MDM7000-GP/AP

Smart Pressure Transmitter

Note: Some certificates are still pending.

Range

Model	Nominal range	Minimum range	Lower (LRL)	Upper (URL)	Overload
GP	0.4bar	50mbar	-0.4bar	0.4bar	10bar
	2.5bar	125mbar	-1bar	2.5bar	40bar
	10bar	0.5bar	-1bar	10bar	60bar
	30bar	1.5bar	-1bar	30bar	150bar
	100bar	5bar	-1bar	100bar	200bar
	400bar	50bar	-1bar	400bar	600bar
	700bar	50bar	-1bar	700bar	1050bar
	1000bar	50bar	-1bar	1000bar	1100bar
AP	0.1bar	50mbar	0bar	0.1bar	6bar
	0.2bar	100mbar	0bar	0.2bar	10bar
	0.4bar	0.2bar	0bar	0.4bar	10bar
	2.5bar	0.5bar	0bar	2.5bar	40bar
	10bar	2bar	0bar	10bar	60bar
	30bar	3bar	0bar	30bar	150bar
	100bar	10bar	0bar	100bar	200bar

Note: ① LRV/URV setting: The lower range value (LRV) and upper range value (URV) shall be set within the measurement range limits. When |URV| ≥ |LRV|, |URV| shall be greater than or equal to the minimum range; when |URV| ≤ |LRV|, |LRV| shall be greater than or equal to the minimum range. It is recommended to select a low range ratio.
② When the AP range is 0.1bar or 0.2bar, the measuring diaphragm is ceramic.

Accuracy

Stated reference accuracy include best fit straight line(BFSL), hysteresis, and repeatability as per the standard and reference test conditions.
Calibration temperature: 20°C ±5°C , based on Zero value.

Linear output accuracy	GP	TD≤5	±0.1%	0.4bar
			±0.075%	2.5bar, 10bar, 30bar, 100bar, 400bar, 700bar, 1000bar
		TD>5	±(0.025+0.015TD) %	0.4bar,
			±(0.0025+0.0145TD) %	2.5bar, 10bar, 30bar, 100bar, 400bar, 700bar, 1000bar
	AP	TD≤5	±0.2%	0.1bar, 0.2bar, 0.4bar
			±0.1%	2.5bar, 10bar, 30bar, 100bar
		TD>5	±(0.025+0.035TD) %	0.1bar, 0.2bar, 0.4bar
			±(0.025+0.015TD) %	2.5bar, 10bar, 30bar, 100bar

Note:TD(Turn down) represents the range ratio, TD= Maximum range / Current range. [Maximum range = URL (range starts with 0, same as factory-calibrated range); Current range = SPAN (equivalent to |URV-LRV|)]

Specifications

Accuracy	GP: ±0.075%, ±0.1%, ±0.2% URL	AP: ±0.1%, ±0.2% URL
Range	GP: 0.4bar~1000bar, see the specifications for details	AP: 0.1bar~100bar, see the specifications for details
Turn down ratio	100:1	
Long-term stability	±0.1% Span/10 years	
Ambient temperature effects	See the specifications for details	
Voltage effects	Zero and span shifts shall not exceed ±0.005% URL/V for power supply variations within 18.3V~44V DC	
Mounting position effects	Less than 4mbar at any position, which can be corrected by PV(primary value)=0 reset	
Vibration effects	＜ 0.1% SPAN as per GB/T18271.3/IEC61298-3	
Output signal	4mA~20mA DC, HART	
IP rating	IP67, IP66	
Weight	Aluminum alloy housing: approx. 1.56kg; Stainless steel housing: approx. 3.84kg (Excluding mounting bracket and process connection accessories)	

Ambient Temperature Effects

Product Model	Effect	Range
GP	±(0.075+0.0375TD) % /10°C of SPAN	0.4bar, 2.5bar, 10bar, 30bar, 100bar, 400bar, 700bar, 1000bar
AP	±(0.125+0.075TD) % /10°C of SPAN	0.1bar, 0.2bar, 0.4bar
	±(0.115+0.065TD) % /10°C of SPAN	2.5bar,10bar, 30bar, 100bar

