

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *MKS Instruments Type 870B* at our website: *Click HERE*

Pressure & Vacuum Measurement Solutions

WWW.MKSINST.COM



Micro-Baratron® Pressure Transducers

TYPE 870B SINGLE ENDED
TYPE 872B FLOW-THROUGH

Today's process tools and equipment require reliable transducer and display performance in small geometrics with multiple fitting options. MKS addresses all of these issues by offering a building block design which allows custom configuration to your needs.

Features & Benefits

- Capacitance technology at a competitive price
- Incoloy® wetted surface provides superior corrosive gas and liquid compatibility
- 4-20 mA models approved for Class I Division 2 service
- 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
- CE Mark compliant
- Optional integrated display gives local reading of line pressure (1000 Torr, 100 and 250 PSIA ranges)
- Optional NEMA 4 enclosure for outdoor service
- 5 Ra finish (standard)
- Replaceable electronics

Theory of Operation

MKS has been utilizing Baratron® capacitance manometer technology for more than three decades because it yields the most stable, accurate and reliable sensors available today. The sensor construction is of intrinsically durable and well-matched materials, providing extremely low thermal coefficients for wide temperature range performance. MKS then combines this already highly accurate and stable sensor 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 so important in today's gas measurement applications. As a result, the Type 870B/872B is a higher accuracy pressure transducer offering superior value and performance.

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).

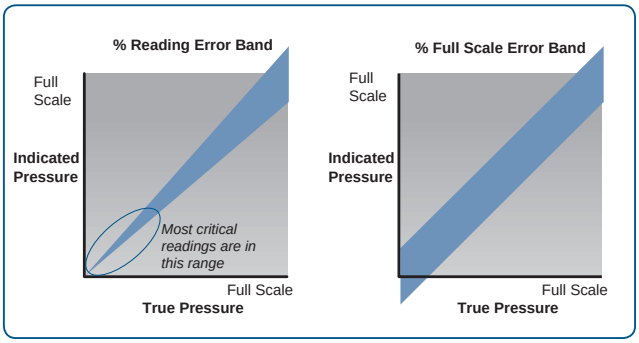


Figure 1 —

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

The Type 870B/872B 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 870B/872B 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 870B/872B pressure transducers with virtually any control system.

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

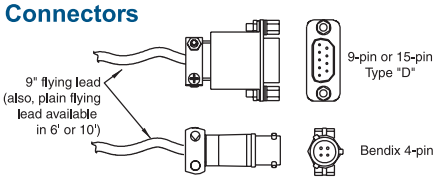
Configuration	
Type 870B	Ultraclean, single-ended
Type 872B	Ultraclean, flow-through
Full Scale Ranges	
Type 870B	1000 Torr to 3000 psia
Type 872B	1000 Torr to 3000 psia
Accuracy (including non-linearity, hysteresis, and non-repeatability)	1.0% of Reading
Temperature Coefficients	
Zero	0.02% of F.S./°C, 50 psia to 3000 psia; 0.04% of F.S./°C, 1000 Torr
Span	0.04% of Rdg./°C, 50 psia to 3000 psia; 0.08% of Rdg./°C, 1000 Torr
Ambient Operating Temperature	0° to 50°C (32° to 122°F)
Overpressure Limit[1]	1.5× F.S. for ranges from 1000 Torr to 500 psi 1.2× F.S. for ranges from 501 to 3000 psi
Burst Pressure	10× F.S. for ranges from 1000 Torr to 500 psi 5x F.S. for ranges from 501 to 3000 psi
Materials Exposed to Gases	Incoloy®
Wetted Surfaces	≤ 5µin 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)
Electromagnetic Compatibility	CE compliant to EMC Directive 2004/108/EC[2]
Non-Incendive Approval	FM3611-1986 for Class I, Division 2, Groups A, B, C, and D (4-20 mA output signal only)
Operating Environment	Indoor operation standard, optional NEMA4-rated outdoor operation (4-20 mA output signal only)
Electrical Connectors	Male 9-pin or male 15-pin Type “D” at end of 9” flying lead, Bendix® at end of 9” flying lead, or 6’ or 10’ flying leads
Fittings	
Type 870B (single-ended)	½” weld stub, ¼” weld stub, ¼” butt-weld “T”, 4 VCR® male, 4 VCR® female
Type 872B (flow-through)	¼” weld stub, 4 VCR® male, 4 VCR® female, surface mount

[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.

