

North American Differential Pressure or Air Flow Transmitter

Bulletin 8244

The North American 8244 Differential Pressure Transmitter is available in a series of models for ranges from -0.1 to $+0.1$ "wc to $0-50$ "wc. The low differential ranges are suitable for furnace pressure service, the higher ranges for air flow measurement.

An integral scalable square root extractor provides the capability of direct use as an air flow transmitter in conjunction with a differential pressure-producing device such as an orifice plate, and an optional LCD display provides continuous readout of the measured variable or a flow in engineering units at a factory-set calibration condition for line temperature, pressure and specific gravity.

PERFORMANCE SPECIFICATIONS

Calibrated (Reference) Accuracy: $\pm 0.50\%$ of Natural Full Span, including non-linearity, hysteresis, and non-repeatability.

Stability: $\pm 0.5\%$ of Full Span for six months.

Temperature Effects: Zero and Span -0.015% of Full Span/ $^{\circ}\text{F}$.

Power Consumption: 0.5 VA at 24 V dc.

Mounting Position Effect: Zero shift only; corrected through manual zeroing.

Integral Zeroing Means: 3-way zeroing valve with manual switch.

Overpressure and Static Pressure Limit: 25 psig.

Fluid Duty: Air and gas-fired process combustion products. Not recommended for fuel, corrosive gases, or liquids.

Output Signal: 4 to 20 mA dc (2-wire). Proportional and linear to differential pressure or velocity. Saturation levels: 4 mA min., 21.6 max. (non-linear increase above 20 mA).

Temperature Limits: -20 to 180°F storage; $+40$ to 140°F Operating for LCD models; 0°F to 140°F operating for blind models.

Power Supply: 14 to 40 V dc unregulated. Power input is reverse polarity protected. (Optional power supply available: Order R650-2505 24 V dc power supply unit.)

Materials of Construction: Drawn 16 gauge steel enclosure with hinged cover, bulkhead signal and conduit connections. Brass $\frac{1}{8}$ " female NPT process connections



FEATURES

- 2-wire, $4-20$ mA dc output signal
- 0.5% of full span accuracy
- Built-in 3-way zeroing valve
- NEMA 12 industrial or NEMA 4 outdoor enclosure
- Draft range differential pressure models for furnace pressure duty
- Air flow differential pressure models with integral square root function

Ranges. The 8244 differential pressure transmitter is available in several different spans for various control ranges. The 8244 has built-in span adjustment capability to permit matching the transmitter's calibrated span to the process maximum operating condition. The transmitter can be field calibrated as low as 40% of its natural span.†

Accuracy. The 8244 is capable of maintaining an accuracy of 0.5% of natural full span. For a span of -0.1 to +0.1"wc, this is equivalent to an output accuracy of ±0.0005"wc differential pressure. Each 8244 model has a different differential pressure sensor specific to its range. For example; the "natural full span" of a -0.1" to +0.1" model is 0.2". The "natural full span" of a 0.0" to +10.0" model is 10.0".

Integral Zeroing valve. Each 8244 is furnished with a built in 3-way zeroing valve, permitting the transmitter to be zeroed by simply positioning the valve switch. This eliminates the potential of transmitter damage that can occur by disconnecting and reconnecting input signal lines and also eliminates the added cost of an additional manifold block to provide in-line calibration.

Flow transmitter. 8244 transmitters can also be used as an air flow transmitter. All 8244 transmitters incorporate a user selectable integral square root extractor capable of automatically using the square root of the differential

pressure signal to produce an output signal linear to flow. In addition, an integral multiplier circuit permits scaling of the output signal magnitude to produce a signal linear and scaled to volume. **Note:** The 8244 is not recommended for fuel, corrosive gases, or liquids.

Display. A continuous process display option is available. The 8244 can be equipped with a 3½ digit liquid-crystal display (LCD) to provide continuous readout of the measured process in engineering units of inches wc or scfh (assuming process is standard conditions).*

Primary Signal Noise Filter. To eliminate background noise and pulsations from the flow signal, the 8244 is equipped with a user-selectable low pass filter. It is adjustable between 0.25 and 2 seconds.

NEMA 12 or NEMA 4 Enclosure Option. The 8244 is supplied with a steel NEMA 12 or NEMA 4 enclosure for harsh industrial environments. The process connection fittings are located on the bottom of the unit and all enclosures have a conduit connection port and internal tubing, wiring and terminal strip. Enclosure is also furnished with oil-resistant gasket and integral mounting plate. Note that NEMA 4 rated models with display will have the display inside the enclosure.

ORDERING INSTRUCTIONS

Determine range and options required and order by model number indicated below.

