

MPTW100 Series

Miniature Pressure Sensor

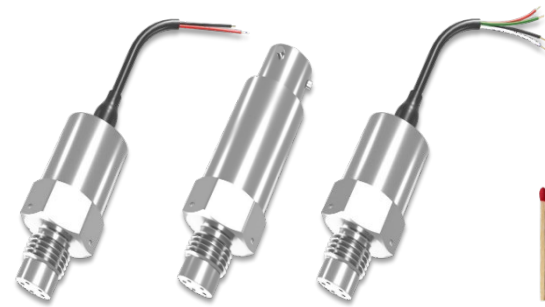
Applications

Aerospace
Automobile Manufacturing
Oil and Gas
Industrial Automation
Energy and Power

Features

Light in weight ($\leq 24.5g$)
Compact structure design
High precision pressure measurement
Wide Range
Fast Response
High frequency

Profiles



The MPTW100 series pressure sensor from DABEY Technology is a high-precision sensor that's compact, multifunctional, and designed for a wide temperature range. It uses advanced MEMS silicon micromachining, has an oil-filled medium isolation, robust interference-resistant circuitry, and stainless steel construction. This makes it highly accurate, reliable, and suitable for various media.

The MPTW100 series offers an electronic circuit with a 10KHz frequency bandwidth and a front-mounted pressure core for a smaller size, wider range, and stronger pressure resistance. It provides multiple electrical output signals and can measure both absolute and sealed gauge pressure.

DATASHEET

PRESSURE MEASUREMENT

Dabey Technology Co., LTD
 Sales@dabeysensor.com
 86-18890003683
 www.dabeysensor.com

Performance Parameters

Main Performance Indicators

Specification	Description
Range	Absolute Pressure or Sealed Gauge Pressure as below
Units	Mpa Psi
	0-1 0-150
	0-2 0-300
	0-5 0-700
Range	0-10 0-1500
	0-35 0-5000
	0-70 0-10000
	Note: Other non-standard ranges or units can be customized
Accuracy (Integrated Non-linearity,Hysteresis, Repeatability)	A1:0.2%FS'BFSL A2:0.1%FS'BFSL "Custom accuracy available upon request
Overload Pressure ²	2xFS ⁵
Burst Pressure ³	3xFS ⁵
Working Principle	Four-arm Wheatstone bridge silicon-based MEMS chip
Chip natural vibration frequency	>400KHz

Mechanical Performance

Specifications	Description
Pressure connection	See selection table, customizable
Vibration Impact on Sensor Accuracy	<1ppmFS ⁵ /g
Impact connection	Maximum 20g at 10-2500Hz; Impact time not exceeding 20ms
Housing Material	Standard 316L/17-4PH stainless steel ("Other materials available upon request)
Measuring Medium	All fluids compatible with 316L/17-4PH stainless steel
Weight	≤24.5g; weight of cable and electrical connectors is additional and depends on selection

Electrical performance

Power Supply/Output	See selection table, customizable
Circuit Bandwidth	A、 B Chip natural vibration frequency ≥400KHz C、 D 、 E、 F The circuit bandwidth is about 10Hz@3DB
Actual Frequency Response	A、 B ≤ Chip natural vibration frequency @3DB C、 D 、 E、 F ≤ 10Hz@3DB Note: Specific and installation method related.

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Power-up Time	A、B <1ms C、D、E、F<200ms
Zero and Full-Scale Output Range	Rating within $\pm 5\%FS$ Other requirements can be customized
Insulation Resistance	$\geq 100M\Omega@50VDC$
Electrical strength	leakage current $\leq 5mA@50VAC$ RMS
Maximum Operating Current	C、D、E、F<25mA
Input Impedance	A、B >5000 Ω
Output impedance	A、B 5000 Ω C、D、E、F<150 Ω
Long-term stability	Typical values $\pm 0.1\%FS$
Electrical connection	See selection table, can be customized

