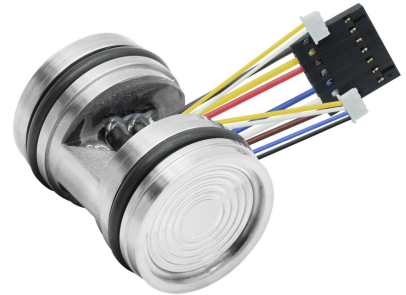




MCM211 Compound Pressure Sensor

Features

- Differential Pressure Range: 0kPa~35kPa...3.5MPa
- Static Pressure Range: 0kPa~20MPa
(or as requested)
- Temperature Range: -40°C~125°C
- Constant current / constant voltage power supply
- Isolated construction, enable to measure various media
- OEM differential pressure sensor
- Full stainless steel 316L
- 1.5FS overpressure for differential pressure



Application

- Industrial process control
- Differential pressure measurement
- Gas, liquid pressure measurement
- Pressure checking meter
- Internet of Things
- Venturi meter and swirlmeter

Introduction

MCM211 compound pressure sensor is OEM pressure sensor with stainless steel isolated diaphragm. It integrated differential pressure measurement, static pressure measurement and temperature measurement together. With integrated construction, it has same outline appearance with MDM290, compact size, high endurance, high stability and good reliability. It adopts isolated diaphragm for differential pressure and static pressure protection. The high and low pressure cavity can work with certain corrosive fluid. The pressure is transferred to die though isolated diaphragm and filling oil to realize precise differential pressure and static pressure measurement. At the same time, temperature change of measured media can be measured by in-built thermal resistor. The sensor, using high accurate and stable pressure die, are produced on the advanced production line. Sensors are tested automatically, and compensated zero and temperature performance with provided resistors. It can be widely applied in internet of things, industrial process control fields.

Electrical Performance

- Power supply: $\leq 2.0\text{mA DC}$; $\leq 10\text{V DC}$
- Electrical connection: 100mm silicon rubber flexible wires or connector
- Common mode voltage output: 50% input (typ.)
- Input impedance: $2\text{k}\Omega\sim 5\text{k}\Omega$
- Output impedance: $3.5\text{k}\Omega\sim 6\text{k}\Omega$
- Response (10%~90%): $< 1\text{ms}$
- Insulation resistor: $100\text{M}\Omega$, 100VDC
- Max. static pressure: 20MPa
- Zero drift/Static pressure: $\leq 0.5\text{mV/MPa}$

Construction Performance

- Diaphragm: stainless steel 316L
- Housing: stainless steel 316L
- Wire: silicon rubber flexible wires
- O-ring: Viton

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Net weight: ~ 36g

Environment Condition

Shock: no change at 10gRMS, (20 ~ 2000)Hz

Impact: 100g, 11ms

Media compatibility: the gas or liquid which is compatible with stainless steel and Viton

Basic Condition

Media temperature: (25±1) °C

Environment temperature: (25±1) °C

Shock: 0.1g(1m/s²) Max

Humidity: (50%±10%) RH

Local ambient pressure: (86~106) kPa

Power supply: (1.5±0.0015) mA DC

Basic Specification for Differential Pressure

Item*	Min.	Typ.	Max.	Units
Linearity		±0.15	±0.25	%FS, BFSL
Repeatability		±0.05	±0.075	%FS
Hysteresis		±0.05	±0.075	%FS
Zero output			±3	mV DC
FS output	50			mV DC
Zero thermal error		±0.75	±1.0	%FS, @ 25°C
Span thermal error		±0.75	±1.0	%FS, @ 25°C
Compensated temp. range		0~70		°C
Working temp. range		-40~125		°C
Storage temp. range		-40~125		°C
Stability error		±0.2	±0.3	%FS/year

*testing at basic condition

Basic Specification for Static Pressure

Item*	Min.	Typ.	Max.	Units
Linearity		±0.15	±0.25	%FS, BFSL
Zero output			±35	mV DC
FS output	70			mV DC
Working temp. range		-40~125		°C
Storage temp. range		-40~125		°C
Stability error		±0.3	±0.5	%FS/year

* testing at basic condition

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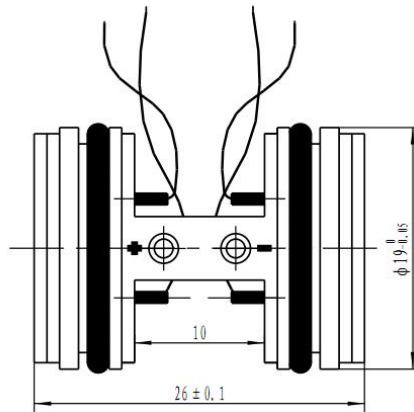
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Basic Specification for Temperature

Item*	Min.	Typ.	Max.	Units
Accuracy			±0.5	°C
Working temp. range		-40~125		°C
Storage temp. range		-40~125		°C

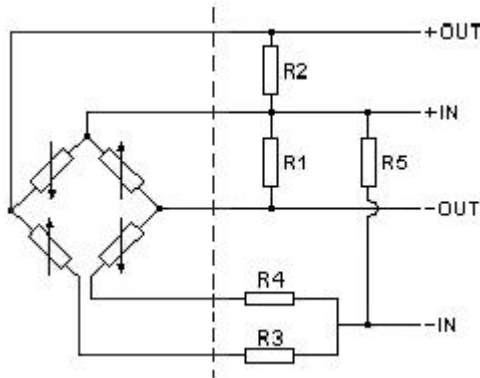
Outline Construction (Unit: mm)



