MADECO Pressure Transmitter

Model:MDPT200



Product Overview

The MDPT200 series of intelligent pressure transmitters adopt high-performance single-product silicon composite pressure sensing technology and are used to measure the pressure/differential pressure and liquid level of various media (liquids, gases, mixed liquids, etc.)! Level, density and flow information. Multiple output modes are available, including standard 4-20mA analog current signals,HART communication protocol and other industrial bus protocols. At the application site, parameters can be set, monitored and tested through buttons, hand controllers or PC terminals, providing an efficient and reliable measurement solution for the dynamic control of industrial processes.

Application

The MDPT200 series products have passed multiple industry certifications with outstanding performance and offer a variety of forms, functional modules and material options, capable of handling more complex working conditions. It is widely applied in industrial fields such as oil and gas, chemical engineering, lithium batteries, power, papermaking, metallurgy, shipping, food and pharmaceuticals.

Special Feature

- The maximum range ratio is 100:1, and the measurement range can be adjusted flexibly;
- The high-performance EMC protection circuit module is used to effectively reduce the impact of electromagnetic disturbance on the output of the product
- Strong stability can reach ±0.1%SPAN/5 years.

Range

Model	Nominal range	Minimum range	Lower (LRL)	Upper (URL)	Overload
GP	400mbar	20mbar	-400mbar	400mbar	10bar
	2.5bar	125mbar	-1bar	2.5bar	40bar
	10bar	500mbar	-1bar	10bar	60bar
	30bar	1.5bar	-1bar	30bar	150bar
	100bar	5bar	-1bar	100bar	200bar
	400bar	50bar	-1bar	400bar	800bar
AP	400mbar	200bar	0bar	400mbar	10bar
	2.5bar	500mbar	0bar	2.5bar	40bar
	10mbar	2bar	0bar	10mbar	60bar
	100mbar	10bar	0bar	100mbar	200bar

Note: ① LRV/URV setting: the lower limit value (LRV) and upper limit value (URV) are achieved between the upper and lower limits. If | URV |≥ | LRV |, | URV | must be larger than the minimum pressure; if | URV |≤ | LRV |, | LRV | must be larger than the minimum pressure.
It is recommended to choose a range ratio with the minimum possible value.
② When the AP range is 0.1bar or 0.2bar, the measuring diaphragm is ceramic.

Accuracy

Stated reference accuracy include best fit straight line(BFSL), hysteresis, and repeatability as per the standard and reference test conditions.
Calibration temperature: 20°C ±5°C , based on Zero value.

Linear output accuracy	GP	TD ⩽ 5	±0.1%	400mbar,2.5bar
			±0.075%	10bar,30bar,100bar,400bar
		TD>5	± (0.025+0.015TD) %	400bar,2.5bar
			± (0.0025+0.0145TD) %	10bar,30bar,100bar,400bar
	AP	TD ⩽ 5	±0.2%	400mbar,2.5bar
			±0.1%	10bar,100bar
		TD>5	± (0.025+0.035TD) %	400mbar,2.5bar
			± (0.025+0.015TD) %	10bar,100bar

Note:TD(Turn down) represents the range ratio, TD= Maximum range / Current range. [Maximum range = URL (range starts with 0, same as factory-calibrated range); Current range = SPAN (equivalent to |URV-LRV|)]
[Maximum range = URL (range starts with 0, same as factory-calibrated range); Current range = SPAN (equivalent to |URV-LRV|)].

Specifications

GP Accuracy	±0.05%, ± %75 , ±0.2% URL, see the specifications for details
AP Accuracy	±0.1%, ±0.2% URL, see the specifications for details
GP Range	0.4bar~400bar, see the specifications for details
AP Range	0.1bar~100bar, see the specifications for details
Turn down ratio	100:1
Long-term stability	±0.2% Span/10 years
Ambient temperature effects	See the specifications for details
Voltage effects	When the power supply voltage changes within 18.3V~44V DC, its zero point and range change should not exceed ±0.005% URL/V
Mounting position effects	Less than 4mbar at any position, which can be corrected by PV(primary value)=0 reset
Vibration effects	＜ 0.1% SPAN as per GB/T18271.3/IEC61298-3
Output signal	4mA~20mA DC, HART
IP rating	IP67
Weight	About : 1.56kg (without mounting bracket and process connection accessories)