Temperature Performance⁴

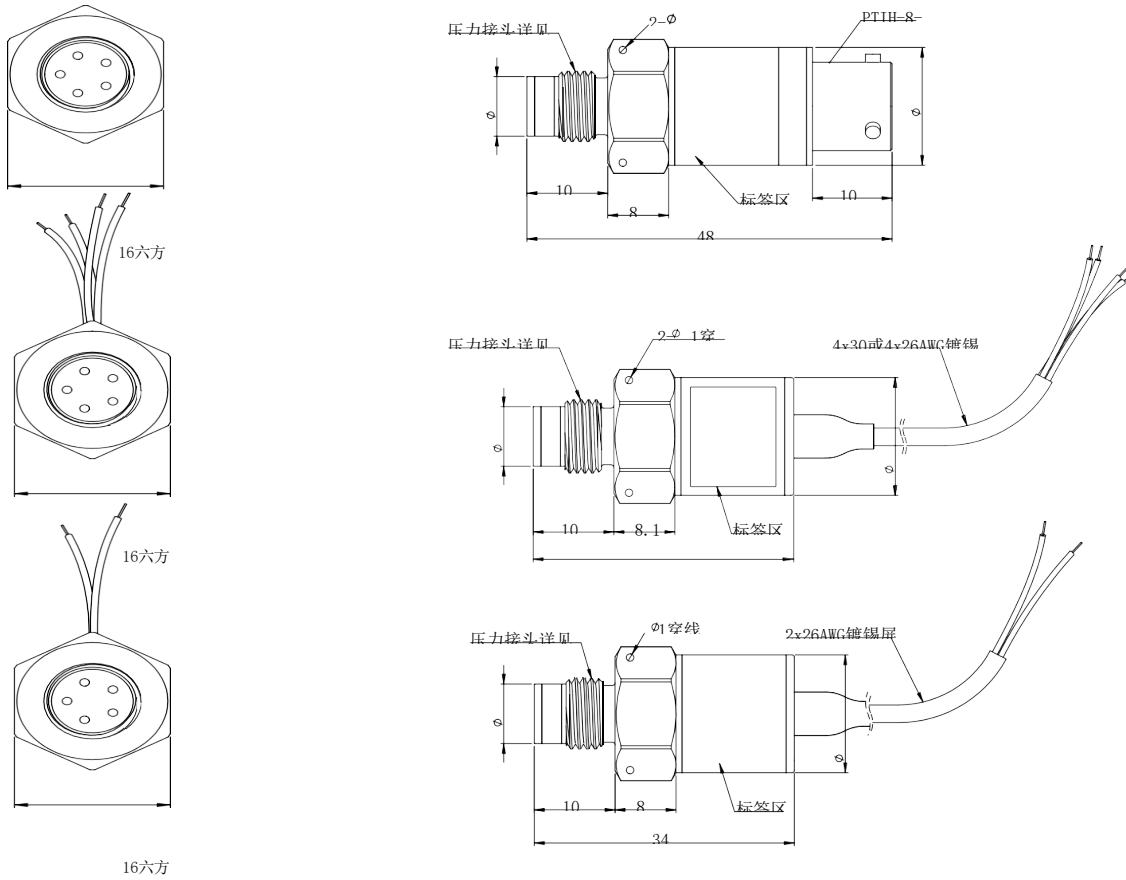
Specifications	Description
Temperature Compensation Range	Selectable within the range of -55°C to 150°C
Operating and storage temperature range	-55°C-150°C
Total error in the whole temperature zone ⁷	A、B Zero drift < $\pm 1.5\% FS^5/100^\circ C$
	Full scale drift < $1.5\%FS^5/100^\circ C$
	C、D、E、F Total error ⁶ < $0.25\% FS^5/100^\circ C$

