Pressure & Vacuum Measurement Solutions

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AA07A Single-Ended AA08A Flow-Through

MICRO-BARATRON® PRESSURE TRANSDUCERS

Today's process tools and equipment require reliable transducer and display performance in small geometrics with multiple fitting options. MKS addresses these issues with a building block design approach, allowing for custom configuration to meet your exact needs.

For more than three decades, MKS Baratron® capacitance manometer technology yields the most stable, accurate, and reliable sensors available today. Sensor construction is intrinsically durable with well-matched materials to provide extremely low thermal coefficient for wide temperature range performance.

This highly accurate and stable sensor technology is combined with sophisticated electronics to further optimize performance in an EMI/RFI insensitive high-level output.

Enhanced accuracy, long-term stability, and low temperature coefficients produce the repeatability critical to today's gas measurement applications. As a result, the AA07A and AA08A pressure transducers offer higher accuracy, superior value, and reliable performance.

Features & Benefits

- Proven capacitance technology at a competitive price
- Incoloy® wetted surface provides superior corrosive gas and liquid compatibility
- Available models include 4 to 20mA output
- Highest overpressure ratio tolerances on the market assure no degradation in zero repeatability or performance
- Accuracy specified in % of Reading for superior results in lower pressure ranges
- Optional integrated display gives local reading of line pressure (1000 Torr, 100 and 250 psia ranges)
- Replaceable electronics

Accuracy is specified as a percent of **Reading**, not Full Scale, as seen in some of the lower performance devices. **Percent of Reading** accuracy provides you with an even more accurate output signal in the lower scale of the pressure range — where it is needed most. (Figure 1).

The AA07A/AA08A transducers are ideally suited for use in delivery systems that feed ultrapure gases to critical process systems. Their wetted surfaces exposed to the gas stream have a finish of better than 5 µin Ra. These transducers exhibit superior dry-down characteristics, and contribute no particles above background. After manufacture and assembly, they are purged with ultraclean nitrogen prior to double bagging in a class 100 environment.

The all-Incoloy® construction of the sensors in the AA07A/AA08A allows for high overpressure tolerances that reduce errors due to line pressure spikes. High burst pressure ratings contribute to overall system safety. On existing gas cabinets and process systems, field replacement of common dial gauges or lower performance transducers is made easy due to the small size, industry standard end-to-end lengths, and electrical interface choices of these transducers.

A variety of fittings are available in different styles and sizes. A selection of power supply inputs (+12 to +32 VDC), output signals (0-5 or 0-10 VDC, or 4-20 mA two-wire), and connectors (9-pin or 15-pin Type “D”, Bendix®, or flying leads) enable the equipment or manufacturing engineer to easily interface the AA07A/AA08A pressure transducers with virtually any control system.

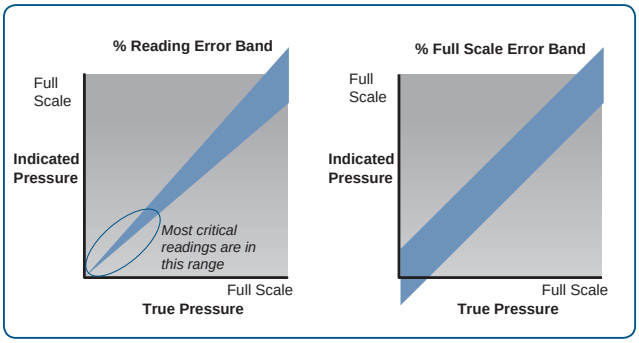


Figure 1 —
Comparison of MKS repeatability expressed as percent of Reading transducer versus other percent of Full Scale transducers.

The optional local integrated display provides a digital readout of the line pressure at the transducer. The display, which is available on the 1000 Torr, 100 and 250 psia ranges with the 0-10VDC output signal, provides a highly-visible red LED display of the pressure and the units of measurement. The display can also be switched to show any of four different units (psia, Torr, bar, and kPa) without requiring recalibration or re-ranging of the transducer itself. It takes its power from the incoming transducer voltage, so no additional cables are required.