Ambient Temperature Effects

Product Model	Effect	Range
GP	±(0.075+0.0375TD) % 10°C of SPAN	0.4bar, 2.5bar, 10bar, 30bar, 100bar, 400bar
AP	±(0.125+0.075TD) % 10°C of SPAN	0.1bar, 0.2bar, 0.4bar
	±(0.115+0.065TD) % 10°C of SPAN	2.5bar,10bar, 30bar, 100bar

Electromagnetic compatibility impact

SN	Test items	Basic Standards	Test Conditions	Performance Level
1	Radiation interference(enclosure)	CISPR 32	30MHz~1000MHz	Qualified
2	Conducted interference(DC power port)	CISPR 32	0.15MHz~30MHz	Qualified
3	Electrostatic discharge(ESD)immunity	IEC61000-4-2	8kV (Contact), 15kV (Air)	A
4	Rf electromagnetic field radiation immunity	IEC61000-4-3	10V/m (80MHz~1GHz)	A
5	Power frequency magnetic field immunity	IEC61000-4-8	30A/m	A
6	Immunity to electrical fast transient burst	IEC61000-4-4	4kV(5/50ns,100kHz)	A
7	Surge Immunity	IEC61000-4-5	1kV(line to line) 2kV(line to ground) (1.2/50μs)	A
8	Conducted disturbance Immunity Induced by RF fields	IEC61000-4-6	3V(150kHz~80MHz)	A

Note: When the performance grade is A ,the performance is normal within the limits specified in the technicals pecifications.

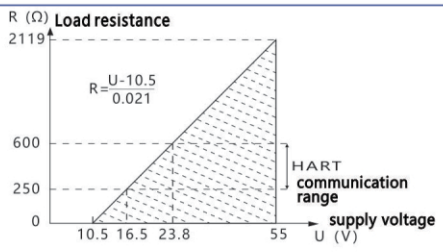
Environmental Conditions

Items	Conditions
Operating temperature	-40°C ~85°C，LCD：-40°C~80°C
Storage temperature	-40°C ~100°C，LCD： -40°C ~85°C
Measure the temperature range of the medium①	Silicone oil filled: -40°C ~105°C
	Inert filling liquid -45°C ~160°C
	Low temperature silicone oil: -55°C ~200°C
Operating humidity	5%RH~100%RH@40°C

Note:① This item is related to the type of silicone oil filled and the sealing ring used.
The temperature range of non-silicone oil is limited by the lowest material temperature range in the system.

Power supply and load Conditions

Items	Conditions
Power supply voltage	HART Communication protocol: 16.5V ~55V DC①
	Intrinsically safe HART communication protocol 18.5V~28V DC
Load resistance	0Ω~2119Ω② For working status 250Ω~600ΩHART communication
Transmission distance	＜1000m
Power consumption	
4mA~20mA	⩽500mW@24V DC，20.8mA



Note : ① HART Communication protocol Power supply voltage is optional 10.5V, please consult engineer for details
② 2119Ω=（55V-10.5V）/21mA

Time Index

Damping time constant: equals to the combined damping time of electronic components and sendor module
Electronic components damping time: 0s~100s configurable
Sensor module damping time(sensor isolated diaphragm and filled silicone oil):≤ 0.2s (Note: This item is related to the sensor type and whether there is a diaphragm component.)
Turn-on time: ≤6s
Factory reset time: ≤31s

