

*your partner of sensing and measuring*

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MICROSENSOR

# PRESSURE SENSOR MODULE CAPABILITY

Your partner of sensing and measuring

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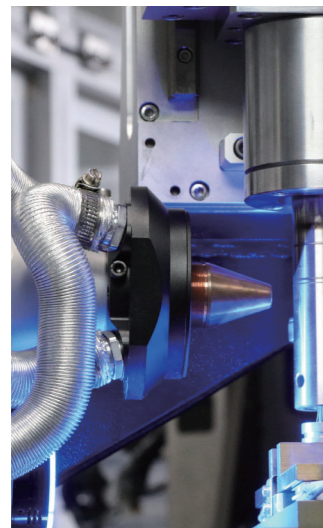
# PRESSURE SENSORS

# Company

*Since* its establishment in 1971, Micro Sensor has emerged as a prominent global manufacturer of industrial instrumentation. Specializing in delivering solutions for pressure, level, temperature, and flow measurements, Micro Sensor caters to diverse industries such as oil & gas, renewable energy, industrial gases, water & wastewater, marine & shipbuilding, HVAC, hydraulics & pneumatic, mechanical manufacturing & automation, as well as food & beverage and paper.

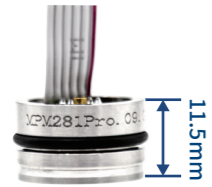
Recognizing the unique requirements of our customers, Micro Sensor acknowledges the necessity for customized sensor products tailored to specific applications. To address this, we offer sensor products with a diverse range of customizable variables, including isolated liquids, pressure ranges, compensated temperature ranges, sizes, materials, structures, power supply and output types, and performance characteristics.

Our objective in modifying these specifications is to deliver high performance and compatible sensor products that cater to the distinctive needs of our customers' applications. Throughout this process, we prioritize maintaining high levels of accuracy, stability, and reliability in our products.

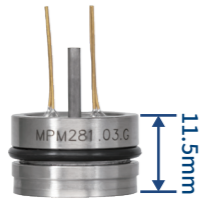


# High-Performance Type—MPM281 Series

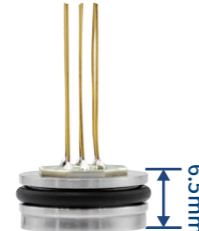
**MPM281 Pro**



**MPM281**



**MPM281 II**



**MPM281VC**



**MPM281PT**

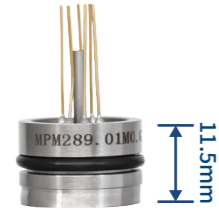


	MPM281 Pro	MPM281	MPM281 II	MPM281VC	MPM281PT
<b>Size</b>	Φ19×11.5mm	Φ19×11.5mm	Φ19×6.5mm	Φ19×11.5mm	Φ19×11.5mm
<b>Range</b>	0.07Bar~35Bar	0.07Bar~1000Bar	0.2Bar~35Bar	0.35Bar~1000Bar	0.35Bar~1000Bar
<b>Feature</b>	High-stability, stress-isolated design	High stability & accuracy	Ultra-thin design	Standardized output (100 mV @ 10 V DC)	Pressure & temperature measurement

