

Ceramic Capacitance Manometer CCM-A Series



GM-1000



CCMH-A



CCMT-A

The CCM-A Series is a type of capacitance manometers, which detect pressure from the change in static electricity capacity occurring when a barrier membrane made of ceramic (alumina) is deformed by changes in gas pressure. Since the heart of the sensor is a single structure made of ceramic, excellent repeatability and stability are achieved and pressure in the low to medium vacuum range can be measured with good accuracy regardless of the gas type.

Features

- The following are realized through the use of a ceramic (alumina) membrane:
 - High repeatability
 - Excellent temperature stability
 - Excellent corrosion resistance
- Total pressure measurement regardless of the gas type
- Accurate linear output
- Small and light-weight sensor
- RFI suppression included as standard equipment*

* It suppresses the frequency (noise) entering the sensor through the external connector.

Applications

- Pressure monitoring in vacuum melting or, vacuum heat treatment.
- Pressure monitoring during processes of thin film deposition system.
- Pressure monitoring for vacuum systems such as pressure reduction furnaces.
- Pressure monitoring in vacuum distillation, vacuum drying, etc.
- Pressure monitoring in gas replacement, gas sealing, etc.
- For monitoring pressure in various vacuum systems.

Specifications

Model		CCMH-A	CCMT-A
Item		1000, 100, 10, 1	1000, 100, 10
Resolution		0.01% of full scale	
Accuracy		±0.15%±temperature coefficient relative to display value	±0.20%±temperature coefficient relative to display value
Temperature coefficient	Zero voltage	0.0025%F.S./ °C	0.005%F.S./ °C
	Span voltage	0.01% R/ °C	0.01% R/ °C
Applicable temperature range	°C	15-40	5-50
Maximum applicable pressure		1000 model: 2 x 10 ⁵ Pa, 100, 10, and 1 models: 1.3 x 10 ⁵ Pa	
Response rate		30ms or less	
Material of gas contacting sections		Al ₂ O ₃ , Vacon70, SUS316	
Capacity	mL	Approx. 7	Approx. 6
Input power		DC+15V 400mA/DC+24V 720mA	DC+15V 60mA/DC+24V 60mA
Output		DC 0-10 V, F.S 10k load	
RFI suppression		Standard equipment	
Weight	g	485	260
External dimensions	mm	dia. 79 x 131 (standard model: dia. 12.7)	dia. 52 x 114 (standard model: dia. 12.7)
Fitting		Standard: dia. 12.7 pipe Options: NW16KF, UFC-034, Cajon 8VCO, Cajon 8VCR	
Temperature compensation		Temperature control: 45 °C fixed temperature	Internal temperature compensation circuit
Connector		D-sub 15 pin male	

Measurement ranges

Model	Measurement range (Pa)	
CCMH-A	1000	1.3 x 10 ¹ -1.3 x 10 ⁵
	100	1.3 x 10 ⁰ -1.3 x 10 ⁴
	10	1.3 x 10 ⁻¹ -1.3 x 10 ³
	1	1.3 x 10 ⁻² -1.3 x 10 ²

Model	Measurement range (Pa)	
CCMT-A	1000	1.3 x 10 ¹ -1.3 x 10 ⁵
	100	1.3 x 10 ⁰ -1.3 x 10 ⁴
	10	1.3 x 10 ⁻¹ -1.3 x 10 ³
	1	1.3 x 10 ⁻² -1.3 x 10 ²

