

MODEL DO Process Panel Meter



DESCRIPTION

This process panel meter is a 3 1/2 digit meter housed in a rugged plastic case. The digits are large, bright and easy to read. The meter is designed to operate with all Modus transmitters as well as other 4 to 20 mA control loops or voltage signals (up to 10 Volts).

The meter is factory-calibrated to display the signal scaled in any engineering units. Span and zero potentiometers are accessible behind the front filter, should a minor adjustment be needed in the field.

Two pluggable terminals, with screw clamps, are provided at the rear for quick and simple field wiring.

SPECIFICATIONS

Environmental

Operating temperature: 0°C to 55°C (32°F to 130°F)
Storage temperature: -40°C to 85°C (-40°F to 185°F)
Relative humidity: 10% to 90% non-condensing

Electrical

Analog input: 0-1V to 0-10V, 100 kOhm input resistance, or 4-20mA, 100 Ohm input resistance
Maximum analog input voltage: ± 30 Vdc
Accuracy: ±0.05% of reading +1 digit
Zero adjustment: Auto-zeroing if no offset; offset adjustment by means of 15-turn potentiometer accessible behind red front filter
Span adjustment: 15-turn potentiometer accessible behind red front filter
Display: 3 1/2 digits 7 segments high efficiency red LEDs 0.56" (14.2 mm) high; decimal point factory-programmable to 4 positions (1.8.8.8.)
Conversion rate: 3 readings/sec
Polarity: Automatic no positive sign "-" negative sign
Overrange indication: Beyond 1999 display shows "1"
Power requirements: 21-32 Vac 50/60Hz 105-135 Vac 50/60Hz or 210-265 Vac, 50/60Hz
Power consumption: 2.5 VA
Warm up time: 3 minutes to rated accuracy
Connections: Non-interchangeable power and signal plugs with #4-40 screw clamps; wire range is 4-22 AWG

Physical

Dimensions: 1/8 DIN case (see drawing)
Case material: Glass reinforced NORYL™ rated UL94V-1
Weight: 0.72 Lb (325 g)

WIRING

Figure 1 is a drawing of the rear panel showing the two connectors J1 and J2. J1, with terminals labeled A and B, is the power connector. J2 is the signal input connector (pins 1 and 2 are the - and + terminals, respectively).

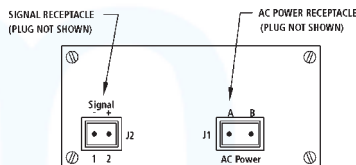
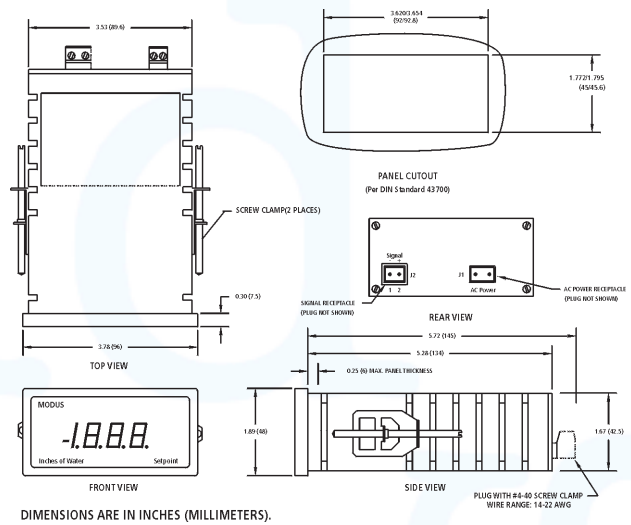


Fig. 1 - Rear panel connections.



DIMENSIONS ARE IN INCHES (MILLIMETERS).

STANDARD RANGES

The process panel meter can be set to display all the standard pressure ranges offered for Modus Pressure Transmitters. Table D indicates the pressure codes, the resolution and the decimal point location.

Pressure-related engineering units not found in tables may be available from the factory. Information such as range, displayed units and resolution must be furnished.