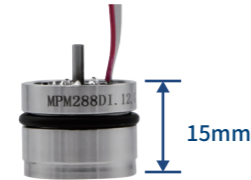
Model	MPM281 Pro	MPM281	MPM281 II	MPM281VC	MPM281PT	
<b>Size</b>	Φ19×11.5mm	Φ19×11.5mm	Φ19×6.5mm	Φ19×11.5mm	Φ19×11.5mm	
<b>Pressure type</b>	Gauge / Absolute	Gauge / Absolute / Sealed gauge				
<b>Feature</b>	Wide temperature compensation, ±1% interchangeability, gain 3.012V output	High-stability		Constant voltage power supply	Pressure and temperature dual output Thermal error±0.5°C	
<b>Input</b>	<b>Pressure range</b>	0.07Bar ~ 35Bar	0.07Bar ~ 1000Bar	0.2Bar ~ 35Bar	0.35Bar ~ 1000Bar	
	<b>Supply</b>	≤2mA DC	≤2mA DC		≤10V DC	≤2mA DC
<b>Output</b>	<b>Reference</b>	Temp.: 25°C Supply: 1.5mA DC	Temp.: 35°C Supply: 1.5mA DC		Temp.: 35°C Supply: 10V DC	Temp.: 35°C Supply: 1.5mA DC
	<b>Zero output</b>	±1mV DC (P<0.35Bar) ±2mV DC (P≤0.35Bar)	±2mV DC (Max.)		±2mV DC (Max.)	±2mV DC (Max.)
	<b>FS output</b>	≥60mV DC Note: ≥45mV DC (P=0.07Bar)	≥45mV DC (≤0.07Bar) ≥70mV DC (≥0.35Bar)		100±2mV DC	≥70mV DC (P≥0.35Bar) Note: ≥60mV DC (P=0.7Bar)
	<b>Zero thermal error</b>	±1.5%FS (P=0.07Bar) ±1.0%FS (P<0.35Bar) ±0.75%FS (0.7Bar<P<0Bar) ±0.5%FS (P>1Bar)	±0.75%FS (Typ.) ±1.0%FS (Max.)		±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)
	<b>Span thermal error</b>	±0.75%FS	±0.75%FS (Typ.) ±1.0%FS (Max.)		±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)
	<b>Non-linearity</b>	±0.15%FS (P<0.35Bar) ±0.10%FS (P≥0.35Bar)	±0.15%FS (Typ.) ±0.25%FS (Max.)		±0.2%FS (Typ.) ±0.3%FS (Max.)	±0.15%FS (Typ.) ±0.25%FS (Max.) Note: ±0.3%FS (P=0.35Bar)
	<b>Repeatability</b>	±0.02%FS (Typ.) ±0.05%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)		±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)
<b>Hysteresis</b>	±0.02%FS (Typ.) ±0.05%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)		±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)	
<b>Environmental condition</b>	<b>Compensation temp.</b>	0°C ~ 50°C (P<0.35Bar) 0°C ~ 70°C (0.35Bar≤P≤0.7Bar) -20°C ~ 85°C (P≥1Bar)	0°C ~ 70°C (≤0.35Bar) -10°C ~ 80°C (≥0.7Bar)		0°C ~ 70°C	0°C ~ 70°C (≤0.35Bar) -10°C ~ 80°C (≥0.7Bar)
	<b>Operating temp.</b>	-40°C ~ 125°C				

# General Type—MPM289 Series

**MPM289**



**MPM288DI**



**MPM288SA**



	MPM289	MPM288DI	MPM288SA
<b>Size</b>	Φ19×11.5mm	Φ19×15mm	Φ19×15mm
<b>Range</b>	0.2Bar~700Bar	0.35Bar~35Bar	0.35Bar~700Bar
<b>Vacuum/ Compound gauge</b>	-1Bar~0Bar (Vacuum pressure measurement)	-1Bar~0Bar (Vacuum pressure measurement)	-1Bar~0Bar (Vacuum pressure measurement)