Electrical Interface Definition

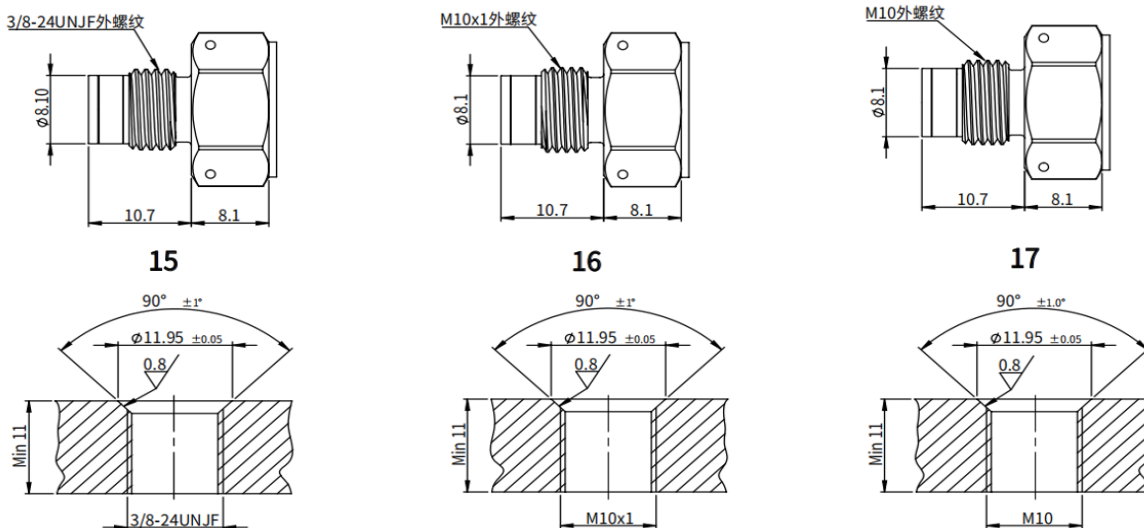
Electrical connector	Pin Definition	Electrical Output					
		A	B	C	D	E	F
8	A/1	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	B/2	Vout+	Vout+		Vout+	Vout+	Vout+
	C/3	Vout-	Vout-			Vout-	Vout-
	D/4	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
8 14	Red	Vin+	Vin+	Vin+	Vin+	Vin+	Vin+
	Green	Vout+	Vout+		Vout+	Vout+	Vout+
	White	Vout-	Vout-			Vout-	Vout-
	Black	Vin-	Vin-	Vin-	Vin-	Vin-	Vin-
9	Red			Vin+			
	Black			Vin-			

- 1: Custom compound ranges can be specially ordered, for example, (5-100)KPaA.
- 2: Pressure overload below this limit does not affect product performance.
- 3: This is the safe upper limit for the sensor; exceeding this value may cause leakage or deformation.
- 4: Temperature performance refers to the performance within the compensated temperature range.
- 5: FS = Full Scale (Full Range).
- 6: Error based on the best endpoint line fit.
- 7: Refer to China's national standard GB/T 15478-2015

Outline Drawing



Pressure fittings & Recommended installation drawings



Installation torque: Measuring range 0~35 MPaA, 10N.m
Measuring range 35~70 MPaA, 22N.m

O-ring: inner diameter 7.65mm, wire diameter 1.63mm,
material and measured medium match

How to Order? Look at the selection table below

Model NO

MPTW100

Signal output

- A** 0~100mV output, 10VDC powered, output proportional to supply voltage, four-wire.
- B** 0~100mV output, 8-16VDC powered, output independent of supply voltage, four-wire.
- C** 4~20mA output, 12~28VDC powered, high-precision digital compensation, two-wire
- D** 0.5~4.5V output, 8~32VDC powered, high-precision digital compensation, three-wire
- E** 0~5V output, 8~32VDC powered, high-precision digital compensation, four-wire,
output common mode 2.5V (typical)
- F** 0~10V output, 14~32VDC powered, high-precision digital compensation, four-wire,
output common mode 5V (typical)

Circuit Connections

- 5** PTIH-8-4P
- 8** 4x30AWG (1m length) tinned shielded wire
- 9** 2x26AWG (1m length) tinned shielded wire
- 14** 2x26AWG (1m length) tinned shielded wire

Note:Other specifications are available upon request.

Pressure Connection Fittings

- 15** 3/8-24 UNJF external thread
- 16** M10x1 external thread
- 17** M10 external thread

Note:Other specifications are available upon request

Compensation Temperature Range

TA 25°C~80°C	TE -10°C~50°C
TB -20°C~125°C	TF -20°C~80°C
TC -40°C~125°C	TG -40°C~80°C
TD -55°C~150°C	

Accuracy

- A1** 0.2%FS BFSL
- A2** 0.1%FS BFSL

Calibration Report

- CA** Ambient temperature six-point pressure data
- CB** Five-point full-temperature data

Pressure Range

- 0~70**
- 0~70**

Unit

- MPa**
- MPa**

Type

- A** (Absolute Pressure)
- S** (Sealed Gauge Pressure)

Special Requirements

Refer to the purchase contract for details on 'S'.

MPTW100	A	5	15	TA	A1	CA	0-20	MPa	A	S
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MPTW100-A515TAA1CA, 0~20Mpa, A