

## Smart Operation & Maintenance (O&M)



### HART Remote Diagnostics

Complete configuration, monitoring, and troubleshooting from the control room



### Modular Design

Field-replaceable EMC and signal output modules; reduces MTTR (Mean Time to Repair) and spare parts inventory



### Long-term Stability

0.1%FS/10 years



### Low-temp LCD Display

Clear visibility at -40°C; intuitive 3-button local operation



### Technical Commitment

60+ service centers worldwide providing localized support and rapid spare parts delivery 24-hour technical response guarantee



### Customized Solutions

Expert services for extreme conditions (ultra-high temp, strong corrosion, high viscosity), including remote diaphragm seal customization, exotic material matching, and fill fluid selection



Version 1.0



## MICRO SENSOR CO., LTD.

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Official Web



Catalog Download

MICROSENSOR

# MDM7000 Smart Pressure Transmitter

For Harsh Chemical Applications



Accuracy:  $\pm 0.05\%$ FS



Hastelloy C Diaphragm



Static Pressure: 420bar

## Company Profile

Since its inception in 1993, Micro Sensor Co., Ltd. (Micro Sensor) has been a global manufacturer and service provider of industrial measurement and control instruments. The company specializes in customized solutions for pressure, level, temperature, and flow measurement, serving a wide range of industries including oil & gas, renewable energy, industrial gases, water & wastewater, marine & shipbuilding, HVAC, hydraulics & pneumatics, mechanical manufacturing & automation, food & beverage, and pulp & paper. Micro Sensor has a global team of over 800 employees and operates four industrial parks in Baoji, Xi'an, and Shanghai, China. It also has a European subsidiary, Micro Sensor GmbH, in Essen, Germany.

### Intelligent Manufacturing

- Automated assembly, inspection, and packaging with full-process digital monitoring of key operations
- Unified MES/ERP platform for end-to-end connectivity of production planning, materials, and quality
- Enhanced process performance and predictive maintenance powered by Big Data and AI

### CNAS-Certified Laboratories

- Accredited laboratories in Shanghai, Xi'an, and Baoji, covering over 500m<sup>2</sup>
- Capability for high-level pressure/temperature calibration, EMC, environmental, and reliability test in Self-developed systems for automated acquisition and analysis of 15 types of digital/analog signals
- Quality Management System

### Quality Management System

- Certified for ISO 9001, Environmental, Occupational Health & Safety, and Measurement Management Systems
- Specialized ATEX and IECEx Quality Management System certifications

## Manufacturing Base



Minhang, Shanghai

10,000m<sup>2</sup>  
Floor Area

5,000m<sup>2</sup>  
Production Area





500,000 units  
Annual Capacity

## Technical Specifications

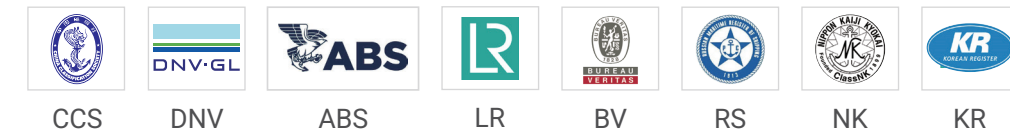
Accuracy	±0.075%FS,±0.05%FS
Turn Down (Range Ratio)	100:1
Measuring Range	GP/AP: 0~50mbar~1000bar; DP: 0~1mbar~100bar
Long-term Stability	±0.1%SPAN/10 years
Static Pressure	DP: 420bar
EMC Standard	GB/T 18268 (IEC 61326), Class A
Output Signal	4~20mA + HART 7; Optional: RS485-Modbus, Bluetooth, 1-5V Low power, FF
Ambient Temp	-50°C~+85°C(with LCD: -40°C~+70°C)
IP Rating	IP66 / IP67
MTBF	>438,000 hours (Approx. 50 years)

## Certifications & Approvals

30+ International Certifications: Compliant with global chemical industry standards

<b>Explosion-proof &amp; Hazardous Area</b>	NEPSI	Ex ia IIC T4 Ga Ex db IIC T6 Gb Ex tb IIIC T85°C Db	
	ATEX	II 1G 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, Groups A, B, C and D T4 Ex ia IIC T4 Ga Class I, Zone 0, AEx ia IIC T4 Ga	

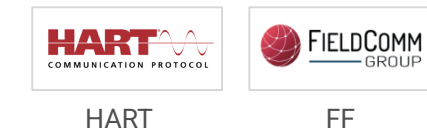
### Marine & Offshore



### Compliance & EMC



### Communication Protocols



### Metrological Certifications



## Diaphragm Seal System

The MDM7000 Diaphragm Seals provide reliable measurement of pressure, level, mass, density, interface, and flow. The system is engineered for complex process conditions, including high temperature, high vacuum, corrosive media, suspended solids, or highly viscous fluids. By isolating the process medium from the transmitter diaphragm, the system ensures long-term measurement stability.

