

Pressure &

Vacuum Measurement Solutions

WWW.MKSINST.COM

120AD

HIGH ACCURACY BARATRON® DIFFERENTIAL PRESSURE TRANSDUCER

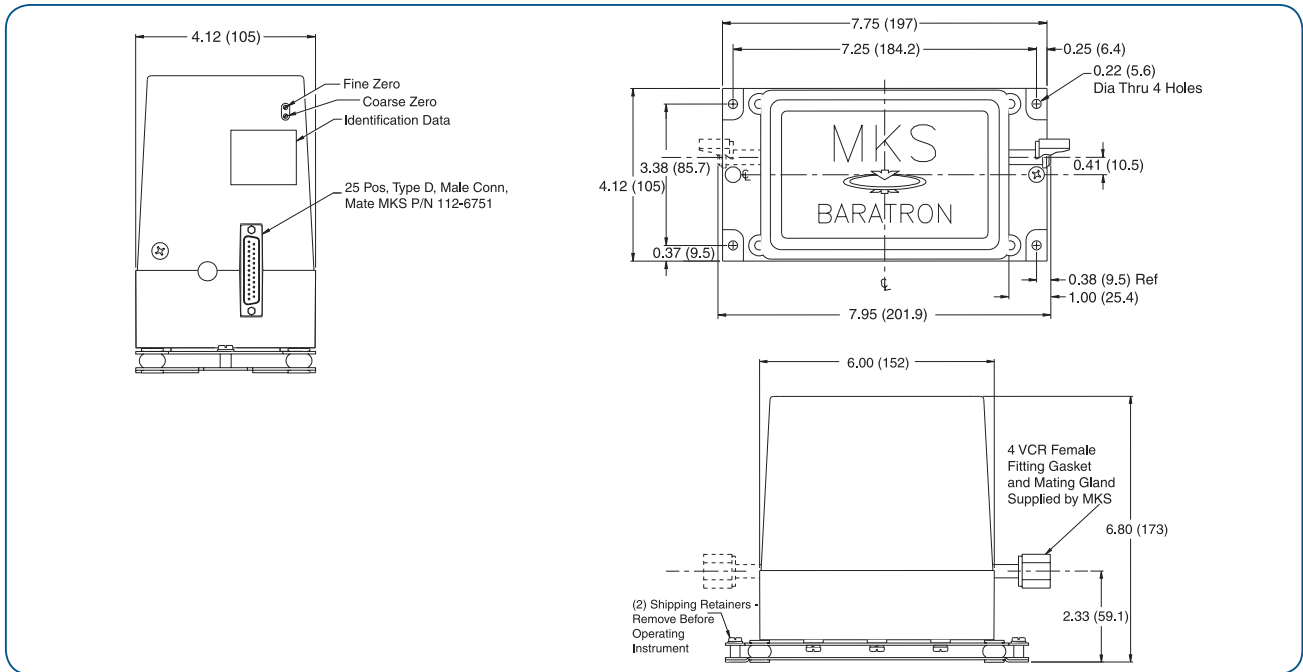
The 120AD is the most accurate stand-alone differential Baratron® pressure transducer available. This state-of-the-art transducer uses capacitance-based technology to provide highly accurate and reliable low differential pressure measurement. The 120AD Differential combines the proven 698 Baratron High Accuracy Sensor and 270 Signal Conditioning Electronics — oscillator, demodulator, and amplifier— within a single, chemically inert, injection-molded, high impact Ryton® enclosure. The compact 120AD Differential can be powered by 24-30 VDC or ± 15 VDC, and has a high level 0-10 VDC output.

Standard features include a temperature-controlled sensor to 45°C, a remotely activated range turndown capability to provide Full Scale output of 0-10 Volts for 100% and 10% of sensor range, and a remote automatic zeroing capability up to $\pm 2\%$ of Full Scale. Full Scale ranges up to 500 psid are available. The sensor is rugged, and its all-welded Incone® construction offers superior corrosion resistance for use in harsh environments. Calibration is available in ranges of inH₂O, cmH₂O, mmHg, and psid.