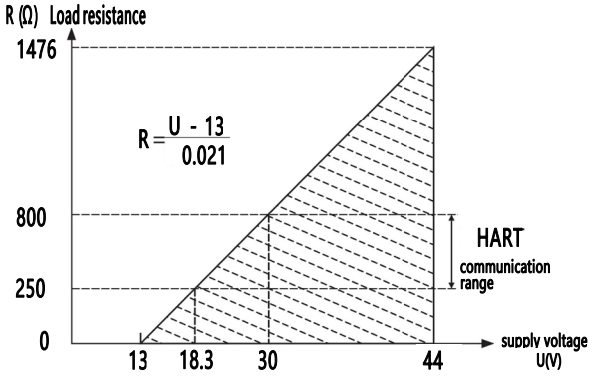
Environmental Conditions

Items	Conditions
Operating temperature ①	Without LCD display: -50°C ~85°C ; with LCD display: -40°C ~70°C
Storage temperature	Without LCD display: -50°C ~100°C ; with LCD display: -40°C ~85°C
Sensor operating temperature ②	-40°C ~105°C
Medium temperature ③	Standard silicone oil (Medium temperature:-40°C ~105°C)
	Low temperature silicone oil (Medium temperature: -55°C ~85°C)
	Fluorinated oil (Medium temperature: -20°C ~85°C)
Operating humidity	5%RH~100%RH@40°C

Note: ① For short-neck explosion-proof models, ensure that the enclosure surface temperature ≤80°C . If uncertain, the medium temperature shall not exceed the T6 (80°C) temperature class.
② For higher medium temperatures, heat dissipation accessories are available. Please consult MICROSENSOR for details.
③ The medium temperature at the diaphragm shall remain within the limits of the selected fill oil, sensor sealing, and sensor operating temperature range.

Power Supply and Load Requirements

Items	Conditions
Supply voltage	HART communication protocol: 18.3V~44V DC ①
	Intrinsically safe HART communication protocol: 18.3V~30V DC
Load resistance	0Ω~1476Ω ② for operation mode; 250Ω~800Ω for HART communication
Transmission distance	<1000m
Power consumption	
4mA~20mA	≤500mW@24V DC, 20.8mA



Note: ① When HART communication is not used, the minimum supply voltage can be 13V. Please consult engineers for details.
② 1476Ω=(44V-13V) /21mA

EMC Effects

SN	Test items	Standards	Test Conditions	Performance Level
1	Radiated interference (housing)	GB/T 9254.1/CISPR 32	30MHz~1000MHz	Qualified
2	Conducted interference (DC power port)	GB/T 9254.1/CISPR 32	0.15MHz~30MHz	Qualified
3	Electrostatic discharge immunity test	GB/T 17626.2/IEC61000-4-2	8kV (contact), 15kV (air)	B
4	Radiated, radio-frequency, electro-magnetic field immunity test	GB/T 17626.3/IEC61000-4-3	10V/m (80MHz~1GHz)	A
5	Power frequency magnetic field im-munity test	GB/T 17626.8/IEC61000-4-8	30A/m	B
6	Electrical fast transient / burst immu-nity test	GB/T 17626.4/IEC61000-4-4	4kV (5/50ns,100kHz)	B
7	Surge immunity requirements	GB/T 17626.5/IEC61000-4-5	2kV (line to line) 4kV (line to ground) (1.2/50μs)	B
8	Immunity to conducted disturbances induced by radio frequency fields	GB/T 17626.6/IEC61000-4-6	3V/m (150kHz~80MHz)	A

Note : Performance level A: Normal operation within specified limits.
Performance level B: Temporary performance degradation permitted, with automatic recovery and no data loss.

Time Index

Damping time constant: equals to the combined damping time of electronic components and sendor module
Electronic components damping time: 0s~100s configurable
Sensor module damping time(sensor isolated diaphragm and filled silicone oil):≤ 0.2s (**Note:** This item is related to the sensor type and whether there is a diaphragm component.)
Turn-on time: ≤6s
Factory reset time: ≤31s
Response time: ≤100ms