Control Specifications

Item		Model	GM-1000	GM-2001	GM-2002
Pressure indication range	CCM□-1000A		0.1 x 10 ² -1.3 x 10 ⁵ Pa	0.01-140.000 kPa	
	CCM□-100A		0.1 x 10 ¹ -1.3 x 10 ⁴ Pa	0.001-14.000 kPa	
	CCM□-10A		0.1 x 10 ⁰ -1.3 x 10 ³ Pa	0.1-1400 Pa	
	CCM□-1A		0.1 x 10 ⁻¹ -1.3 x 10 ² Pa	—	
Pressure measurement units			Pa	Pa/kPa indication	
Measurement locations			1 point	1 point	
Sampling times		ms	250	50	
Pressure indication			Mantissa: 2 digit, exponent: 1 digit	4.5 digit display	
Display			LCD	7 segment LED	
Set points			3 independent points, contact point output (transfer) AC125 V 0.5 A	3 independent points, transistor output: DC24 V/50 mA max.	
Power output			±15 V	±15 V	
Analog output (For Sq. CCM-10A)			1 DC 0-10 V linear output: 1.0 x 10 ³ Pa. F.S. 2 DC 0-10 V linear output: 1.0 x 10 ² Pa. F.S.	1 DC 0-10 V linear output: 1-1000 Pa. F.S. 2 DC 0-10 V linear output: 1-100 Pa. F.S.	
Digital output			BCD (TTL level)	None	
Autozero correction function			Input from back panel connector	1 Front panel switch input 2 Back panel terminal input	
Applicable temperature range		°C	10-40	10-40	
External dimensions* W x D x H		mm	50 x 260 x 99	96 x 151 x 48	
Weight		kg	1.0	0.4	
Communication function			RS-232C (optional)	None	
Broken circuit detection			None	Yes	
Recorder output adjustment function			None	Yes	
Output terminal			D-sub 37P connector	Terminal (Press terminal connection)	
Power			AC85-242 V	AC100 V	DC24 V
Power cable			AC100V (3P plug with ground) power cable	AC100 V (3P plug with ground) power cable (option)	None
Options		Gauge head Gauge head cable	CCMT-A, CCMH-A 4, 10, 15, 20, 30, 50, and 100 m (common for GM-1000, -2001, -2002)	CCMT-A	

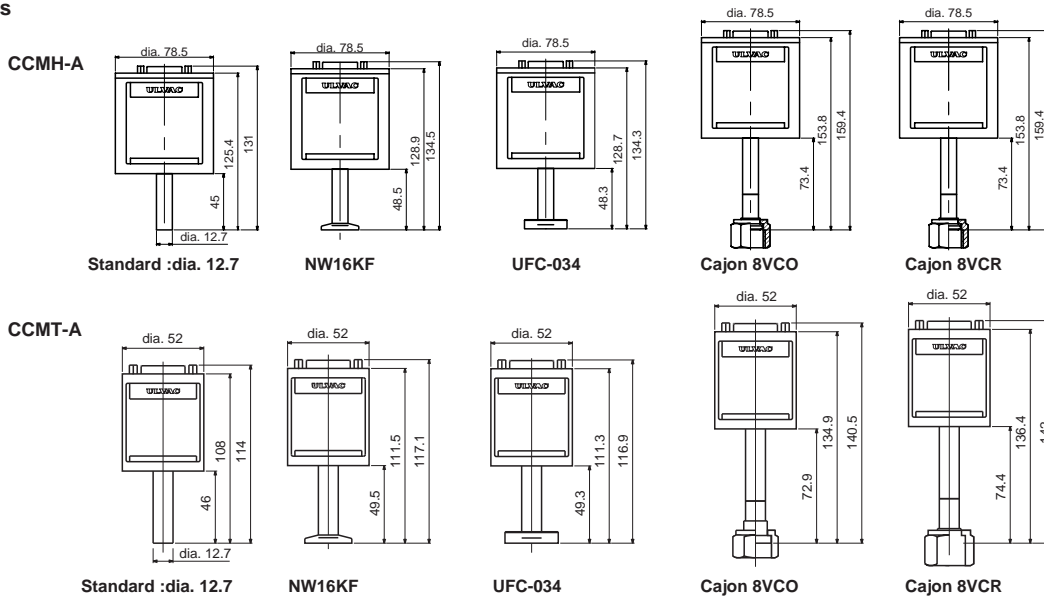
* External dimension diagrams

(Reference: Pressure conversion 1 Pa = 7.5 x 10⁻³ Torr)

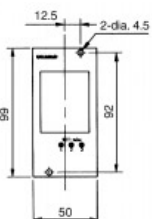
External Dimension Diagram

(unit: mm)

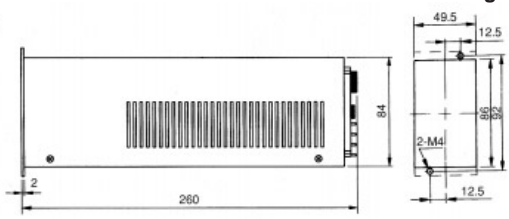
• Sensors



• Controller



• Panel cut diagram



• Panel cut diagram