The suggested installation dimension is $\Phi 19^{+0.05}_{+0.02}$ mm

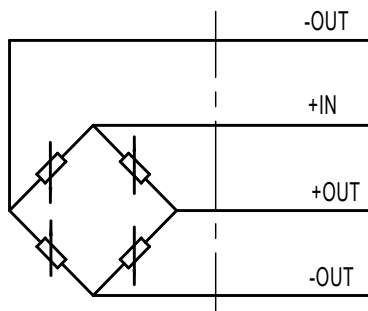
Electrical Connection

Differential Pressure (+)



Wire Color	Electrical Definition
Black	+IN
Yellow	-IN
White	-IN
Red	+OUT
Blue	-OUT

Static Pressure (-)



Wire Color	Electrical Definition
Black	+IN
Yellow	-IN
Red	+OUT
Blue	-OUT

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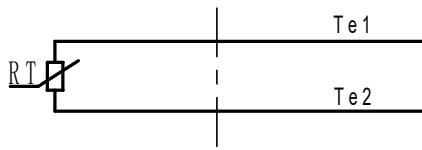
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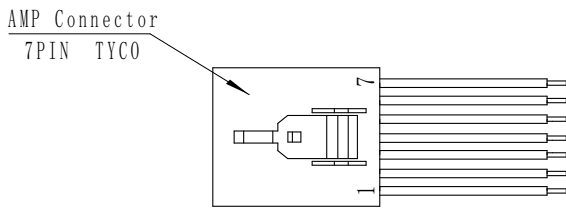


Temperature Pressure (-)

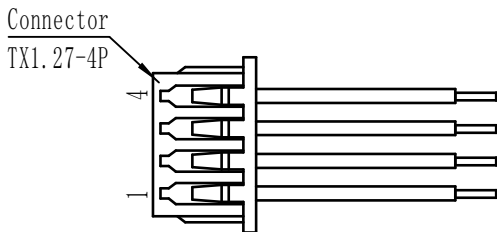


Wire Color	Electrical Definition
White	Te1
White	Te2

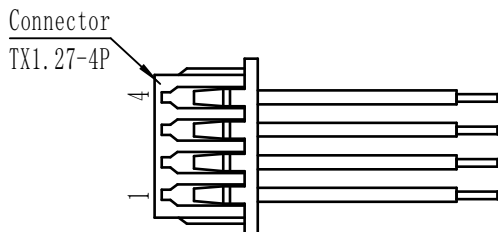
Electrical Connection for Connector Output



No.	Wire Color	Electrical Definition
1	Black	+IN
2	Red	+OUT
3	White	-IN
4	Null	Null
5	Blue	-OUT
6	Yellow	-IN
7	Null	Null



No.	Wire Color	Electrical Definition
1	Black	+IN
2	Red	+OUT
3	Blue	-OUT
4	Yellow	-IN



No.	Wire Color	Electrical Definition
1	Null	Null
2	Null	Null
3	White	Te1
4	White	Te2

1. The resistance bridge on the left of the dashed is sensing die's bridge circuit;
2. If the sensor has no hybrid board, it is needed to connect outer compensated resistor to compensate zero and temperature drift, the connection to see the above chart. Connect zero calibrated resistor R3 (R4), the other resistor R4 (R3) is short circuit as negative power supply; R1 or R2 is zero temperature compensated resistor, only one of them is used, the other is open circuit. The user could select according the specification label which is enclosed with pressure sensor; R5 is sensitivity temperature compensated resistors. We suggest that please connect the outer compensated resistors with pressure sensor as close as possible.

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Order Guide

MCM211	DP range code	Pressure range	DP range code	Pressure range
	0A	0kPa~35kPa	09	0kPa~700kPa
	02	0kPa~70kPa	10	0kPa~1000kPa
	03	0kPa~100kPa	12	0MPa~2MPa
	07	0kPa~200kPa	13	0MPa~3.5MPa
	08	0kPa~350kPa		
		Static pressure range code		Pressure range
		17		0MPa~20MPa
			Thermal resistor code	Thermal resistor
			1	PT1000
				Code Compensation
				M Outer compensated resistor(providing resistor value)
				Code Electrical connection
				1 Connector
				2 100mm silicon rubber flexible wires
MCM211	0A	17	1	M 2 the whole spec

Note: MCM211-0A-17-1-M-2 is the compound sensor with 35kPa differential pressure, 20MPa static pressure, PT1000 thermal resistor with outer compensated resistor and electrical connection of 100mm silicon rubber flexible wires.

Order Note

1. Please notice that one side of the leading wire is High Pressure Side, the other is Low Pressure Side. Or identify High Pressure Side by mark "+", and identify Low Pressure Side by mark "-" carefully;
During application, please pay attention that the pressure of high pressure side should be higher than that of low pressure side; Static pressure can be chosen as requested;
2. Please pay attention to protect the diaphragm, prevent it from damaging;
3. Please do not pull or drag the silicon rubber flexible wires;
4. Temperature resistant range of standard Viton O-ring of sensor is -20°C ~ 250°C. When working temperature is lower than -20°C, or sensor is applied in critical environment, please contact us.

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