Hazardous Area

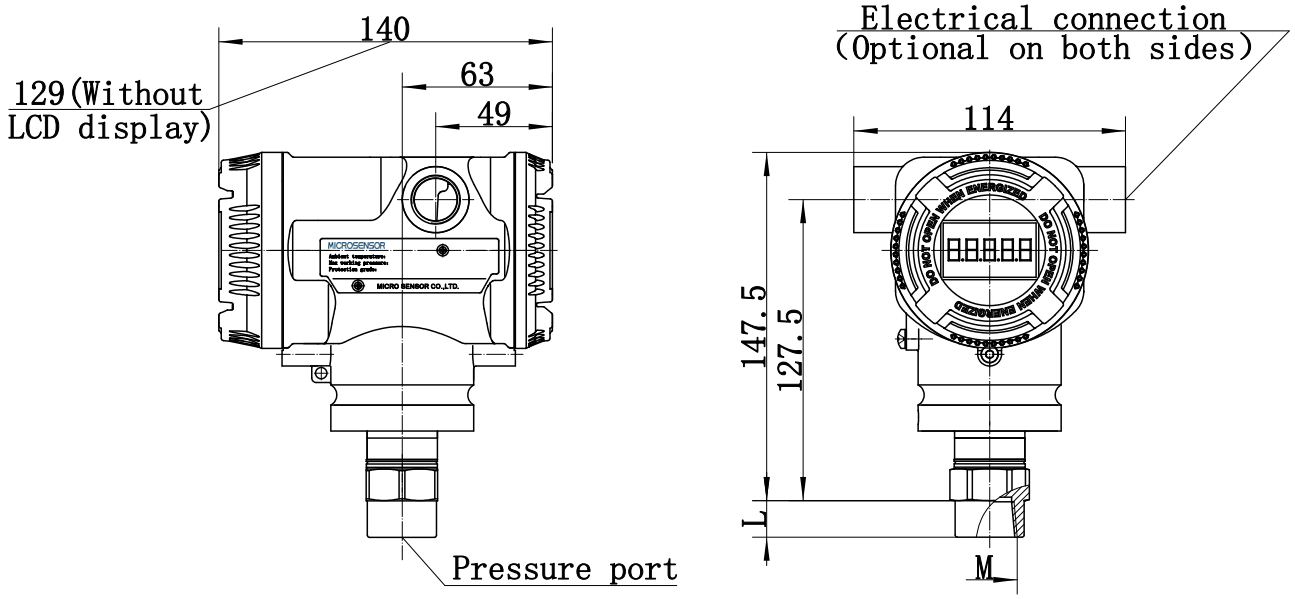
Hazardous area	Ex Standards (association)	Mark	Standard
	Ex Intrinsically safe (PCEC)	Ex ia IIC T4 Ga	GB/T 3836.1-2021 GB/T 3836.4-2021
	Ex Flameproof (PCEC)	Ex db IIC T6 Gb	GB/T 3836.1-2021 GB/T 3836.2-2021
	Ex Dust explosion-proof (NEPSI)	Ex tb IIC T85°C Db	GB/T 3836.1-2021 GB/T 3836.31-2021
	ATEX Intrinsically safe (CSA)	II 1G Ex ia IIC T4 Ga	EN IEC 60079-0:2018 EN 60079-11:2012
	ATEX Flameproof (CSA)	II 2G Ex db IIC T6 Gb	EN IEC 60079-0:2018 EN 60079-1: 2014
	ATEX Dust explosion-proof (CSA)	II 2D Ex tb IIIC T80°C Db	EN IEC 60079-0:2018 EN 60079-31: 2014
	IECEx Intrinsically safe (CSA)	Ex ia IIC T4 Ga	IEC 60079-0: 2017 IEC 60079-11: 2011
	IECEx Flameproof (CSA)	Ex db IIC T6 Gb	IEC 60079-0: 2017 IEC 60079-1: 2014
	IECEx Dust explosion-proof (CSA)	Ex tb IIIC T80°C Db	IEC 60079-0: 2017 IEC 60079-31: 2022
	NA Intrinsically safe (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	CSA C22.2 No. 60079-0:19 CAN/CSA C22.2 No. 60079-11:14(R2023) CAN/CSA C22.2 No. 61010-1-12, UPD1:2015, UPD2:2016, AMD1:2018 ANSI/UL 60079-0-2020 Seventh Edition ANSI/UL 60079-11-2018 (R2023)Sixth Edition ANSI/UL 913-2022 Eighth Edition UL 61010-1, 3rd Edition (2012), AMD1: 2018
	NA Flameproof (CSA)①	Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80°C Class III Ex db IIC T6 Gb Class I, Zone 1, AEx db IIC T6 Gb Ex tb IIIC T80°C Db Zone 21, AEx tb IIIC T80°C Db	CAN/CSA C22.2 No.61010-1-12. UPD1:2015. UPD2:2016.AMD1:2018 CSA C22.2 No.25-17 (R2022) CAN/CSA C22.2 No. 30:20 + UPD1 2023 (R2025) CAN/CSA C22.2 No. 60079-0:19 (R2024) CAN/CSA-C22.2 No.60079-1:16 (R2021) CAN/CSA-C22.2 No.60079-31:25 CAN/CSA C22.2 No. 94.2:20 UL 61010-1. 3rd Edition (2012). AMD1:2018 FM 3600:2022 FM 3615:2022 FM 3616:2022 ANSI/UL 60079-0-2020 Seventh Edition ANSI/UL 60079-1-2020 Seventh Edition ANSI/UL 60079-31-2015 Second Edition ANSI/UL 50E-2020 Third Edition
	EAC Explosion-proof	1Ex db IIC T6 Gb 0Ex ia IIC T4 Ga	TP TC012/2011 GOST 31610.0-2019 GOST 31610.11-2014 GOST IEC 60079-1-2013
Note: Please consult MICROSENSOR for details.			