Model	Range
NEMA 12, Furnace Pressure Range:	
8244-1	-0.1 to +0.1"wc
8244-2	-0.25 to +0.25"wc
8244-5	-0.5 to +0.5"wc
8244-15†	-0.5 to +1.5"wc
NEMA 4, Furnace Pressure Range:	
8244-1-W	-0.1 to +0.1"wc
8244-2-W	-0.25 to +0.25"wc
8244-5-W	-0.5 to +0.5"wc
8244-15-W†	-0.5 to +1.5"wc

Model	Range
NEMA 12, Flow Differential Pressure Range:	
8244-10	0-10.00"wc
8244-10-D	0-10.00"wc with display (units "wc)
8244-10-DF	0-10.00"wc with display (units scfh)*
8244-50	0-50.00"wc
8244-50-D	0-50.00"wc with display (units "wc)
8244-50-DF	0-50.00"wc with display (units scfh)*
NEMA 4, Flow Differential Pressure Range:	
8244-10-W	0-10.00"wc
8244-10-WD	0-10.00"wc with display (units "wc)
8244-10-WDF	0-10.00"wc with display (units scfh)*
8244-50-W	0-50.00"wc
8244-50-WD	0-50.00"wc with display (units "wc)
8244-50-WDF	0-50.00"wc with display (units scfh)*

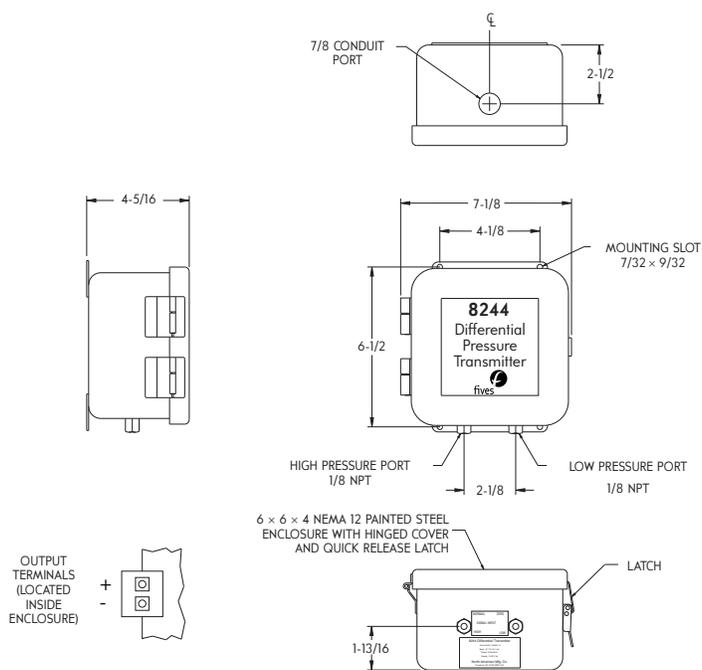
Optional power supply available: Order R650-2505 24 V dc power supply unit.

* When ordering a "flow transmitter" in "units scfh", flow range must be specified for factory configuration. Additional factory calibration can be requested for conditions other than standard temperature and pressure (stp = 60 F and 14.696 psia. Specific gravity of 1.0 for air).

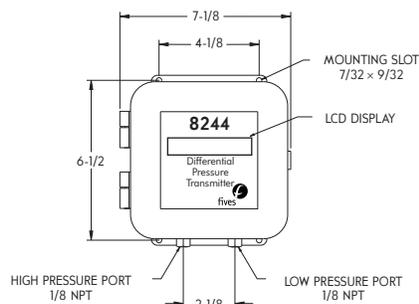
† The 8244-15 has a natural span of -2 to +2"wc. It is factory calibrated at 50% of its natural span. Minimum span for this model is -0.8 to +0.8"wc. All other models are factory calibrated at 100% of natural span and can be calibrated to as low as 40% of natural span.

DIMENSIONS inches

NEMA 12

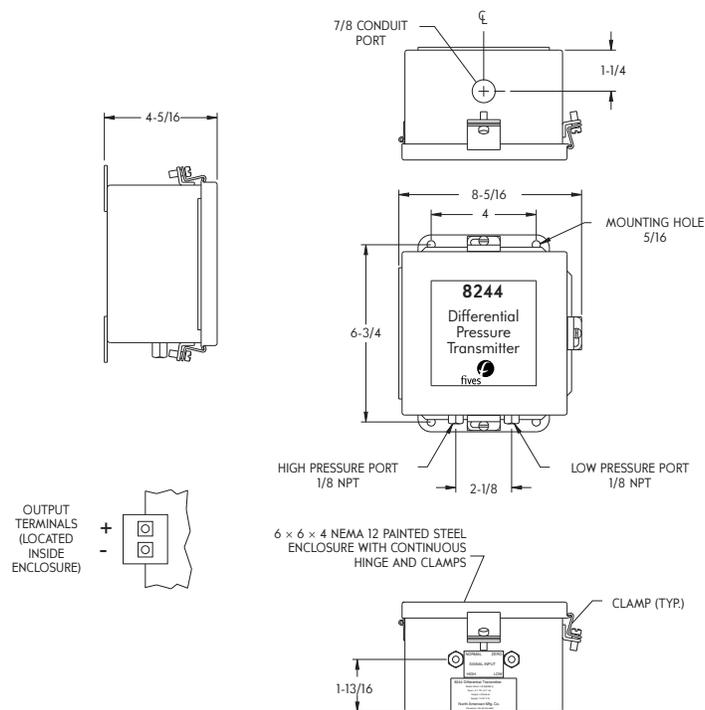


NEMA 12 with Display

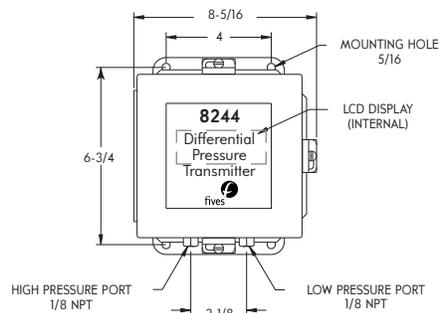


DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

NEMA 4



NEMA 4 with Display



WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.



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