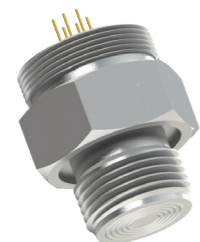
Model		MPM289		Model		MPM288DI		MPM288SA						
Size		Φ19×11.5mm		Size		Φ19×15mm		Φ19×15mm						
Pressure type		Gauge / Absolute / Sealed gauge		Pressure type		Gauge / Absolute		Gauge / Absolute						
Feature		Cost-effective		Feature		Standard I <sup>2</sup> C communication protocol Dual 24-bit ADC for pressure and temperature acquisition		Standard voltage output signal						
Input	Pressure range	0.2Bar ~ 700Bar		Pressure range	-1Bar...0Bar ~ 0.35Bar...35Bar		-1Bar... 0Bar ~ 0.35Bar...700Bar							
	Supply	≤2mA DC			Supply	Low-power consumption current:<100nA		Reverse power protection						
output	Reference	Temp.: 35°C Supply: 1.5mA DC		Reference		Temp.: 35°C Supply: 3.0V~5.5V DC		Temp.: 35°C Supply: 24V DC(8V~28V DC) 5V DC (5V±0.3V DC) 3.3V DC (3.3V±0.3V DC)						
	Zero output/accuracy	±2mV DC(Max.)			Accuracy class	/		±0.25%FS (±0.5%FS@FS=0.35bar)						
	FS output	≥60mV DC				Thermal error	±2°C		/					
	Zero thermal error	±1.0%FS(Max.)					Pressure error	±0.2%FS (±0.5%FS@0.35Bar)		/				
	Span thermal error	±1.0%FS(Max.)						Comprehensive error	±1%FS (-10°C~80°C)		/			
	Non-linearity	±0.25%FS(Max.)							Overload	2×FS		1.5×FS (Maximum ≤1100Bar)		
	Repeatability	±0.075%FS(Max.)								Burst pressure	3×FS		3.0×FS (Maximum ≤1400Bar)	
	Hysteresis	±0.075%FS(Max.)									Insulation resistance	50MΩ@50V DC		100MΩ@50V DC
Compensation temp.	0~70	°C (≤ 750mBar)		Dielectric strength								50Hz、500V AC		50Hz、500V AC
	-10~70	°C (≥ 1Bar)			Compensated temp.							0°C ~ 70°C		0°C ~ 70°C
Operating temp.	-40°C ~ 125°C		Working temp.	-10°C ~ 80°C		-40°C ~ 125°C								
Environmental condition														

# Customized Type—MPM280 Series

**MPM280F**



**MPM280PC1**



**MPM280PC3**



**MPM280PD1S**

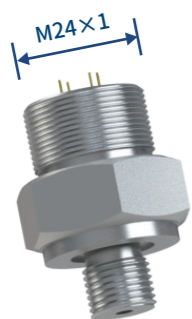


	<b>MPM280F</b>	<b>MPM280PC1</b>	<b>MPM280PC3</b>	<b>MPM280PD1S</b>
<b>Size</b>	Φ19mm	M20×1.5	G1/2	DN25
<b>Range</b>	0.35Bar ~ 200Bar	0.35Bar ~ 350Bar	0.35Bar ~ 350Bar	0.35Bar ~ 35Bar
<b>Vacuum/ Compound gauge</b>	Customizable	Customizable	Customizable	

<b>Model</b>		<b>MPM280F</b>	<b>MPM280PC1</b>	<b>MPM280PC3</b>	<b>MPM280PD1S</b>
<b>Size</b>		Φ19×13.5mm	M20×1.5	G1/2	DN25
<b>Pressure type</b>		Gauge / Absolute / Sealed gauge			
<b>Feature</b>		Flush diaphragm	Integrated threaded connection		Clamp connection with cooling part
<b>Input</b>	<b>Pressure range</b>	0.35Bar ~ 200Bar	0.35Bar ~ 350Bar		0.35Bar ~ 35Bar
	<b>Supply</b>	≤2mA DC			
<b>Output</b>	<b>Reference</b>	Temp.: (25±1)°C / Supply: 1.5mA DC			
	<b>Zero output</b>	±1mV DC(Typ.) / ±2mV DC(Max.)			
	<b>FS output</b>	≥45mV DC(0.2/0.7/1.0Bar) / ≥60mV DC(0.35/2.0/3.5Bar) / ≥70mV DC(≥7.0Bar)			
	<b>Zero thermal error</b>	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	<b>Span thermal error</b>	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	<b>Non-linearity</b>	±0.15%FS(Typ.) / ±0.25%FS(Max.)			
	<b>Repeatability</b>	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
<b>Environmental condition</b>	<b>Hysteresis</b>	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
	<b>Compensation temp.</b>	0°C ~ 50°C			
	<b>Operating temp.</b>	-40°C ~ 125°C			