Dimensions

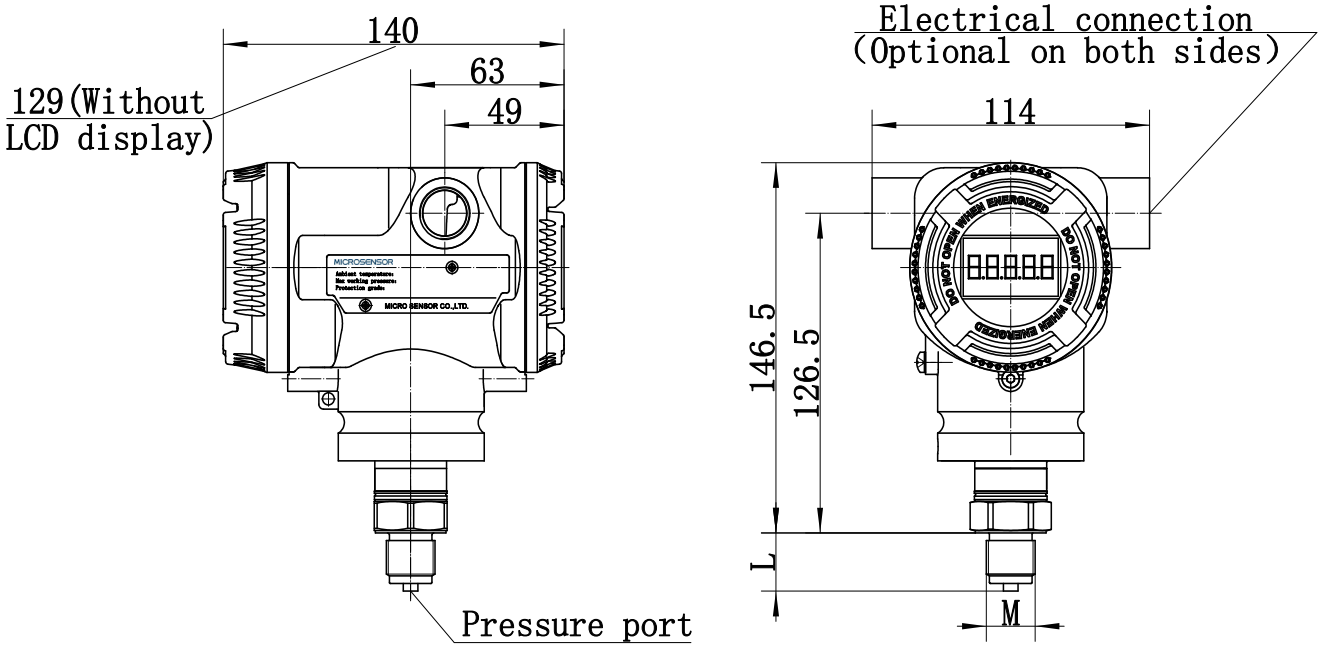
Unit: mm

Note: The cable gland is supplied as an accessory and is to be installed by the user.