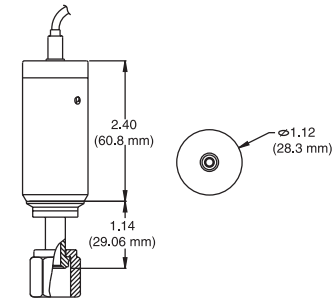
Dimensional Drawing

Type 870 Single-ended

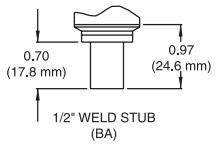
Connectors

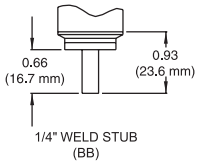


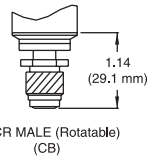
Transducers

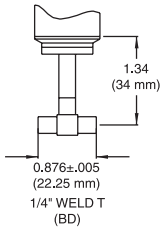


Fittings



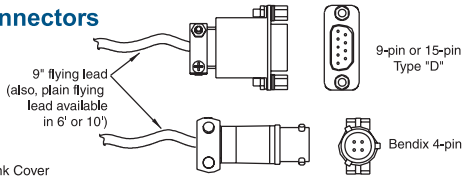


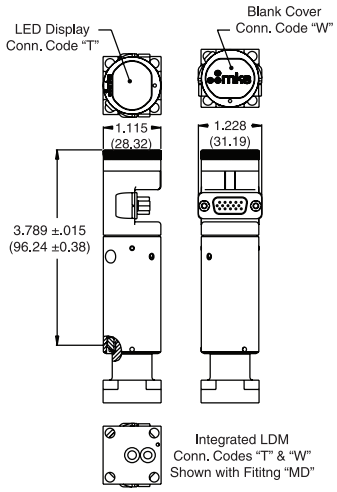




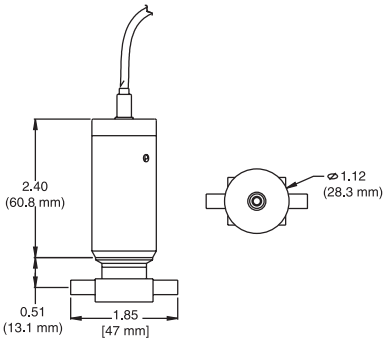
Type 872 Flow-through

Connectors

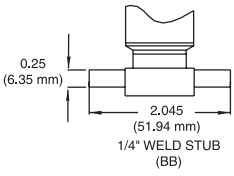


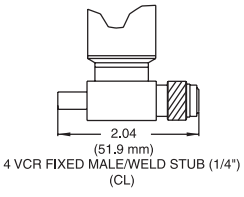


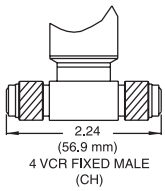
Transducers

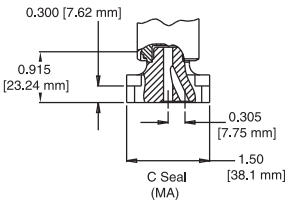


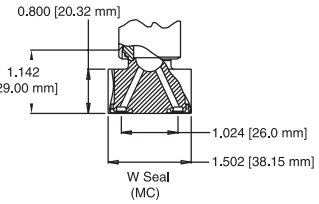
Fittings

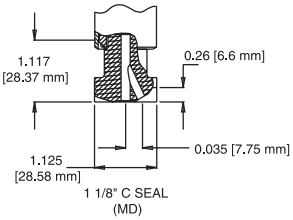


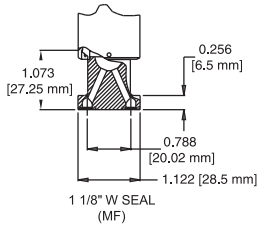


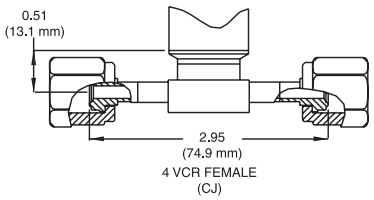












Dimensional Drawing —

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

Ordering Information

Ordering Code Example: 870B33PCB2GA4	Code	Configuration
Model Type		
Type 870B Single-ended	870B	870B
Type 872B Flow-through	872B	
Pressure Range Full Scale*		
1000 Torr	13T	33P
100 psia	12P	
250 psia	RDP	
1000 psia	13P	
3000 psia	33P	
Fittings		
Type 870B only:		CB
½" weld stub	BA	
¼" weld stub	BB	
¼" Butt-welded "T"	BD	
4 VCR male, rotatable	CB	
4 VCR female	CD	
Type 872B 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" on end of 9" flying lead	A	A
15-pin Type "D" on end of 9" flying lead	C	
Bendix 4-pin on 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	
Integrated Local Display (1000 Torr, 100 or 250 PSIA, 0-10VDC output)	T	
15-pin high density Type "D", side facing	W	
Environmental		
Standard enclosure (indoor use)	1	4
NEMA 4 compliant enclosure (outdoor use, F&L connector codes only)	4	

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

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

870_872B - 11/15

© 2010 MKS Instruments, Inc.
All rights reserved.

Some Baratron® capacitance manometer products may not be exported to many end user countries without both US and local government export licenses under ECCN 2B230.

Specifications are subject to change without notice. mksinst™ is a trademark and Baratron® is a registered trademark of MKS Instruments, Inc., Andover, MA. Incoloy® is a registered trademark of Inco Alloys International, Inc. Huntington, WV. VCR® is a registered trademark of Swagelok® Co., Solon, OH. Bendix® is a registered trademark of Amphenol Corp., Bendix Connector Operations, Sidney, NY. Vista™ is a trademark of MKS Instruments, Inc., Andover, MA.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP