

SERIES MA2 DIGITAL MANOMETER



DESCRIPTION

This hand-held manometer is a compact, bi-directional, battery-operated digital manometer with excellent sensitivity and stability down to 0.001" of water column (or 0.1 Pascal). The sensing element is a Modus proprietary highly sensitive differential capacitance cell, designed to operate at extremely low pressures. This sensing element has been used for many years in other Modus pressure transmitters and has proved very reliable. This sensing element is used for pressures below 1.00 inch of water column. Pressures greater than 1 inch of water are sensed by the latest silicon based technology.

The Modus digital manometer is an ideal instrument for HVAC test and balance work, furnace draft measurement, clean room or paint spray booth differential pressure measurement and other specialized low differential pressure measurement applications. All units are provided with a 10-point N.I.S.T. Calibration Certificate.

To enhance the versatility of the manometer, an accessory kit or individual accessories may be ordered separately to fit specific applications.

SPECIFICATIONS

General

Pressure ranges are available in English or metric units, see Reference Table C

Performance

Resolution: See Reference Table C

Accuracy: $\pm 1/2\%$ of range plus 1 digit

Position sensitivity: less than 2.5% of range

Environmental

Operating temperature range: 0°C to 50°C (32°F to 122°F)

Storage temperature range: -20°C to 70°C (-4°F to 160°F)

Electrical Connections

Low battery indicator: The symbol "BAT" appears on the display

Battery: One 9 Volt alkaline

Battery life: 200 hours (may be operated for another 20 hours without loss of accuracy after the first appearance of the "BAT" symbol on the display)

Physical

Standard accessories: Instruction card and 9V battery

Connections: Metal fittings for 3/32" or 3/16" (2.5 or 5mm) I.D. flexible tubing. Display: LCD, .5" digit height

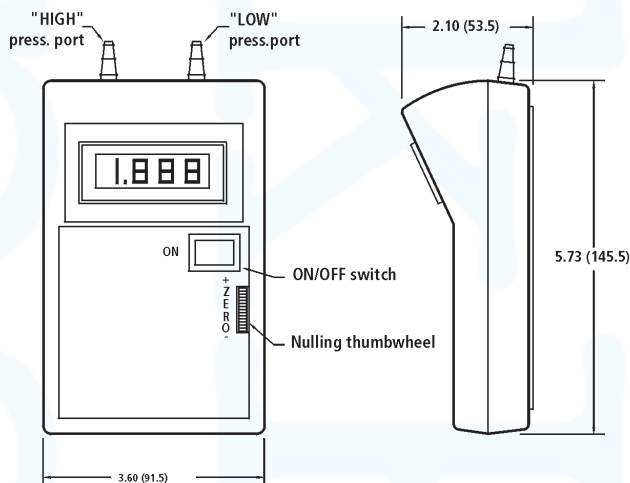
Operating medium: Air or non-corrosive non-explosive gases only

Maximum momentary pressure limit: Refer to Reference Table C

Controls: ON/OFF switch and thumbwheel for exact nulling of display

Physical dimensions: See outline drawing

Weight: 0.63Lb (285g)



ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)

ACCESSORIES

The accessories are:

Part Number and Description

SD-015	Surge Damper with 15 second time delay
SD-030	Surge Damper with 30 second time delay
SD-060	Surge Damper with 60 second time delay
KT1	Accessory kit *(see below for description)
A-4001	Carrying case (9.5"x13"x5.5")
A-303	Static pressure tip with magnetic mounting clip
A-344	Insertion tube
A-2011	10 Ft length of 3/16" I.D. rubber tubing
A-3001	Stepped straight connector for tubing size from 3/32" to 3/16" I.D. (2.5 mm to 5 mm I.D.)
A-3002	Stepped "Y" connector for tubing size from 3/32" to 3/16" I.D. (2.5 mm to 5 mm I.D.)
166-6	6" Pitot tube
160-12	12" Pitot tube**
160-18	18" Pitot tube**
160-24	24" Pitot tube**
160-36	36" Pitot tube**
160-48	48" Pitot tube**
160-60	60" Pitot tube**

** These Pitot tubes will not fit in the standard carrying case.

* The KT1 accessory kit consists of: (1) carrying case (with storage compartment for the digital manometer), (1) 6" Pitot tube, (2) static pressure tips, (1) insertion tube, (2) 5 Ft lengths of rubber tubing, (2) stepped straight connectors, (2) stepped "Y" connectors.

ORDERING INFORMATION

Order Number (See Table below and Reference Table C on page 26)

MA2 - PR

EXAMPLE: MA2 - 01E

PR = Pressure Range
(See Reference Table C)