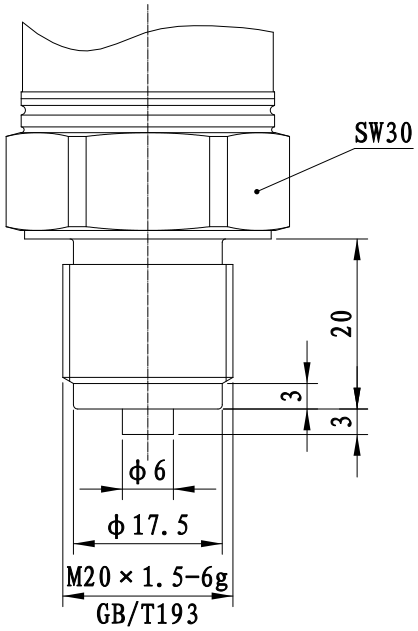
MDM7000 Transmitter With Display-Female



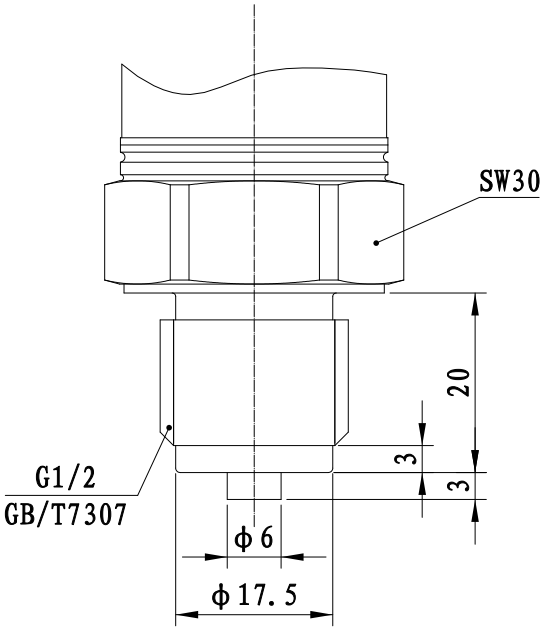
MDM7000 Transmitter With Display -Male



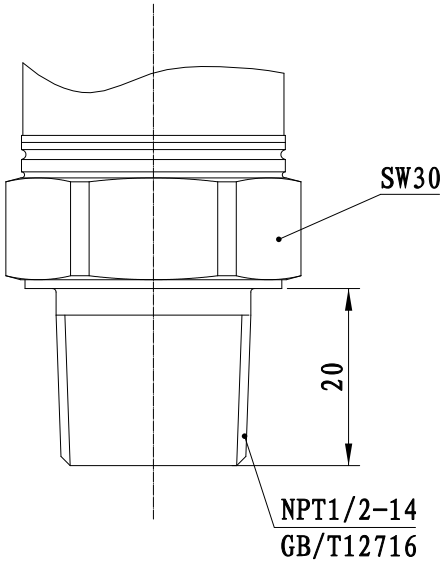
Process Connection (Code: M)



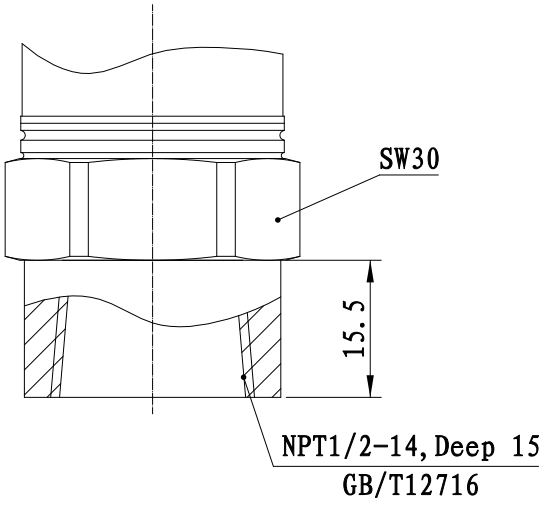
Process Connection (Code: G)



Process Connection (Code: A)



Process Connection (Code: N)



Mounting Bracket Illustration

Pipe Mounting (Codes: G10, G11, G12)