Features & Benefits

- Remote range turndown (or via front panel of the 510), to provide 0-10 VDC for 10% or 100% of Full Scale
- Stand-alone compact transducer package houses sensor and all signal conditioning electronics
- Full five decades of useable measurement range with differential pressure measurement to 10⁻⁵ inH₂O
- Sensor is temperature controlled at 45°C for extremely stable performance
- Ideal for low differential pressure applications such as engine testing, flow test stands, and wind tunnel simulations





Dimensional Drawing —

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



Specifications

120AD Differential Pressure Transducer	Unidirectional	Bidirectional
Calibration	(0 < P _x < +F.S.)	(-F.S. < P _x < +F.S.)
Full Scale Ranges (mmHg psid)	1 / 0.02 5000 / 100 10 / 0.2 10000 / 200 100 / 2 15000 / 300 1000 / 20 20000 / 400	1 / 0.02 10 / 0.2 100 / 2 1000 / 20 25000 / 500
Accuracy		
Standard	±0.12% of Reading	±0.25%
Optional	±0.05%, 0.08% of Reading	±0.15%
Resolution	1 x 10 ⁻⁶ of F.S.	1 x 10 ⁻⁶ of F.S.
Temperature Regulated	45°C	45°C
Zero Coefficient/°C	15 ppm	15 ppm
Span Coefficient/°C	100 ppm	100 ppm
Operating Range	15°C to 40°C	15°C to 40°C
Maximum Overpressure	125% of F.S. or 35 psig whichever is larger: Pr>Px: 125% of F.S.	125% of F.S. or 35 psig whichever is larger: Pr>Px: 125% of F.S.
Line Pressure	kPa (150 psig)	kPa (150 psig)
Wetted Materials		
P _x	Inconel, 304 & 316 S.S.	Inconel, 304 & 316 S.S.
P _r	Inconel, 304 & 316 S.S., ceramic, Palladium	Inconel, 304 & 316 S.S., ceramic, Palladium
Volume		
P _x	3.5 cc, 14 cc	3.5 cc
P _r	25.0 cc, 8.0 cc	25.0 cc
Time Response	<40 msec	<40 msec
Warm-up Time	4 hours	4 hours
Fittings	Swagelok® 4 VCR®-F	Swagelok® 4 VCR®-F
Electrical Connector	25-pin Type "D", male	25-pin Type "D", male
Input Power	±15 or +24 to 30 VDC @ 700 mA on turn-on, 450 mA after warm-up	±15 or +24 to 30 VDC @ 700 mA on turn-on, 450 mA after warm-up
Output Signal	0 to +10 VDC into >10K load	-10 to +10 VDC into >10K load
Range Multiplier	x1 or x0.1 ranges selectable via TTL low or pin grounding	x1 or x0.1 ranges selectable via TTL low or pin grounding
Remote Zero Adjust	Zero adjust initiated via TTL low or pin grounding adjustment range: 2% of F.S.	Zero adjust initiated via TTL low or pin grounding adjustment range: 2% of F.S.



Ordering Information

Ordering Code Example: 120AD00100RAU	Code	Configuration
120AD Differential Pressure Transducer	120AD	120AD
Pressure Range Full Scale (for other engineering units, consult Applications Engineering)		
1 mmHg	00001	00100
10 mmHg	00010	
100 mmHg	00100	
1000 mmHg	01000	
5000 mmHg	05000	
10,000 mmHg	10000	
15,000 mmHg	15000	
20,000 mmHg	20000	
25,000 mmHg	25000	
Fittings (for additional fitting options, consult Applications Engineering)		
Swagelok® 4 VCR®	R	R
Accuracy		
Unidirectional Calibration: (0.05% option available on 1, 10, 100 and 1000 mmHg ranges only)		AU
Standard: ±12% of Rdg	AU	
Optional: ±0.08% of Rdg	BU	
Optional: ±0.05% of Rdg	CU	
Bidirectional Calibration: (available on 1, 10, 100 and 1000 mmHg ranges only)		
Standard: ±25% of Rdg	EB	
Optional: ±0.15% of Rdg	DB	
Other Power Supply Options for 120AD Transducer (Direct Reading)		
651 pressure controller/self-tuning/digital PID		651C
660 single-channel digital display only		660C
PR4000 two-channel digital power supply/display		PR4000
Cables		
120AD to 651, 660, 10 ft. (For cable lengths over 10 ft., consult Applications Engineering.)		RCB120-6-10
120 to PR4000, 10 ft.		RCBE120-96-3M



MKS Instruments, Inc. Global Headquarters

2 Tech Drive, Suite 201
Andover, MA 01810
Tel: 978.645.5500
Tel: 800.227.8766 (in U.S.A.)
Web: www.mksinst.com

MKS Instruments, Inc. Pressure & Vacuum Measurement Solutions

Six Shattuck Road
Andover, MA 01810
Tel: 978.975.2350