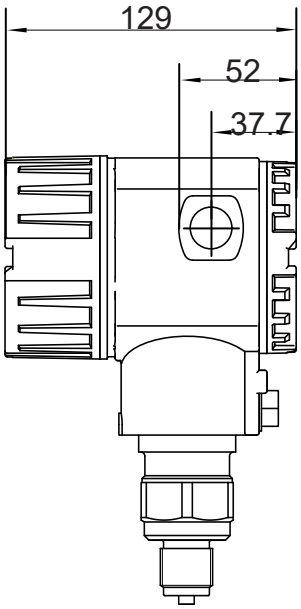
Dangerous Situation

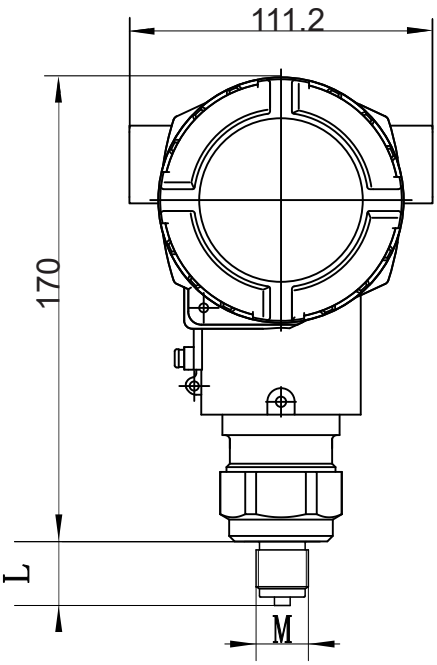
Dangerous situation①	ECM	Ex ia IIC T4 Ga Ex db IIC T6 Gb
	ATEX	Ex ia IIC T4 Ga II 2G Ex db IIC T6 Gb II 2D Ex tb IIIC T80°C Db
	IECEX	Ex ia IIC T4 Ga Ex db IIC T6 Gb Ex tb IIIC T80°C Db
	CSA	Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80°C Class III Ex db IIC T6 Gb Class I, Zone 1, AEx db IIC T6 Gb Ex tb IIIC T80°C Db Zone 21, AEx tb IIIC T80°C Db
Note:① For details please consult with the engineer		

Dimensions

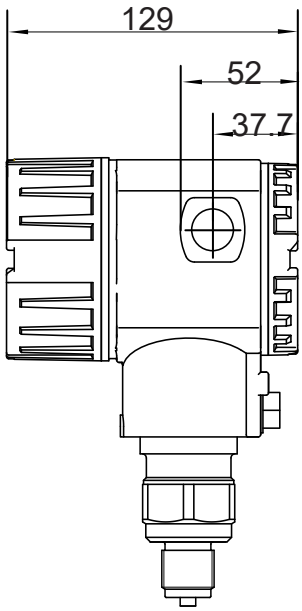
Note: The gland head is sent as an accessory with the product when it leaves the factory, and it is to be installed by the user. Unit: mm

