

EM2000M intelligent differential pressure gauge

User manual | Document VI-EM2000M-250626

1. Overview and features

This instrument measures pressure or differential pressure in air and other compatible nonflammable, noncorrosive gases. Its mounting cutout matches common mechanical pointer differential-pressure gauges. Flush and surface mounting are supported. Simultaneous 4–20mA and 0–10V outputs connect to air-handling, HVAC, medical, pharmaceutical and other monitoring systems.

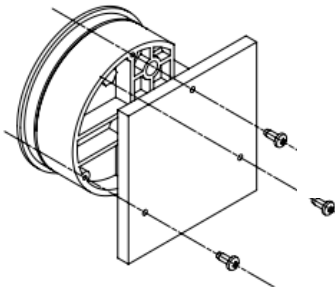
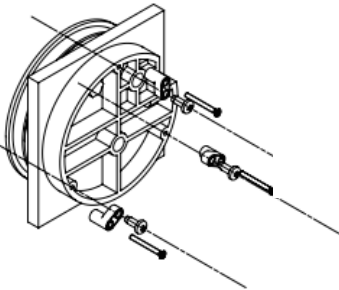
Features include $\pm 1\%$ full-scale accuracy, $\pm 1\%$ FS annual stability, dual analog outputs, supplied pressure fittings and plugs, digital zero/span adjustment and a quick-zero function.

2. Technical specifications

Parameter	Specification
Measuring medium	Air and compatible nonflammable gases
Standard documented measuring range	$\pm 3000\text{Pa}$; customized spans within this range
Accuracy	$\pm 1\%$ FS
Annual stability	$\pm 1\%$ FS/year
Operating temperature	-6.7°C to 48.9°C (20°F to 120°F)
Pressure resistance	10psi (approximately 0.69bar)
Supply	24VDC
Outputs	4–20mA and 0–10V, simultaneously
Pressure connections	1/8in NPT female threads; fittings for 1/8in inside-diameter tubing

3. Installation

Choose a dry, vibration-free location within the specified temperature range. Factory zero and span calibration use vertical installation: the dial plane must be perpendicular to the ground. Tilting the gauge or mounting it horizontally can cause measurement error.



Mounting method	Requirement
Flush mounting	Cut an $\text{Ø}4\text{--}9/16\text{in}$ (approximately 115.89mm) opening, insert the instrument and secure it from behind with screws.
Surface mounting	Drill three equally spaced $\text{Ø}3/16\text{in}$ (approximately 4.76mm) holes on an $\text{Ø}4\text{--}1/8\text{in}$ (104.78mm) bolt circle and secure the mounting lugs.

Pressure, wiring and menu operation

4. Pressure connections

Use tubing with a 1/8in inside diameter. Avoid unnecessarily long lines because they slow response. For differential pressure, connect the higher pressure to “+” and the lower pressure to “–”. Seal unused duplicate ports with the supplied plugs.

For gauge-pressure measurement, connect positive pressure to + or vacuum to –, with the reference side open to atmosphere. A vented reference does not provide absolute-pressure measurement.

5. Electrical wiring

Wire color	Function
Red	+24VDC supply
Black	DC 0V / common return (GND)
Yellow	4–20mA output
Green	0–10V output

Disconnect power before wiring. Recheck polarity before energizing the circuit. The black common-return wire is not an independently specified protective-earth conductor.

6. Display and keys

After power-up, the screen displays the difference between the high- and low-pressure ports. An indicator identifies the current pressure unit. Press ● to enter the menu, use ▲/▼ to select an item, then press ● to edit it. Change the value with ▲/▼. Press ● again, or wait five seconds without pressing a key, to save and exit.

Menu	Function
HI	Set the maximum output span value
LO	Set the minimum output span value
Sn*	Sensor system parameter
Unit	1 = Pa; 2 = kPa; 3 = mmWC; 4 = inWC
CS	Small-signal threshold: pressure changes below the set value are ignored
A-4*	4mA calibration
A-20*	20mA calibration
U-0*	0V calibration
U-10*	10V calibration
FDS	Restore factory settings
SUCS	Save parameters and exit

*The marked parameters are restricted to the manufacturer’s technical personnel. Incorrect changes require the instrument to be returned for calibration.

Adjustment examples and maintenance

7. HI — upper output endpoint

HI sets the pressure corresponding to a 20mA output. For example, press ● to enter HI and use ▲/▼ to set 2000Pa. When the displayed differential pressure reaches or exceeds 2000Pa, or the equivalent value in another unit, the current output is 20mA.

8. LO — lower output endpoint

LO sets the pressure corresponding to a 4mA output. For example, press ● to enter LO and use ▲/▼ to set 100Pa. When the displayed differential pressure is at or below 100Pa, or the equivalent value in another unit, the current output is 4mA.

9. Quick zero and factory reset

In measurement mode, hold ▲ for six seconds to zero the display. Disconnect all pressure lines before doing this. To restore factory settings, select FDS and press ●. The display shows SSSS and all parameters return to their factory values.

10. Maintenance

Periodically check the instrument seals and tubing for leaks. Keep pressure lines free of dust accumulation and condensation. Perform a zero calibration every year after installation, or whenever operating conditions change, to maintain stable performance.

11. Precautions

Maintain the vertical mounting orientation used for calibration. Isolate the supply before wiring and verify conductor polarity before power-up. Use only air or compatible nonflammable, noncorrosive gases, such as nitrogen or dry air. Avoid particulate-laden media, viscous media, acid mist, organic-solvent vapors and high-temperature steam, which can damage the sensor or obstruct the ports. Do not reverse the high and low connections. Seal unused duplicate pressure ports to prevent leakage.

Range and calibration notes

Accuracy is $\pm 1\%FS$ within the specified operating conditions. This manual describes $\pm 3000Pa$ configurations; additional range versions extend to $\pm 10kPa$. Adjusting HI and LO changes output scaling and does not enlarge the physical sensor range.

The source calls the black wire “ground”; it is identified here as the DC common return in the four-wire supply/current/voltage arrangement. “Unused ports” means duplicate unused connections; the reference port remains vented for a gauge-pressure measurement. The original absolute-pressure wording is retained and qualified on page 2.

Source publisher

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