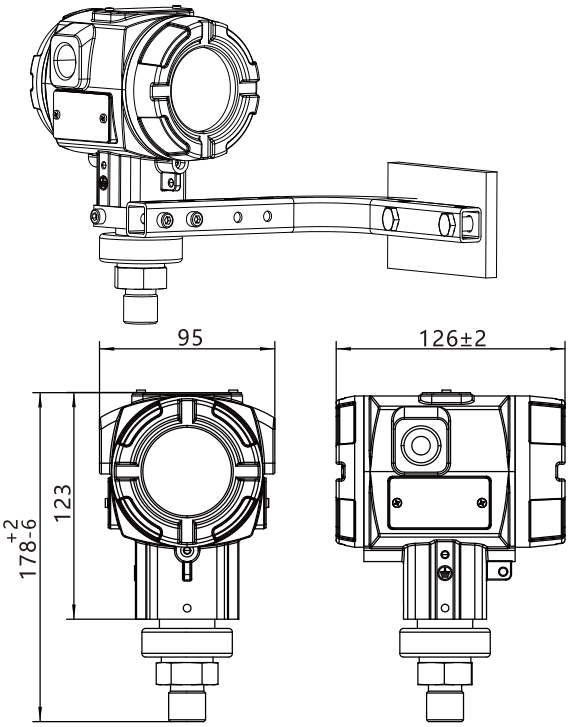
## Electric Connection & Dimensiones in mm




Note: The quick interface function is equivalent to the signal terminal.




## Ordering information

**Example part number:MST21-GSD1NGNNM5L**

MST21 pressure transmitter, gauge pressure type, 0 - 400 Pa range, 316L diaphragm, silicone oil fill, M20×1.5 female thread (PVC), 4 - 20 mA + HART output, M20×1.5 male thread for process connection, no bracket, common type for explosion - proof, with display, no extra requirements.

| M | S | T | 2 | 1 | - | A | C | S | D | 1 | J | M | N | N | M | 5 | □ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| Model |
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| MST21 |

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| Pressure type | |
|---|---|
| A | Gauge pressure |
| G | Absolute pressure |

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| Measuring range | |
|---|---|
| H | 0-100~250kPa(0-10~25mmH2O)/(0-1~2.5bar) (Absolute pressure version available) |
| I | 0-0.1~1MPa(0-10~100mmH2O)/(0-1~10bar) (Absolute pressure version available) |
| J | 0-0.1~3MPa(0-10~300mmH2O)/(0-1~30bar) (Absolute pressure version available) |
| B | 0-200Pa~6kPa(0-20~600mmH2O)/(0-2~60mbar) |
| C | 0-400Pa~40kPa(0-40~4000mmH2O)/(0-4~400mbar) |
| D | 0-2.5kPa~250kPa(0-0.25~25mH2O)/(0-25~2500mbar) |
| E | 0-10kPa~1MPa(0-1~100mH2O)/(0-0.1~10bar) |
| F | 0-30kPa~3MPa(0-3~300mH2O)/(0-0.3~30bar) |
| G | 0-100kPa~10MPa(0-10~1000mH2O)/(0-1~10mbar) |

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| Diaphragm material | |
|---|---|
| S | 316L |
| H | Hastelloy C |
| T | Tantalum |

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| Filling liquid | |
|---|---|
| D | Silicone oil |

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| Electrical connection | |
|---|---|
| 1 | M20*1.5 female thread, PVC |
| 2 | M20*1.5 female thread, stainless steel |
| 4 | 1/2NPT female thread, stainless steel |

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| Output | |
|---|---|
| N | 4...20mA |
| J | 4...20mA+HART |
| F | RS485 |

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| Process connection | |
|---|---|
| M | M20*1.5 male thread |
| G | G1/2 male thread |
| N | NPT1/2 male thread |
| A | NPT1/2 female thread |
| Y | others |

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| Mounting brackets | |
|---|---|
| N | No bracket |
| B4 | Pipe bend bracket (carbon steel) |
| B5 | Flat Bend Bracket (Carbon Steel) |

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| Explosion-proof treatment | |
|---|---|
| N | Normal type |
| D | Explosion proof ExdIICT6 (PVC threads are not applicable) |

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| Display | |
|---|---|
| M5 | With display |
| N | No display |

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| Additional requirements | |
|---|---|
| P | M20*1.5 male thread with pressure welding head |
| N | Material of connector 316L |
| K | Degreasing and cleaning treatment |
| L | Hanging number plate |
| H | Lightning protection (transient voltage resistance) |
| E | English nameplate |
| V2 | Two valve group |