

## MONOCRYSTALLINE SILICON DIFFERENTIAL PRESSURE TRANSMITTER MODEL MST22





1)MST22 Main view 2)MST22 decomposition diagram 3)4)Side view of MST22

MST22 differential pressure transmitter uses single crystal silicon sensor chip which adopts German advanced MEMS technology. It has built-in temperature compensation element and extremely high measurement accuracy and long-term stability over a wide range of static pressure and temperature variations. It can measure level, density, pressure of liquid, gas and steam. It is widely used in industrial process control, automated manufacturing, aerospace automotive and marine petroleum and petrochemical, electronic power, medical and health and many other fields.

MST22 can accurately measure differential pressure and convert it into 4-20 mA DC output signal and can be operated locally

through three buttons, and remotely operated by a general-purpose communicator, configuration software, and mobile phone APP, to perform display and configuration adjustment without affecting the 4-20 mA DC output signal.

#### **Features**

- · High product life and long-term stability
- Double Wheatstone bridge design, "double beam" resistance temperature characteristics complement each other, improve the antiinterference ability of the chip
- LCD with backlit digital watch head can display pressure, percentage and current and 0 to 100% analog indication

#### **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 not limited to, the combined error of Reference Accuracy, Static Pressure Effect, Ambient Temperature Effect and other effects.

- 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	TD≤10	±0.075%	Nominal range 6KPa,
Accuracy	10 < TD≤100	±0.0075TD%	40KPa,250KPa,1MPa, 3MPa.10MPa
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Note: TD = Turn down

|URV|≥|LRV|, TD=URL/|URV|

|URV|≤|LRV|, TD=URL/|LRV|

#### 2)Static pressure impact

Zero impact	±0.15TD% Upper range limit/10MPa
Full scale effect	±0.2TD% Upper range limit/10MPa

#### 3)Ambient temperature influence of range below 6KPa

Range	Temperature	Accracy
Below 6 KPa	Normal Temp range	0.075%
	-2070°C Temp range	0.15%

#### 4)Voltage impact

When the power supply voltage varies within  $12\sim36V$  DC, the variation of zero point and range is not exceed  $\pm0.005\%$  of the upper limit range/V, which can be ignored.

#### **Functional specifications**

#### 1)Range limits

Range can be adjusted by turn down adjustment within URL and LRL. Such as for URL/LRL  $-40 \sim 40$  kPa, TD=10, range can be  $0 \sim 4$ kPa or  $-4 \sim 4$ kPa. Turn down should be as low as possible to ensure accuracy. In general, turn down is within 10, too big will affect accuracy

#### 2)Zero point setting

Zero and span can be adjusted to any value within the measurement range in the table, as long as calibration range is not less than minimum range.

#### 3)Range and scope

Range/URL/LRL		КРа	Turndown ratio
	Range	0.26	1 20
В	URL/LRL	-66	130
	Range	0.440	1 100
С	URL/LRL	-4040	1100
	Range	2.5250	
D	URL/LRL	-100250	1100
	Range	101000	
Е	URL/LRL	-1001000	1100
F	Range	303000	
	URL/LRL	-1003000	1100

#### 5)Output

Signal	Туре	Output
420mA	Linear	Two-wire
420mA+HART	Linear	Two-wire
RS485	Linear	Four-wire

#### 6)Alarm current

Low report mode(Minimum): 3.8 mA.

High report mode (maximum): 20.8 mA.

No report mode (hold) : keep the effective current value

before the fault

Standard setting of alarm current: 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.