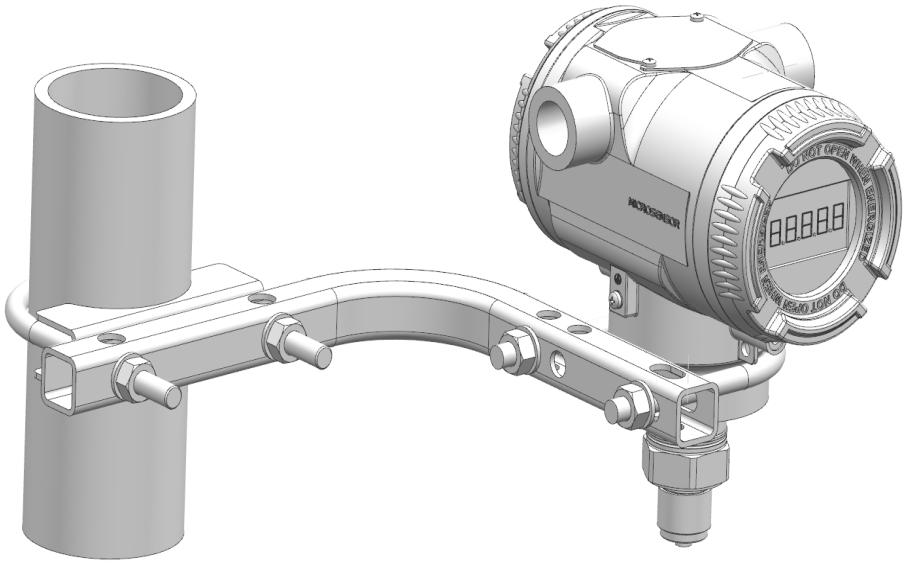
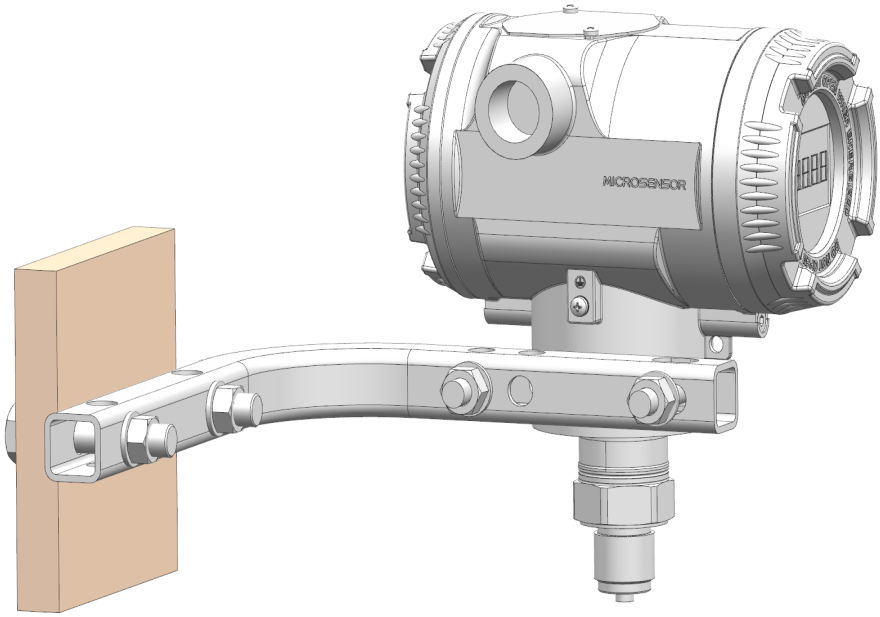


Plate Mounting (Codes: G10, G11, G12)



Order Guide

MDM7000-GP/AP Smart Pressure Transmitter

Items	Code	Description
MDM7000-GP	—	Smart Gauge Pressure Transmitter
MDM7000-AP	—	Smart Absolute Pressure Transmitter

Basic options

Application of hazardous area	1	China, Flameproof, CE23.6650 Ex db IIC T6 Gb, GB/T3836.1-2021, GB/T3836.2-2021	
	2	China, Intrinsically safe, CE23.7688X Ex ia IIC T4 Ga, GB/T3836.1-2021, GB/T3836.4-2021	
	3	China，Dust ignition protection，GYB24.1215X Ex tb III C T85℃ Db, GB/T3836.1-2021, GB/T 3836.31-2021	
	4	China, Flameproof, Intrinsically safe	
	5	China, Flameproof, Dust ignition protection, Intrinsically safe	
	A	CSA, Flameproof, Dust ignition protection CSA26CA80192884X Class I, Division 1, Group A, B, C and D T6 Class II, Division 1 Group E, F and G T80ºC Class III Ex db IIC T6 Gb Class I, Zone 1, AEx db IIC T6 Gb Ex tb IIIC T80°C Db Zone 21, AEx tb IIIC T80°C Db	※
	B	CSA, Intrinsically safe, CSA24CA80156531X 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	
	C	CSA, Flameproof, Intrinsically safe	※
	E	ATEX, Flameproof, Dust ignition protection, CSANe 25ATEX1107X II 2G Ex db IIC T6 Gb，II 2D Ex tb IIIC T80°C Db	
	F	ATEX, Intrinsically safe, CSANe 24ATEX1178X II 1G Ex ia IIC T4 Ga	
	G	ATEX, Flameproof, Intrinsically safe	
	J	IECEx, Flameproof, Dust ignition protection, IECEx CSA 25.0059X Ex db IIC T6 Gb, Ex tb IIIC T80°C Db	
	K	IECEx, Intrinsically safe, IECEx CSA 24.0045X Ex ia IIC T4 Ga	
	L	IECEx, Flameproof, Intrinsically safe	
	M	EAC, Explosion-proof, RU C-CN.АЖ58.B.05884/24 1Ex db IIC T6 Gb，0Ex ia IIC T4 Ga	
	0	Non-hazardous area	
Output signal	H	4mA~20mA DC, HART	
	V	1V~5V DC low power (0.1%FS accuracy)	
	R	Modbus-RS485	
Housing	S	Cast 316L SS housing, 2 × M20×1.5 female entries	
	U	Cast 316L SS housing, 2 × 1/2 NPT female entries (no glands)	
	P	Aluminum alloy housing (polyester resin coated), 2 × M20×1.5 female entries	
	N	Aluminum alloy housing (polyester resin coated), 2 × 1/2 NPT female entries (no glands)	

Note: 1/2 NPT female entries (without glands) for direct connection with explosion-proof conduits. 304 SS nameplate as standard; consult MICROSENSOR for other materials.