Specifications

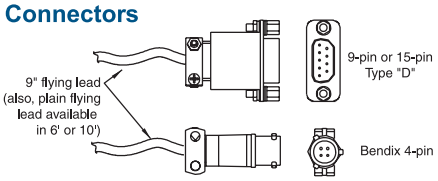
Configuration	
AA07A	Ultraclean, single-ended
AA08A	Ultraclean, flow-through
Full Scale Ranges	
AA07A	1000 Torr to 3000 psia
AA08A	1000 Torr to 3000 psia
Accuracy (including non-linearity, hysteresis, and non-repeatability)	1.0% of Reading
Temperature Coefficients	
Zero	0.02% of Full Scale/°C, 50 psia to 3000 psia; 0.04% of Full Scale/°C, 1000 Torr
Span	0.04% of Reading/°C, 50 psia to 3000 psia; 0.08% of Reading/°C, 1000 Torr
Ambient Operating Temperature	0° to 50°C (32° to 122°F)
Overpressure Limit[1]	1.5× Full Scale for ranges from 1000 Torr to 500 psi 1.2× Full Scale for ranges from 501 to 3000 psi
Burst Pressure	10× Full Scale for ranges from 1000 Torr to 500 psi 5x Full Scale for ranges from 501 to 3000 psi
Materials Exposed to Gases	Incoloy®
Wetted Surfaces	≤ 10µin Ra max.
Input Power Required	
0 to 10 Volt output	+13 VDC to +32 VDC @ 10 mA max.
0 to 5 Volt output	+12 VDC to +32 VDC (regulated if below 13 VDC) @ 10 mA max.
2-wire 4-20 mA output	+13 to +32 VDC excitation
Output	
0 to 10 VDC	into > 10K Ω load
0 to 5 VDC	into > 10K Ω load
2-wire 4-20 mA output with +13 to +32 VDC at transducer terminals	Typically into 0 to 900 W load (depending upon excitation)
Electrical Connectors	Male 9-pin at end of 9” flying lead, male 15-pin high density D type connector at end of 9” flying lead, Bendix® at end of 9” flying lead, or 6’ or 10’ flying leads
Fittings	
AA07A (single-ended)	½” weld stub, ¼” weld stub, ¼” butt-weld “T”, 4 VCR® male, 4 VCR® female
AA08A (flow-through)	¼” weld stub, 4 VCR® male, 4 VCR® female, surface mount
Compliance[2]	CE

[1]The pressure at which the transducer can be subjected without degradation of performance when returned to a normal operation pressure range.
[2]For CE compliance, the mating connection must be properly grounded.