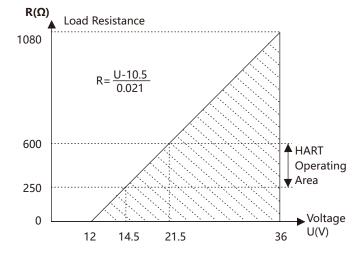
#### 8) Ambient temperature

Item	Operating conditions
Working temperature	-20+70°C[-4+158°F] with display
Storage temperature	-40+85°C[-40+185°F]
Measuring medium	Silicon oil filled sensor:
temperature range	-40+120°C[-40+248°F]
Working humidity	5100%RH@40℃
Production grade	IP65
Dangerous place	ExdIICT6

#### Installation

#### 1)Power supply and load conditions

Item	Operating conditions
Standard/	14.5-36VDC communication
Isolated Explosion Proof	load:250-600Ω
RS485	1236VDC

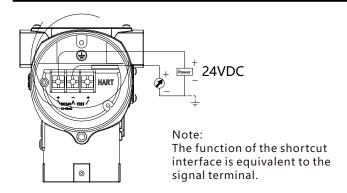


#### 2) Electronic connection

Туре	Directions
Electrical	Junction box is Aluminum alloy with two outlets
connection	M20 *1.5 Female. Main body is light blue.
	Shell cover is white.
	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
Outlet	other end is equipped with plug, stainlesss
protection	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, surface
	sprayed with epoxy resin
Shell seal	NBR
Name plate	Stainless steel 304
Electrical conne	at mounting brackets and process connection ction
HART CONTRACTOR OF THE PROPERTY OF THE PROPERT	+ Power 24VDC

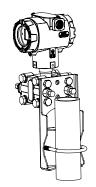


# MST22 monocrystalline silicon differential pressure transmitter 11/2024

#### Dimensiones in mm(in)



Pipe Mounted Horizontal Bracket



Pipe Mounted Vertical Bracket

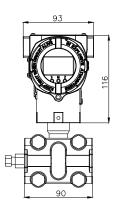


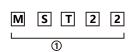


Plate Bending Bracket

### Ordering information

#### Example part number:MST22-CSD1JADDNB1

Model MST22 differential pressure transmitter, Measuring range 0...40KPa,Diaphragm material :316L,Filling liquid:Silicone oil,Electrical connection:M20\*1.5 female thread, PVC,Output:4~20mA+HART,Process connection:Back welded connector and M20\*1.5 male,Sealing ring:FKM,Explosion-proof treatment:Normal type,Mounting bracket:Plate Bending Bracket(Carbon Steel)





Model
MST22

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Measuring range		
В	0-200Pa~6KPa(0-20~600mmH2O)/(0-2~60mbar)	
С	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)	

Electrical connection	
1	M20*1.5 female thread, PVC
2	M20*1.5 female thread, stainless steel
3	1/2NPT female thread, PVC
4	1/2NPT female thread, stainless steel

Exp	plosion-proof treatment
N	Normal type
D	Secondary Explosive ExdIICT6
10	

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Output		
N	420mA	
J	420mA+HART	
F	RS485	

Disp	Display	
M5	With display	
N	No display	

B1 Plate Bending Bracket(Carbon Steel)

Mounting bracket

Diaphragm material
S 316L
H Hastelloy C
T Tantalum

$\omega$		
Process connection		
N	Without(NPT 1/4 female thread on chamber flange	
Α	Back welded connector and M20*1.5 male	
В	Oval Flange connector: NPT1/2 Female	
С	T type: M20*1.5 male and back welded connector	

B2	Tube Bending Bracket(Carbon Steel)
В3	Tube Flat Bracket(Carbon Steel)
В5	Plate Bending Bracket(Stainless steel)
В6	Tube Bending Bracket(Stainless steel)
В7	Tube Flat Bracket(Stainless steel)
N	Without

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Filling liquid		
D	Silicone oil	
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Seal	ing ring	
N	NBR	
D	FKM	
Ī	EPDM	

 $Please\ make\ separate\ remarks\ for\ special\ requirements.$ 

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Add	Additional requirements		
Р	M20*1.5 female thread with pressure welding head		
N	Connector material is 304, optional 316L		
K	Degreasing and cleaning treatment		
L	Hanging number plate		
Н	Lightning protection (transient voltage resistance)		
E	English nameplate		
V3	Three valve group		