Piezoresistive Differential Pressure Transmitter for General Industries

MDM491

Applications

- Petroleum industry
- Chemical industry
- Electricity industry
- Hydrology

Features

- Welding Structure, full-sealed
- Zero and span adjustable outside for plug connection products
- Temperature compensation and aging, stable and reliable performance

Introduction

MDM491 differential pressure transmitter's sensor element is a kind of full-sealed(without sealing ring) differential sensor, silicon oil is filled between the die and two diaphragms. When the measured differential pressure is added on the two diaphragms, the pressure could be transferred onto the die through silicon oil. The sensor die connects with an amplifier circuit through wires, uses the semiconductor's piezoresistive effect to transform the differential pressure signal into the electric signal. Since the signal output of the Wheatstone bridge on the die has a good linear relationship with the differential pressure, the differential pressure can be accurately measured.

Specifications

Range	0mbar ~ 350mbar…20bar
Overpressure	≤2 times FS
Maximum Static Pressure	≤200bar
Pressure Type	differential pressure
Accuracy	±0.5%FS
Long-term Stability	±0.5%FS/year (≤ 2bar)
	±0.2%FS/year (> 2bar)
Application Temperature	-30°C ~ 80°C (B1 type)
	-20°C ~ 70°C (B2 type, cable material: PE, PVC)
	-20°C ~ 80°C (B2 type, cable material: PUR)
Storage Temperature	-40°C ~ 120°C
	-20°C ~ 85°C (B2 type)
Vibration	10g, 30Hz ~ 2000Hz
Shock	100g, 11ms
Protection Rating	IP65
Weight	≤500g

Thermal Drift

Zero Thermal Drift	±0.75%FS/°C (≤2bar)
	±0.5%FS/°C (>2bar)
Span Thermal Drift	±0.75%FS/°C (≤2bar)
	±0.5%FS/°C (>2bar)

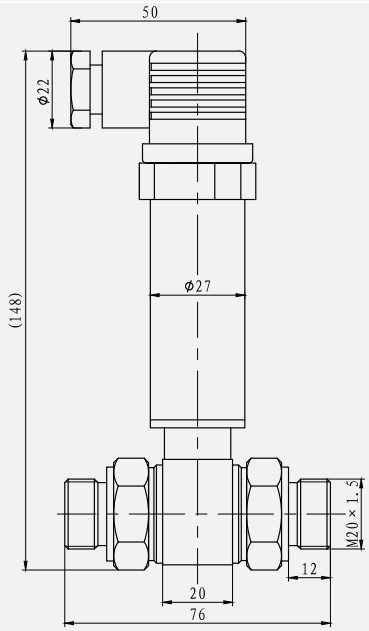
Output Signals

Output Signal	Power Supply	Output Format	Load Resistance
4mA~20mA DC(E)	15V~28V DC	2-wire	≤(U-15)/0.02(Ω)
0mA~10mA DC(Q)		3-wire	
0mA~20mA DC(U)			
0V~5V DC(J)			>100 kΩ
1V~5V DC(F)			
0V~10V DC(V)			