Glands & adapters		Specification	Material	Applicable wire diameter	IP rating
	0	None (No cable glands)			
	A	Single-ended flameproof plug, M20×1.5	316 SS		
	B	Single-ended flameproof plug, 1/2 NPT	316 SS		
	1	M20×1.5 Cable gland (watertight) with plug	PVC	6mm~12mm	IP67
	2	Non-flameproof adapter M20x1.5 (M) to M20x1.5 (F) , with plug	316 SS	6mm~8mm	IP67

	3	Flameproof adapter M20x1.5 (M) to 1/2 NPT (F) , with plug	316 SS	6mm~12mm	IP67	
	4	Flameproof adapter M20x1.5 (M) to M20x1.5 (F) , with plug	316 SS	6mm~12mm	IP67	
	5	Flameproof adapter M20x1.5 (M) to G1/2 (F) , with plug	316 SS	6mm~12mm	IP67	

Note: Flameproof configurations are compliant with PCEC, ATEX, and IECEx standards. Flameproof adapters are CCC Ex certified. Please consult MICROSENSOR for double-seal requirements.

Display	N	Without LCD display, explosion proof type -40°C ~70°C , non-explosion proof type -50°C ~85°C
	L	With LCD display, explosion proof type/non-explosion proof -40°C ~70°C

	—						
Range		Nominal range	Minimum range	Lower (LRL)	Upper(URL)	Overpressure	
GP	2	0.4bar	50mbar	-0.4bar	0.4bar	10bar	
	3	2.5bar	125mbar	-1bar	2.5bar	40bar	
	4	10bar	0.5bar	-1bar	10bar	60bar	
	5	30bar	1.5bar	-1bar	30bar	150bar	
	6	100bar	5bar	-1bar	100bar	200bar	
	7	400bar	50bar	-1bar	400bar	600bar	※
	8	700bar	50bar	-1bar	700bar	1050bar	※
	9	1000bar	50bar	-1bar	1000bar	1100bar	※
AP	C	0.1bar	50mbar	0bar	0.1bar	6bar	
	D	0.2bar	0.1bar	0bar	0.2bar	10bar	
	2	0.4bar	0.2bar	0bar	0.4bar	10bar	
	3	2.5bar	0.5bar	0bar	2.5bar	40bar	
	4	10bar	2bar	0bar	10bar	60bar	
	5	30bar	3bar	0bar	30bar	150bar	
	6	100bar	10bar	0bar	100bar	200bar	

Sensor structure	T	Single flange diaphragm seal

Wetted parts material		Diaphragm	Process connection thread	
	A	316L	316L	
	B	HC-276	316L	
	C	Tantalum	316L	※
	E	Ceramic	316L	

Note: Housing connection material: 304 stainless steel. Ceramic diaphragm shall be selected for AP ranges of 10kPa or 20kPa.

Process connection	M	M20×1.5 (M), Φ3 pressure port, GB/T 193-2003, ISO 261	
	G	G1/2 (M), Φ3 pressure port, GB/T 7307-2001, ISO 228-1 *	
	A	1/2-14 NPT (M), Φ6 pressure port, GB/T 12716-2011, ASME B1.20.2M	
	N	1/2-14 NPT (F), Φ14 pressure port, GB/T 12716-2011, ASME B1.20.2M	
	H	Flange - Non-diaphragm (See Options for detailed specifications)	※

Note: Code G is the only option for ceramic diaphragms, featuring a Φ10 pressure port.

Oil filled	N	No oil filling (only optional for ceramic diaphragm)	
	S	Standard silicone oil (Oil: -40°C ~200°C ; Medium: -40°C ~105°C)	
	L	Low-temperature silicone oil (Oil: -55°C ~120°C ; Medium: -55°C ~85°C)	※
	E	Fluorinated oil (Oil: -55°C ~85°C ; Medium: -20°C ~85°C)	※

Note: Actual medium temperature shall be within the limits of: ① Fill fluid, ② Sensor, and ③ Sealing.