# Customized Type—MPM280 Series

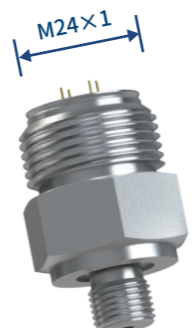
**MPM280H1 Assembled**



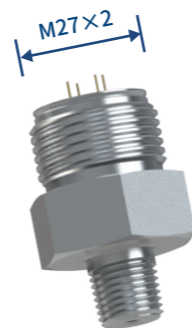
**MPM280H2 Assembled**



**MPM280H3 Welded**



**MPM280H4 Welded**



**Upper thread**

M24×1

M27×2

M24×1

M27×2

**Pressure connection (Optional)**

M20×1.5, G1/4, G1/2, G1/4, 1/4NPT, 1/2NPT

**Range**

0.2Bar~20Bar

35Bar~700Bar

0.2Bar~20Bar

35Bar~350Bar

Model		MPM280H1 Assembled	MPM280H2 Assembled	MPM280H3 Welded	MPM280H4 Welded
Upper thread		M24×1	M27×2	M24×1	M27×2
Pressure connection (optional)		M20×1.5, G1/4, G1/2, G1/4, 1/4NPT, 1/2NPT			
Pressure type		Gauge / Absolute / Sealed gauge			
Feature		Integrated threaded connection			
Input	Pressure range	0.2Bar ~ 20Bar	35Bar ~ 700Bar	0.2Bar ~ 20Bar	35Bar ~ 350Bar
	Supply	≤2mA DC			
Output	Reference	Temp.: (25±1)°C / Supply: 1.5mA DC			
	Zero output	±1mV DC(Typ.) / ±2mV DC(Max.)			
	FS output	≥45mV DC(0.2/0.7/1.0Bar) / ≥60mV DC(0.35/2.0/3.5Bar) / ≥70mV DC(≥7.0Bar)			
	Zero thermal error	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	Span thermal error	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	Non-linearity	±0.15%FS(Typ.) / ±0.25%FS(Max.)			
	Repeatability	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
Environmental condition	Hysteresis	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
	Compensation temp.	0°C ~ 50°C			
	Operating temp.	-40°C ~ 125°C			

# Customized Type—MPM280 Series

**MPM280Ti**



**MPM280HH**



**MPM280TH**



**MPM280Au**



**Diaphragm**

Titanium

Hastelloy C

Tantalum

Gold plated

**Housing**

Titanium

Hastelloy C

Hastelloy C

SS316L

**Compatible medium**

Sea water / Chemical

Sea water / Chemical

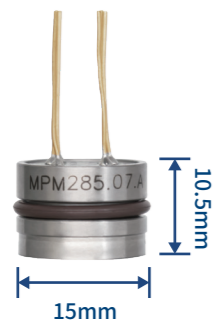
Sea water / Chemical

Hydrogen

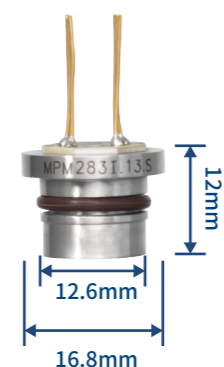
Model		MPM280Ti	MPM280HH	MPM280TH	MPM280Au
Size		Φ19×15mm			φ19×13.5mm
Pressure type		Gauge / Absolute / Sealed gauge			
Diaphragm		Titanium	Hastelloy C	Tantalum	Gold plated on SS316L
Housing		Titanium alloy	Hastelloy C	Hastelloy C	SS316L
Input	Pressure range	-1Bar ~ 0.2Bar...700Bar	-1Bar ~ 0.2Bar...350Bar	-1Bar ~ 0.2Bar...350Bar	-1Bar~0.35Bar...200Bar
	Supply	≤2mA DC			
Output	Reference	Temp.: (25±1) °C / Supply: 1.5mA DC			
	Zero output	±1mV DC(Typ.) / ±2mV DC(Max.)			
	FS output	≥45mV DC(0.2/0.7/1.0Bar) / ≥60mV DC(0.35/2.0/3.5Bar) / ≥70mV DC(≥7.0Bar)			
	Zero thermal error	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	Span thermal error	±0.75%FS(Typ.) / ±1.0%FS(Max.)			
	Non-linearity	±0.15%FS(Typ.) / ±0.25%FS(Max.)			
	Repeatability	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
Environmental condition	Hysteresis	±0.05%FS(Typ.) / ±0.075%FS(Max.)			
	Compensation temp.	0°C ~ 50°C			
	Operating temp.	-40°C ~ 125°C			