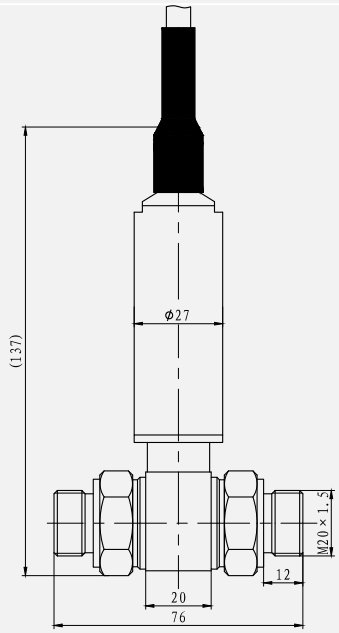
Outline Dimensions

unit: mm

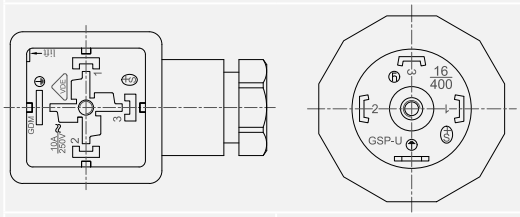
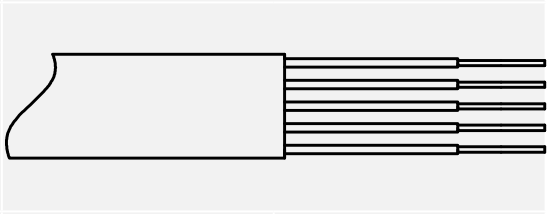
Hirschmann 4-pin Plug Connector (B1)



Cable Type (B2)



Electrical Connection

Definition	Hirschmann 4-pin Plug Connector (B1)		Cable (B2)	
				
	current 2-wire	voltage 3-wire	current 2-wire	voltage 3-wire
+V	1	1	red	red
+OUT	2	3	black	white
GND	null	2	null	black

Materials

Wetted Parts

Isolated Diaphragm: SS 316L

Pressure Port: SS 304/SS 316L

Non-wetted Parts

Housing: SS 304/SS 316L

Cable: PE/PUR/PVC

Ordering Guide

MDM491	Piezoresistive Differential Pressure Transmitter						
	Range	Measurement Range: 0mbar ~ 350mbar…20bar					
	[0 ~ X]mbarL or barL	X means actual measured range, L means cable length when electrical connection is B2					
		Code	Output Signal				
		E	4mA~20mA DC				
		Q	0mA~10mA DC				
		U	0mA~20mA DC				
		J	0V~5V DC				
		F	1V~5V DC				
		V	0V~10V DC				
			Code	Material			
				Isolated Diaphragm	Pressure Port	Housing	
			22	SS 316L	SS 304	SS 304	
			24	SS 316L	SS 316L	SS 316L	
				Code	Process Connection		
				C1	M20×1.5 male, end face seal		
				C2	G1/4 male, end face seal		
				C3	G1/2 male, end face seal		
				C4	G1/4 female		
					Code	Electrical Connection ①	
					B1	4-pin plug connector	
					B2	cable connection	
						Code	Accessory
						null	no accessory
						M6	4 digits LED digital indicator (only for 4mA ~ 20mA DC output non-explosion proof or non-ship-use products with B1 electrical connection)
						M7	4 digits LCD digital indicator (only for 4mA ~ 20mA DC output non-explosion proof or non-ship-use products with B1 electrical connection)
MDM491	[0 ~ 16]bar	E	22	C4	B1	M6	Complete Type Specification

Ordering Notes

1. " ① " , for B1 electrical connection: no mating connector is provided by default; needs to be purchased separately.
2. Cable length is 1.5m by default, Cable material is available for 3 types: PE cable is provided by default; if other material is needed, please specify in the order.
3. When ordering the transmitter with M6 or M7 indicator, power supply should ≥20V DC.
4. Environmental temperature should be -20℃ ~ 70℃ when ordering the transmitter with M6 indicator, environmental temperature should be -10℃ ~ 60℃ when ordering the transmitter with M7 indicator, indicator setting can refer to our indicator lectotype, which can be found on our company's website.
5. In order to ensure the safe and reliable operation of the transmitter, it is recommended to install a three-valve group between the measured point and the transmitter to ensure that the medium under test is slowly and evenly added to the difference positive and negative pressure chambers for pressure transmitters.
6. When ordering, please note that the static pressure of the measured pressure point does not exceed 200bar, and the overpressure of the positive and negative pressure chambers of the transmitter cannot exceed the specified value of the product.
7. If any metrology verification certificate is needed or there are other requirements, please contact us and specify it in the order.