ORDERING INFORMATION

Order Number

DO - PS - IS - O - DU

EXAMPLE: DO - 1 - MA - 0 - 05E

PS = Power Supply	IS = Input Signal	O = Offset (See Note)	DU = Displayed Units (See Note)
1 = 120 Vac, 50/60 Hz	01 = 0 to 1 Vdc	0 = No offset	
2 = 240 Vac, 50/60 Hz	02 = 0 to 2 Vdc	A = 1/4 offset	
3 = 24 Vac, 50/60 Hz	05 = 0 to 5 Vdc	B = 1/2 offset	
	10 = 0 to 10 Vdc		
	MA = 4 to 20 mAdc		

NOTES

Offsets

If the meter must indicate a negative value, then an offset must be specified. Three standard settings are available:

"0" No offset. A 0 V or 4 mA input signal reads zero.

"A" 1/4 span offset. The zero is placed at 1/4 of the scale. A 0-5 V input will read zero at 1.25 V, a negative value below 1.25 V and a positive value above 1.25 V. A 4 to 20 mA input will indicate zero at 8 mA, a negative value below 8 mA and a positive value above 8 mA. For example, a meter ordered with pressure code "06E" (0 to 2" of water) will read from -.66 to 2.0" of water.

"B" 1/2 span offset. The zero is placed at mid-scale. A 0-5 V input will read zero at 2.5 V, a negative value below 2.5 V and a positive value above 2.5 V. A 4-20mA input will indicate zero at 12 mA, a negative value below 12 mA and a positive value above 12 mA. For example, a meter ordered with pressure code "06E" will read from -2.0 to 2.0" of water.

Displayed Units

Enter in this field the pressure range desired, refer to Table D. Enter code "100" if the display is to read 0 to 100%. Enter code "***" for other units and provide description. Resolution is 0000 to 1999. Specify decimal point location.

TABLE D—STANDARD PRESSURE RANGES**English Units**

Pressure Code (1)	Pressure Range	Displayed Units (2)	Resolution	Maximum Overpressure
01E	0-0.1 in. H ₂ O	.100	0.001"	5.0"
02E	0-0.2 in. H ₂ O	.200	0.001"	5.0"
04E	0-0.5 in. H ₂ O	.500	0.001"	5.0"
05E	0-1.0 in. H ₂ O	1.000	0.001"	20.0"
06E	0-2.0 in. H ₂ O	1.999	0.001"	20.0"
08E	0-5.0 in. H ₂ O	5.00	0.01"	5 psid
09E	0-10.0 in. H ₂ O	10.00	0.01"	5 psid
11E	0-20.0 in. H ₂ O	19.99	0.01"	5 psid
15E	0-1 psid	1.000	0.001"psid	15 psid
16E	0-2 psid	1.999	0.001"psid	15 psid
17E	0-3 psid	3.00	0.01"psid	15 psid
18E	0-5 psid	5.00	0.01"psid	15 psid
19E	0-15 psid	15.00	0.01"psid	30 psid
20E	0-30 psid	30.0	0.1"psid	60 psid
**E	Contact factory for other pressure ranges, displayed units and resolution			

Metric Units, millimeters of water

Pressure Code (1)	Pressure Range	Displayed Units (2)	Resolution	Maximum Overpressure
01M	0-2.50 mm H ₂ O	2.50	0.01 mm	125 mm
02M	0-5.00	5.00	0.01 mm	125 mm
04M	0-10.0	10.00	0.01 mm	125 mm
05M	0-25.0	25.0	0.1 mm	500 mm
06M	0-50.0	50.0	0.1 mm	500 mm
08M	0-100	100.0	0.1 mm	3.5 m
09M	0-250	250	1.0 mm	3.5 m
11M	0-500	500	1.0 mm	3.5 m
13M	0-1.00 meter	1.000	.001 meter	10 m
14M	0-2.50 meter	2.50	.01 meter	10 m
15M	0-5.00 meter	5.00	.01 meter	10 m
16M	0-10.0 meter	10.00	.01 meter	20 m
17M	0-20.0 meter	19.99	.01 meter	40 m
**M	Contact factory for other pressure ranges, displayed units and resolution			