# Customized Type—MPM280 Series

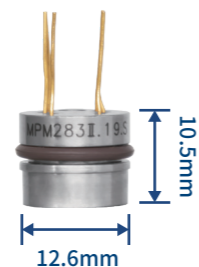
**MPM285**



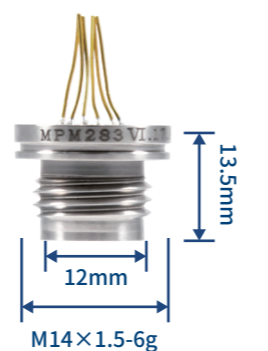
**MPM283 I**



**MPM283 II**



**MPM283 VI**

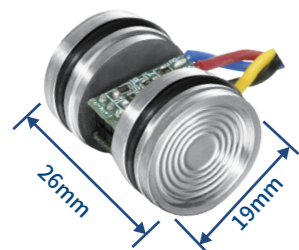


<b>Size</b>	Φ15×10.5mm	Φ16.8×12mm	Φ12.6×10.5mm	Φ12×13.5mm M14×1.5-6g
<b>Range</b>	1Bar~35Bar	2Bar~1000Bar	2Bar~1000Bar	100Bar~1000Bar
<b>Vacuum/ Compound gauge</b>	Customizable	Customizable	Customizable	Customizable

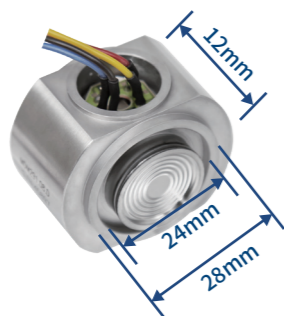
Model	MPM285	MPM283I	MPM283II	MPM283 VI
<b>Size</b>	Φ15×10.5mm	Φ16.8×12mm	Φ12.6×10.5mm	Φ12×13.5mm M14×1.5-6g
<b>Pressure type</b>	Gauge / Absolute / Sealed gauge			
<b>Feature</b>	Small size	Thick film circuit compensation	Outer resistance compensation	Thick film circuit compensation
<b>Input</b>	<b>Pressure range</b>	0Bar ~ 1Bar...35Bar	0Bar ~ 2Bar...1000Bar	0Bar ~ 2Bar...1000Bar
	<b>Supply</b>	≤2mA DC	≤2mA DC	≤2mA DC
<b>Output</b>	<b>Reference</b>	Temp.: (35±1)°C Supply: 1.5mA DC	Temp.: (35±1)°C Supply: 1.5mA DC	Temp.: (35±1)°C Supply: 1.5mA DC
	<b>Zero output</b>	±2.0mV DC(Max.)	±3.0mV DC(Max.)	±3.0mV DC(Max.)
	<b>FS output</b>	≥50mV DC	≥70mV DC	≥70mV DC
	<b>Zero thermal error</b>	±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)
	<b>Span thermal error</b>	±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)	±0.75%FS (Typ.) ±1.0%FS (Max.)
	<b>Non-linearity</b>	±0.15%FS (Typ.) ±0.25%FS (Max.)	±0.15%FS (Typ.) ±0.2%FS (Max.)	±0.2%FS(Typ.) ±0.2%FS(Max.)
	<b>Repeatability</b>	±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)
	<b>Hysteresis</b>	±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)	±0.05%FS (Typ.) ±0.075%FS (Max.)
<b>Environmental condition</b>	<b>Compensation temp.</b>	0°C ~ 70°C(≤2Bar)	0°C ~ 70°C(≤2Bar)	0°C ~ 70°C(≤2Bar)
		-10°C ~ 80°C(≥3.5Bar)	-10°C ~ 80°C(≥3.5Bar)	-10°C ~ 80°C(≥3.5Bar)
	<b>Operating temp.</b>	-40°C ~ 125°C		