Factory calibration range	CAL	Provide MICROSENSOR standard verification report based on the range, default linear output. **Contract specifies**: LRL - URL, display unit*

Options-Certificates		Description (Detailed specifications as following, multiple options or null)
Approvals	/CS1	CCS, China Classification Society, XA25PTB00010
	/CS2	DNV, Det Norske Veritas, TAA00000Y1
	/CS3	BV, Bureau Veritas, 77759/A0 BV
	/CS4	ABS, American Bureau of Shipping, 24-2536413-PDA
	/CS5	LR, Lloyd's Register, LR2520052TA
	/CS6	KR, Korean Register, NAJ50160-AE001
	/CS7	NK, Nippon Kaiji Kyokai, TA24376M
	/CS8	RS, Russian Maritime Register of Shipping, 24.44.01.01398.266
Metrological certification (Russia & CIS)	/PAC	Pattern Approval Certificate of Measuring Instruments, Russia, 94159-24
	/PBY	Pattern Approval Certificate of Measuring Instruments, Belarus, 18634

Options-Specifications		Description (Detailed specifications as following, multiple options or null)	
Mounting bracket accessories	/G10	Standard L-bracket, 316 SS	
	/G11	Standard L-bracket, Q235 Carbon steel	
	/G12	Standard L-bracket, 316L SS	
Flange (non-diaphragm)	/H01	HG/T 20592-2009 DN50PN10-PN40 RF Raised face flange	※
	/H02	HG/T 20592-2009 DN25PN10-PN40 RF Raised face flange	※
	/H08	HG/T 20592-2009 DN20PN10-PN40 RF Raised face flange	※
Verification report	/Q1	Provide data according to the customer's template requirements. **Contract specifies:** LRL - URL, display unit and other requirements*	※
Note: Standard Micro Sensor format. For custom formats, please select this option and provide a template			
Damping time setting	/ST	Adjustable range 0s~100s, default 0s **Contract specifies:** Damping time*	
Fault alarm setting	/WH	High alarm current value, 21mA	
	/WL	Low alarm current value, 3.7mA, default	
Tag plate	/PT	Supplied with 316L SS hanging tag plate **Contract specifies:** Tag content (max. 16 characters)*	
Integrated value manifold	/VT	Pressure transmitter is factory assembled with MICROSENSOR valve manifold. See attachment for order guide of valve manifold. **Contract specifies:** Complete model of MICROSENSOR valve manifold*	
Leakage test report	/QS1	N_2 or air, 10bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 0.4bar)	※
	/QS2	N_2 or air, 40bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 2.5bar)	※
	/QS3	N_2 or air, 60bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 10bar)	※
	/QS4	N_2 or air, 150bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 30bar)	※
	/QS5	N_2 or air, 200bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 100bar)	※
	/QS6	Water or hydraulic oil, 600bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 400bar)	※
	/QS7	Water or hydraulic oil, 1050bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 700bar)	※
	/QS8	Water or hydraulic oil, 1100bar, 1 min hold. Standard Micro Sensor leak test report (Applicable to nominal range 1000bar)	※
Bluetooth	/B	Integrated Bluetooth communication	
Diaphragm with gold plated	/J1	Single diaphragm with gold plated (5μ)	※

Oil-free treatment	/CL1	Degreasing and cleaning treatment of the wetted parts	※
Note: Fluorinated oil (Code: E) shall be selected for oxygen condition			
Lithium battery	/LD	General requirements for low copper and zinc in the lithium battery industry (Cu <0.1%, Zn <0.15%)	
Painting	/P1	PUR coating	※
Wetted parts material certificate	/EN	Material Traceability Certificate per EN 10204 3.1	
	/NA	Wetted parts (diaphragm and process flange) material certificate per NACE MR0175/ISO 15156	
Language	/LE	English nameplate, operation manual, certificate of conformity, factory verification report.	
	/LR	Russian nameplate, operation manual, certificate of conformity, factory verification report.	
Delivery service	/XM	In addition to standard documents (certificate of conformity, opertation manual, and factory verification report), any documentation required for project acceptance shall be specified with a detailed list upon ordering	
Accuracy	/AL3	±0.05%	※
	/AL4	±0.075%	
	/AL5	±0.1%	
	/AL6	±0.2%	
Warranty period	/Y2	2-year warranty	
	/Y3	3-year warranty	
	/Y5	5-year warranty	

***Note:** Specifications for options shall be specified in the contract. Products marked with (※) have extended lead times.

Example: MDM7000-GP-0HS1L-2TAMS/G1-【CAL: 0bar~0.4bar】