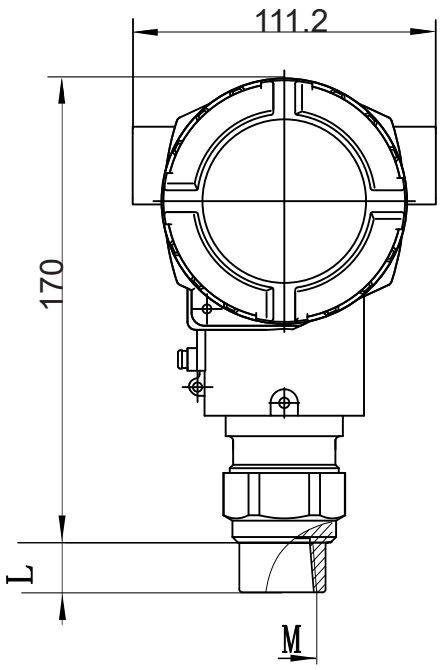
Transmitter With Display -Male



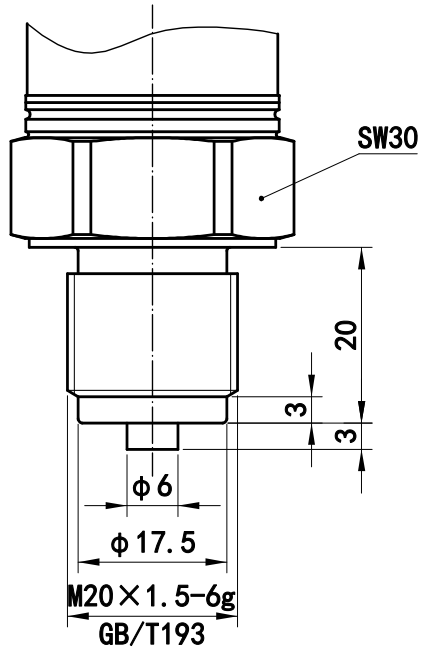


Transmitter With Display- Female

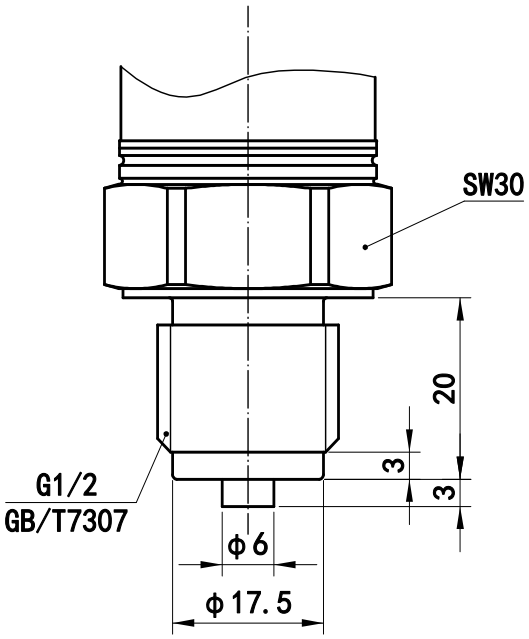




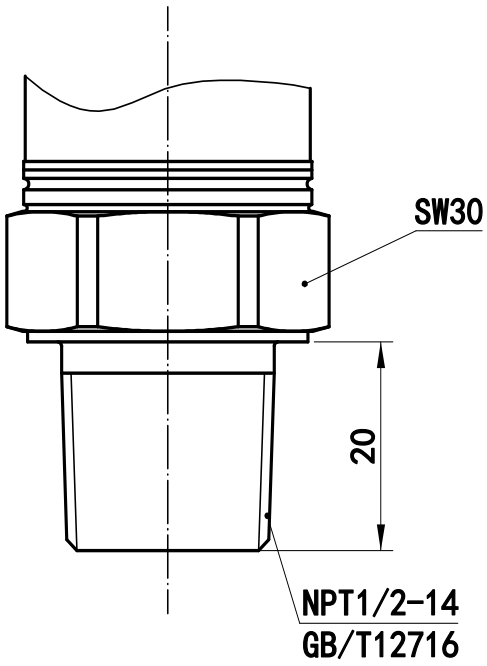
Process Connection (M)



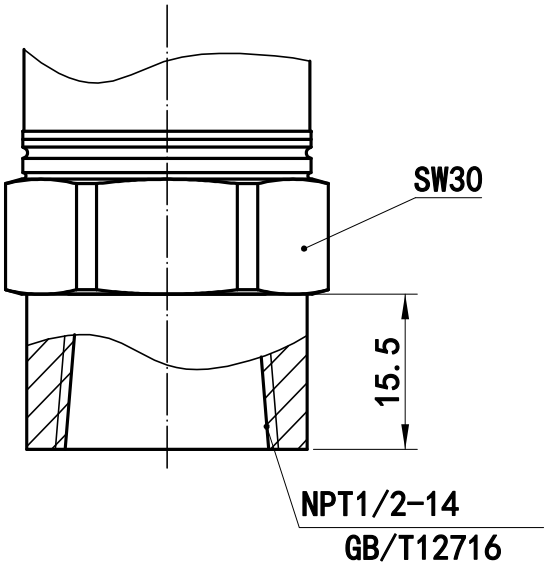
Process Connection (G)