# Customized Type—Differential/Compound Pressure Sensor

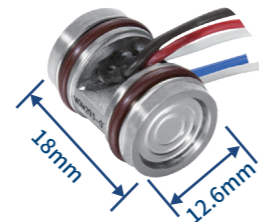
**MDM290**



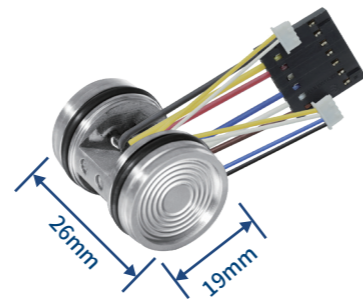
**MDM291**



**MDM293**



**MCM211**



<b>Size</b>	Φ19mm	φ28mm	Φ12.6mm	φ19mm
<b>Range</b>	0.35Bar~35Bar	0.35Bar~20Bar	2Bar~35Bar	1Bar~35Bar

Model	MDM290	MDM291	MDM293	MCM211
<b>Size</b>	Φ19×26mm	connection can be customized	Φ12.6×18mm	Φ19×26mm
<b>Pressure type</b>	Differential pressure			
<b>Feature</b>	Outer resistance compensation	With thread connection	Small size Outer compensation resistor	Temperature, pressure and differential pressure compound
<b>Input</b>	<b>Pressure range</b>	0.35Bar ~ 35Bar	0.35Bar ~ 20Bar	2Bar ~ 35Bar
	<b>Supply</b>	≤2mA DC		
<b>Output</b>	<b>Reference</b>	Temp.: (25±1)°C Supply: 1.5mA DC	Temp.: (35±1)°C Supply: 1.5mA DC	Temp.:(25±1)°C / Supply: 1.5mA DC
	<b>Zero output</b>	±3mV DC(Max.)	±2mV DC(Max.)	±3mV DC(Max.)
	<b>FS output</b>	≥60mV DC	≥70mV DC	≥60mV DC
	<b>Zero thermal error</b>	±0.75%FS(Typ.) / ±1.0%FS(Max.)	±0.5%FS(Typ.) ±1%FS(Max.≤0.35Bar) ±0.75%FS(Max.≥0.7Bar)	±0.75%FS(Typ.) ±1.0%FS(Max.)
	<b>Span thermal error</b>	±0.75%FS(Typ.) / ±1.0%FS(Max.)		
	<b>Non-linearity</b>	±0.15%FS(Typ.) / ±0.25%FS(Max.)		
	<b>Repeatability</b>	±0.05%FS(Typ.) / ±0.075%FS(Max.)		
	<b>Hysteresis</b>	±0.05%FS(Typ.) / ±0.075%FS(Max.)		
<b>Environmental condition</b>	<b>Compensation temp.</b>	0°C ~ 50°C	0°C ~ 70°C	0°C ~ 70°C
	<b>Operating temp.</b>	-40°C ~ 125°C		

## High-Temperature and High-Accuracy Pressure Sensor



### MPM281 Pro

Size:  $\phi 19 \times 11.5\text{mm}$

Range: 0Bar~0.07Bar...35Bar

Wide temperature compensation:  $-20^{\circ}\text{C} \sim 85^{\circ}\text{C}$

Zero/full scale hysteresis  $\pm 0.05\% \text{FS}$  (Typ.)

Long-term stability  $\pm 0.1\% \text{FS/Year}$

Normalized output, wide temperature compensation,

$\pm 1\%$  interchangeability, gain 3.012V output

## Compound Output Pressure Sensor



### MPM281PT

Size:  $\phi 19 \times 11.5\text{mm}$

Range: 0Bar~0.35Bar...1000Bar

Compensation temperature:  $-10^{\circ}\text{C} \sim 80^{\circ}\text{C}$

Pressure and temperature dual output

Thermal error:  $\pm 0.5^{\circ}\text{C}$

PT100/PT1000 temperature probe is available

# Standard Voltage/Current Output Pressure Sensor



## MPM288SA

Size:  $\phi 19 \times 15\text{mm}$

Range: -1Bar... 0Bar~0.35Bar...700Bar

Compensation temperature:  $0^{\circ}\text{C} \sim 70^{\circ}\text{C}$

Accuracy class:  $\pm 0.25\% \text{FS}$  ( $\pm 0.5\% \text{FS}$  @  $\text{FS} = 0.35\text{Bar}$ )

Standard voltage output: 0.5~4.5V/4-20mA

Reverse power protection

# Customized Piezoresistive Pressure Sensor