Metric Units, pascals

Pressure Code (1)	Pressure Range	Displayed Units (2)	Resolution	Maximum Overpressure
01P	0-25 Pa	25.0	0.1 Pa	1.25 kPa
02P	0-50 Pa	50.0	0.1 Pa	1.25 kPa
04P	0-100 Pa	100.0	0.1 Pa	1.25 kPa
05P	0-250 Pa	250	1 Pa	5.0 kPa
06P	0-500 Pa	500	1 Pa	5.0 kPa
08P	0-1.0 kPa	1.000	1 Pa	35 kPa
09P	0-2.5 kPa	2.50	10 Pa	35 kPa
11P	0-5.0 kPa	5.00	10 Pa	35 kPa
13P	0-10 kPa	10.00	10 Pa	100 kPa
14P	0-25 kPa	25.0	100 Pa	100 kPa
15P	0-50 kPa	50.0	100 Pa	100 kPa
16P	0-100 kPa	100.0	100 Pa	200 kPa
17P	0-200 kPa	199.9	100 Pa	400 kPa
**P	Contact factory for other pressure ranges, displayed units and resolution			

(1) Use this code when ordering.

(2) This column shows the number of digits that are displayed and the position of the decimal point.

TABLE E**Velocity Ranges, feet per minute**

Pressure Code (1)	Pressure Range	Velocity Range	Displayed Units (2)	Resolution	Maximum Overpressure
capacitance cell					
01F	0-0.1 in. H ₂ O	90 - 1266 fpm	1.27	10 fpm	5.0 in. H ₂ O
02F	0-0.2 in. H ₂ O	125 - 1791 fpm	1.80	10 fpm	5.0 in. H ₂ O
04F	0-0.5 in. H ₂ O	200 - 2832 fpm	2.83	10 fpm	5.0 in. H ₂ O
05F	0-1.0 in. H ₂ O	280 - 4005 fpm	4.00	10 fpm	20.0 in. H ₂ O
06F	0-2.0 in. H ₂ O	400 - 5664 fpm	5.66	10 fpm	20.0 in. H ₂ O
08F	0-5.0 in. H ₂ O	4625 - 8955 fpm	8.96	10 fpm	50.0 in. H ₂ O
09F	0-10.0 in. H ₂ O	885 - 12665 fpm	12.7	100 fpm	50.0 in. H ₂ O
**F	Contact factory for other pressure or velocity ranges, displayed units and resolution				

1. Use this code when ordering.

2. The velocities are accurate for dry air at standard conditions (air density of 0.075 lb/ft³; barometric pressure of 29.92 inches of mercury and temperature of 70°F). It is also assumed that standard pitot tubes similar to those described in the accessory bulletin are used. The velocities are derived from the following formula:

$$V = 4005 \sqrt{H_v} \quad \text{Where: } V \text{ is air velocity in feet per minute}$$

$$H_v \text{ is velocity pressure in inches of water}$$

Velocity Ranges, meters per second

Pressure Code (1)	Pressure Range	Velocity Range	Displayed Units (2)	Resolution	Maximum Overpressure
capacitance cell					
01V	0-2.5 mm H ₂ O	0.45 - 6.4 m/s	6.50	0.01 m/s	125 mm
02V	0-5.0 mm H ₂ O	0.63-9 m/s	9.00	0.01 m/s	125 mm
04V	0-10.0 mm H ₂ O	0.90 - 13 m/s	13.0	0.1 m/s	125 mm
05V	0-25.0 mm H ₂ O	1.4 - 20 m/s	20.0	0.1 m/s	500 mm
06V	0-50.0 mm H ₂ O	2.0 - 29 m/s	29.0	0.1 m/s	500 mm
08V	0-100 mm H ₂ O	2.8 - 40 m/s	40.0	0.1 m/s	1250 mm
09V	0-250 mm H ₂ O	4.5 - 64 m/s	64.0	0.1 m/s	1250 mm
**V	Contact factory for other pressure or velocity ranges, displayed units and resolution				

1. Use this code when ordering.

2. The velocities are accurate for dry air at standard conditions (air density of 1.201 kg/m³; barometric pressure of 760 mm of mercury and temperature of 21°C). It is also assumed that standard pitot tubes similar to those described in the accessory bulletin are used. The velocities are derived from the following formula:

$$V = 4.037 \sqrt{H_v} \quad \text{Where: } V \text{ is air velocity in meters per second}$$

$$H_v \text{ is velocity pressure in millimeters of water}$$