Filling Fluid Temp. Range	-55°C~+315°C
Special Filling Fluid Temp. Range	0°C~600°C
Pressure Range	-1bar~10bar
Flange Size	Flush type: DN15–DN125 (1/2"~5"); Extended type: DN40–DN100 (1 1/2"~4")
Diaphragm Material	316L, HC-276, Ta (Tantalum), Ti (Titanium), Monel 400, 321, Inconel 718, Duplex 2507 SST
Filling Fluid	Silicone oil (standard / low-temp / high-temp / ultra-high temp), Fluorinated oil, Liquid metal
Diaphragm Treatment	Gold plating, PTFE coating, PFA protective cover (not for vacuum), Thickened diaphragm, Diamond-like carbon (DLC) coating, Degreasing/cleaning
Flange Standard	ANSI/ASME B16.5, HG/T 20615, HG/T 20592, EN 1092-1, etc.
Sealing Face	RF, RJ, M, FM
Process Treatment	High-temp. / High-vacuum processing



### PTFE Coating

Temp.: -40°C~+260°C;  
Pressure: 0~5Mpa.  
Anti-adhesion properties



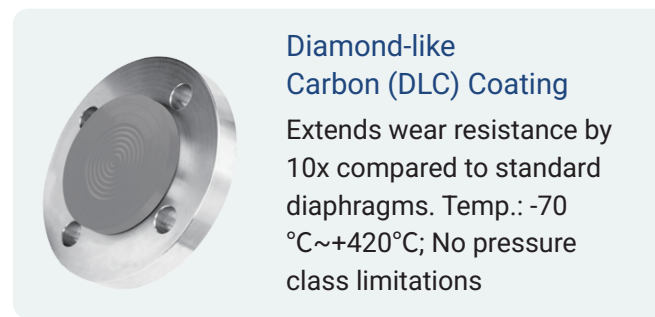
### Gold Plating

Hydrogen permeation resistance; Superior corrosion resistance



### PFA Coating

Temp.: -40°C~+260°C;  
Pressure: 0~5Mpa.  
Anti-adhesion properties



### Diamond-like Carbon (DLC) Coating

Extends wear resistance by 10x compared to standard diaphragms. Temp.: -70°C~+420°C; No pressure class limitations

## Applications & Solutions

### Reactors & Synthesis: Pressure Control

Conditions: High temp/pressure, corrosion, and scaling (e.g., hydrogenation, polymerization, esterification)



- Hastelloy C, Tantalum, or Titanium diaphragms for acid/alkali and chloride resistance
- All-welded diaphragm system with potting protection to withstand vibration and thermal shock
- High static pressure (420bar) for hydrocracking processes

### Tank Farm: Level & Pressure

Conditions: Handling volatile, flammable, and explosive raw materials, intermediates, or finished products; overpressure/vacuum protection required



- Gauge and Absolute pressure options for nitrogen-blanketed and atmospheric tanks
- Ex ia (Intrinsically Safe) + Ex db (Flameproof) for hazardous area compliance
- ±0.1%Span/10-year stability, reducing frequent manual inspections

### Distillation Columns: DP & Flow

Conditions: Precision monitoring of small differential pressures and multi-stream flow rates



- MDM7000-DP with ±0.05%FS accuracy for precise column tray DP measurement
- Integrates with primary elements for multi-media flow measurement
- Remote configuration and reranging; eliminates risky work at height

### Pipeline: Pressure & Leakage

Conditions: High-pressure, toxic, or flammable media; requires rapid response for leak prevention



- 50ms rapid response to track real-time pressure transients
- Stainless steel or low-copper aluminum enclosure for outdoor durability
- HART multi-drop mode reduces cabling and installation costs

### Boilers & Steam Systems: Pressure Control

Conditions: High-temp steam measurement; crucial for thermal stability and energy efficiency



- High-temp silicone oil filling for steam service
- Rugged diaphragms to withstand water hammer effects
- Remote diagnostics to support predictive maintenance strategies

## Selection Guide

### MDM7000-DP | Smart Differential Pressure Transmitter

Applications: DP monitoring for distillation columns, filters, and reactor beds; flow measurement with primary elements

- Accuracy: ±0.05%FS
- Range: 0~6mbar~100bar
- Features: Optimized for micro-DP and high-DP conditions



### MDM7000-GP/AP | Smart Gauge/Absolute Pressure Transmitter

Applications: Pressure measurement for reactors, compressors, vacuum distillation, and evaporation/concentration

- Accuracy: ±0.05%FS
- Range: GP: 0~50mbar~1000bar; AP: 0~50mbar~100bar
- Features: Capable of ultra-high pressure measurement



### MDM7000-GP-T/AP-T | Direct Mount Seal Pressure Transmitter

Applications: Direct measurement of high-viscosity, crystallizing, or highly corrosive media

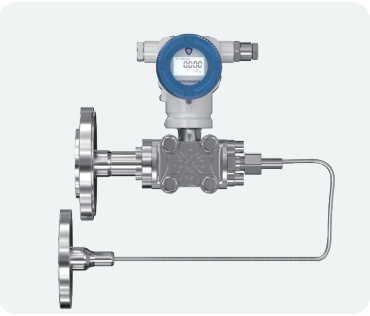
- Accuracy: ±0.1%FS (Total performance)
- Features: Direct-mount diaphragm seal eliminates impulse line clogging; multiple flange types available



### MDM7000-LP | Smart DP Transmitter (Level Specialized)

Applications: Tank level and density measurement

- Accuracy: ±0.2%FS (Total performance)
- Features: Optimized for level/density; supports remote reranging and span scaling



### MDM7000-LT | Smart Level Transmitter

Applications: Continuous level measurement for tanks, sumps, and silos

- Accuracy: ±0.2%FS (Total performance)
- Features: Submersible or flange-mount options to suit diverse installation requirements