Enter the 3 digit code
from Standard
Pressure Range - Table C

TABLE A—STANDARD PRESSURE RANGES

ENGLISH			METRIC UNITS					
Pressure Code	Pressure Range English	Max. Safe Momentary Overpressure	Pressure Code	Pressure Range Pascals	Max. Safe Momentary Overpressure	Pressure Code	Pressure Range Pascals	Max. Safe Momentary Overpressure
01E	0-0.100 in. H ₂ O	5 in. H ₂ O	01P	0-25.0 Pa	1.25 kPa	01M	0-2.50 mm H ₂ O	125 mm
02E	0-0.200 in. H ₂ O		02P	0-50.0 Pa		02M	0-5.00 mm H ₂ O	
03E	0-0.300 in. H ₂ O		03P	0-75.0 Pa		03M	0-7.50 mm H ₂ O	
04E	0-0.500 in. H ₂ O		04P	0-100.0 Pa		04M	0-10.00 mm H ₂ O	
05E	0-1.00 in. H ₂ O	20 in. H ₂ O	05P	0-250 Pa	5 kPa	05M	0-25.0 mm H ₂ O	500 mm
06E	0-2.00 in. H ₂ O		06P	0-500 Pa		06M	0-50.0 mm H ₂ O	
07E	0-3.00 in. H ₂ O		07P	0-750 Pa		07M	0-75.0 mm H ₂ O	
08E	0-5.00 in. H ₂ O	5 psid	08P	0-1.00 kPa	35 kPa	08M	0-100 mm H ₂ O	3.5 m
09E	0-10.0 in. H ₂ O		09P	0-2.50 kPa		09M	0-250 mm H ₂ O	
11E	0-20.0 in. H ₂ O		11P	0-5.00 kPa		11M	0-500 mm H ₂ O	
12E	0-30.0 in. H ₂ O		12P	0-7.50 kPa		12M	0-750 mm H ₂ O	
13E	0-50.0 in. H ₂ O	15 psid	13P	0-10.0 kPa	100 kPa	13M	0-1.00 m H ₂ O	10 m
14E	0-100 in. H ₂ O		14P	0-25.0 kPa		14M	0-2.5 m H ₂ O	
15E	0-1.00 psid		15P	0-50.0 kPa		15M	0-5.0 m H ₂ O	
16E	0-2.00 psid		-	-		-	-	
17E	0-3.00 psid		-	-		-	-	
18E	0-5.00 psid		-	-		-	-	
19E	0-15.0 psid	30 psid	16P	0-100 kPa	200 kPa	16M	0-10.0 m H ₂ O	20 m
20E	0-30.0 psid	60 psid	17P	0-200 kPa	400 kPa	17M	0-20.0 m H ₂ O	40 m

TABLE B—STANDARD PRESSURE RANGES FOR W SERIES

ENGLISH UNITS			METRIC UNITS					
Pressure Code	Differential Pressure Range, psid	Operating Static Pressure, psi	Pressure Code	Differential Pressure Range, kPa	Operating Static Pressure, psi	Pressure Code	Differential Pressure Range, k mm H ₂ O	Operating Static Pressure, k mm H ₂ O
31E	0-6 psid	0-100 psi*	31P	0-50 kPa	0 - 700 kPa*	31M	0-5.0 k mm H ₂ O	0-70 k mm H ₂ O
32E	0-10 psid		32P	0-75 kPa		32M	0-7.5 k mm H ₂ O	
33E	0-15 psid		33P	0-100 kPa		33M	0-10 k mm H ₂ O	
34E	0-30 psid		34P	0-200 kPa		34M	0-20 k mm H ₂ O	
35E	0-60 psid	0 - 300 psi*	35P	0-500 kPa	0 - 2000 kPa*	35M	0-50 k mm H ₂ O	0-200 k mm H ₂ O
36E	0-100 psid		36P	0-750 kPa		36M	0-75 k mm H ₂ O	
37E	0-150 psid		37P	0-1000 kPa		37M	0-100 k mm H ₂ O	
38E	0-200 psid		38P	0-1500 kPa		38M	0-150 k mm H ₂ O	

* Maximum safe momentary overpressure at any port is 2X the maximum operating static pressure

TABLE C—STANDARD PRESSURE RANGES FOR MANOMETER

ENGLISH				METRIC UNITS							
Pressure Code	Pressure Range	Displayed Units	Max. Safe Momentary Overpass	Pressure Code	Pressure Range Pascals	Displayed Units	Max. Safe Momentary Overpass	Pressure Code	Pressure Range mm of H ₂ O	Displayed Units	Max. Safe Momentary Overpass
01E	0-0.100 in. H ₂ O	.100	5 in H ₂ O	01P	0-25.0 Pa	25.0	1.25 kPa	01M	0-2.50 mm	2.50	125 mm
02E	0-0.200 in. H ₂ O	.200		02P	0-50.0 Pa	50.0		02M	0-5.00 mm	5.00	
03E	0-0.300 in. H ₂ O	.300		03P	0-75.0 Pa	75.0		03M	0-7.50 mm	7.50	
04E	0-0.500 in. H ₂ O	.500		04P	0-100 Pa	100.0		04M	0-10.0 mm	10.0	
05E	0-1.00 in. H ₂ O	1.000	2H ₂ O	05P	0-250 Pa	250	5 kPa	05M	0-25.0 mm	25.0	500 mm
06E	0-2.00 in. H ₂ O	1.999		06P	0-500 Pa	500		06M	0-50.0 mm	50.0	
07E	0-3.00 in. H ₂ O	3.00		07P	0-750 Pa	750		07M	0-75.0 mm	75.0	
08E	0-5.00 in. H ₂ O	5.00	5 psid	08P	0-1.00 kPa	1.000	35 kPa	08M	0-100 mm	100.0	3.5 m
09E	0-10.0 in. H ₂ O	10.00		09P	0-2.50 kPa	2.50		09M	0-250 mm	250	
11E	0-20.0 in. H ₂ O	19.99		11P	0-5.00 kPa	5.00		11M	0-500 mm	500	
12E	0-30.0 in. H ₂ O	30.0		12P	0-7.50 kPa	7.50		12M	0-750 mm	750	
13E	0-50.0 in. H ₂ O	50.0	5 psid	13P	0-10.0 kPa	10.00	100 kPa	13M	0-1.00 m	1.000	10 m
14E	0-100 in. H ₂ O	100.0		14P	0-25.0 kPa	25.0		14M	0-2.50 m	2.50	
15E	0-1.00 psid	1.000		15P	0-50.0 kPa	50.0		15M	0-5.00 m	5.00	
16E	0-2.00 psid	1.999		16P	0-100 kPa	100.0		16M	0-10.0 m	10.00	
17E	0-3.00 psid	3.00		17P	0-200 kPa	199.9		17M	0-20.0 m	19.99	
18E	0-5.00 psid	5.00									