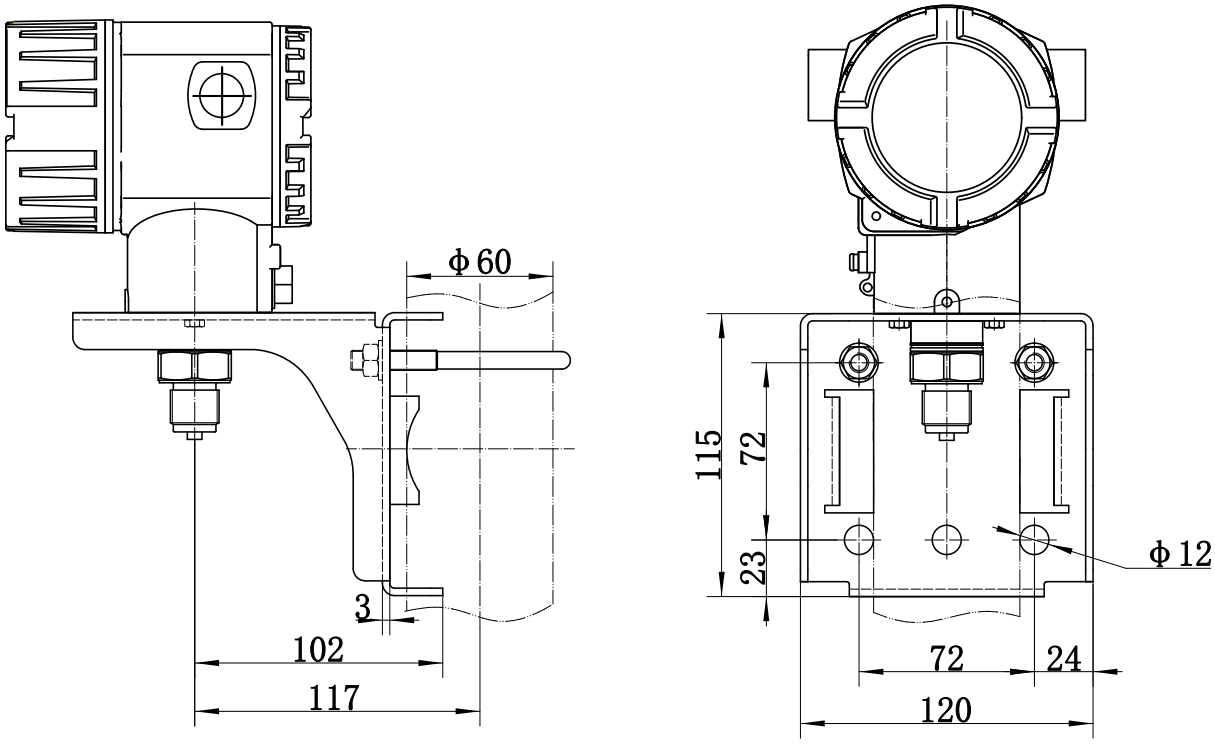
Process Connection (A)



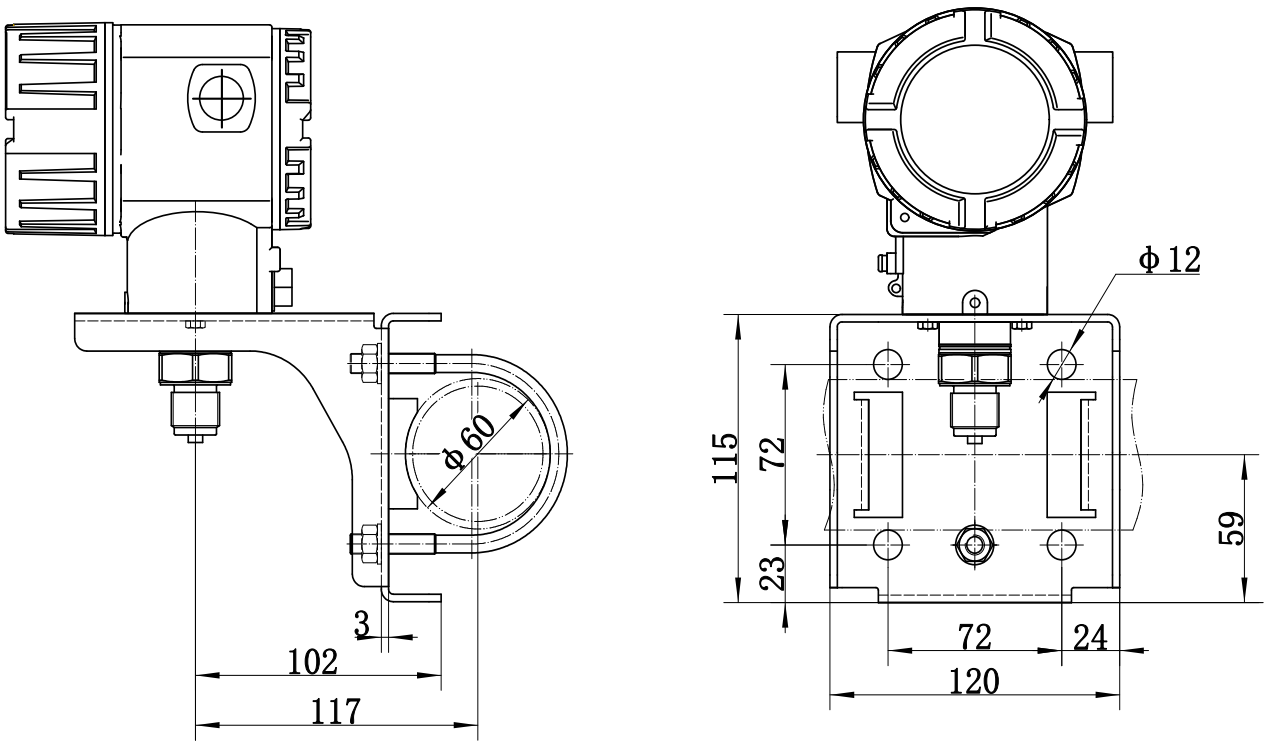
Process Connection (N)



Installation bracket G1 dimension drawing-Vertical installation



Installation bracket G1 sizedrawing - Horizontal installation



MDPT200 Pressure Transmitter

ORDERING CODE	Example: MDPT200	D	4	4	A	2	M	S	I	AT	H
Measurement Type											
D - Differential		D									
A - Absolute											
G - Gauge											
Process Connection Size											
4 - 1/2 NPTF			4								
6 - 1/4 NPTF											
8 - 1/2 BSPM											
C - Customer											
Pressure Range											
2 - (-400mbar...400 mbar)/absolute (0...400mbar)											
4 - (-1bar...2.5bar)/absolute (0...2.5bar)				4							
6 - (-1bar...30bar)/absolute (0...30bar)											
8 - (-1bar...100bar)/absolute (0...100bar)											
10 - (-1bar...400bar)/absolute (0...400bar)											
12 - (-1bar...600bar)/absolute (0...600bar)											
C - Customer											
Housing material											
A - Aluminum					A						
S - Stainless Steel											
C - Customer											
Conduit Entry Size											
2 - 1/2NPT						2					
4 - M20*1.5											
C - Customer											
Isolating Diaphragm											
S - 316L Stainless steel											
M - Monel® 400							M				
H - Hastelloy											
T - Tantalum											
G - Gold plated											
C - Customer											
Process Connection Material											
S - 316L Stainless steel								S			
M - Monel® 400											
H - Hastelloy											
T - Tantalum											
G - Gold plated											
C - Customer											
Sensor Fill Fluid											
S - Silicone fill &FPM viton gasket											
I - Inert Oxygen services- Fluorolube &NBR v									I		
Accuracy											
AT - 0.075% (std.)										AT	
AC - 0.05%											

MDPT200 Pressure Transmitter

ORDERING CODE Example: MDPT200	H	N	D	AM	Note
Transmitter Output					
H - 4...20mA signal based on HART®protocol	H				
F - Foundation™fieldbus protocol					
P - PROFIBUS®PA Protocol					
L - Low power 1...5 VDC					
W - Wireless					
C - Customer					
Certificate					
N - None		N			
I - Intrinsically safe (II 1/2 Ex ia IIC T4/T5)					
E - Explosion proof (II 1/2 Exia/d IIC T5/T6)					
M - Marine certificate-DNV					
Display					
N - None					
D - LCD display			D		
Options					
AS - Assemble 3way manifold					
AM - Assemble 3way manifold				AM	
NC - NACE MR 0175					
CC - Calibration certificate					
CM - Material Traceability certification					
CP - Hydrostatic testing with certificate					
CL - Cleaning for special service					
CR - special calibrated range (please specify the range)					
AN - Analog zero and span trim					
NH - Stainless steel tag wired to case					
EC - ECM Certificate					
BT - Bluetooth configurable mobile App and maintenance					
HM - MADECO HART modem calibrator					
AT - ATEX					
W3 - 3 year warranty					
W5 - 5 year warranty					
Other					



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