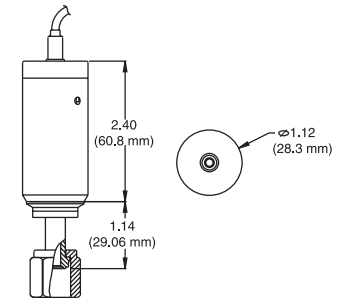
Dimensional Drawing

AA07A Single-ended

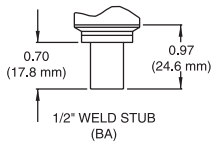
Connectors

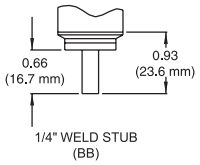


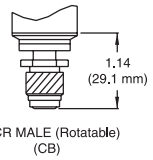
Transducers

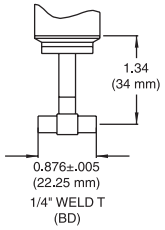


Fittings



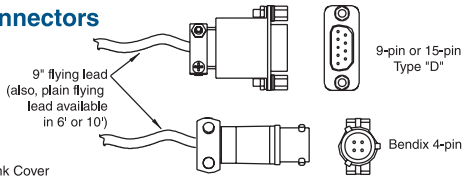


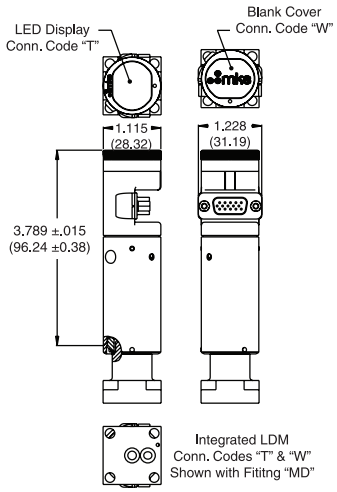


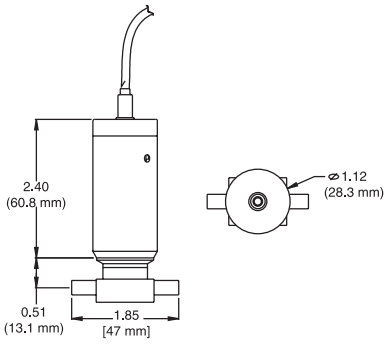


AA08A Flow-through

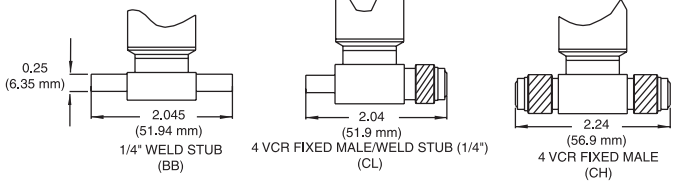
Connectors

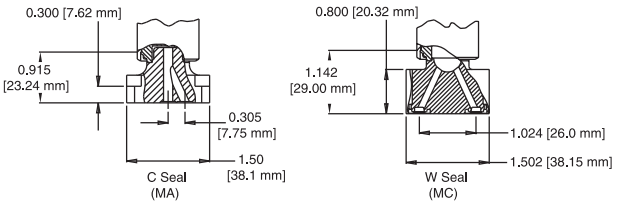


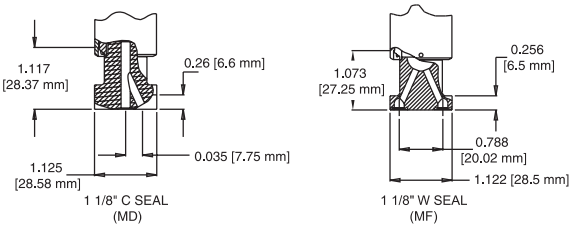


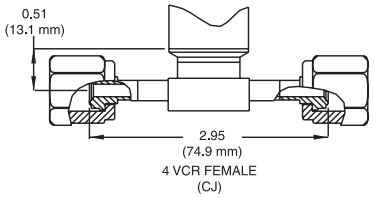


Fittings









Dimensional Drawing —

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

Ordering Information

Ordering Code Example: AA07A33PCB2GA1	Code	Configuration
Model		
AA07A Single-ended	AA07A	AA07A
AA08A Flow-through	AA08A	
Pressure Range Full Scale*		
1000 Torr	13T	33P
100 psia	12P	
250 psia	RDP	
1000 psia	13P	
3000 psia	33P	
Fittings		
AA07A only:		CB
½" weld stub	BA	
¼" weld stub	BB	
¼" Butt-welded "T"	BD	
4 VCR male, rotatable	CB	
4 VCR female	CD	
AA08A only:		
¼" weld stub (2.045" face-to-face)	BB	
¼" weld stub (1.85" face-to-face)	BE	
4 VCR male, nonrotatable (2.78" face-to-face)	CA	
4 VCR male, nonrotatable (2.24" face-to-face)	CH	
4 VCR female (2.95" face-to-face)	CJ	
4 VCR male, nonrotatable / ¼" weld stub	CL	
4 VCR female (3.045" face-to-face)	CM	
1.5" C-seal surface mount	MA	
1.5" W-seal surface mount	MC	
1 1/8" C-seal surface mount	MD	
1 1/8" W-seal surface mount	MF	
Input/Output		
+13 to +32 VDC/0-10 VDC	2	2
+12 to +32 VDC/0-5 VDC	3	
4-20 mA with +13 to +32 VDC at terminals	4	
Accuracy		
1% of Reading	G	G
Connectors		
9-pin type D at end of 9" flying lead	A	A
15-pin high density type D at end of 9" flying lead	C	
Bendix 4-pin at end of 9" flying lead	D	
6' flying leads	F	
10' flying leads	L	
Bendix 4-pin 4-20 mA on pins A&B	H	
LDM-C (Red LED), 0-5 VDC and 0-10 VDC with high density D connector	T	
LDM-C (with Blank Cover), 0-5 VDC and 0-10 VDC with high density D connector	W	
Environmental		
Standard enclosure (indoor use)	1	1
Optional NEMA 4 enclosure for water, ice and dust (not available with connector codes A, C, T or W)	4	

** Other engineering units available (i.e. KPa). Consult Applications Engineering for additional information.*

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