166 Model
Low Differential Pressure Transducer

alpha instruments

The Model 166 Series are low range differential pressure transducers and transmitters. It features a flame retardant plastic enclosure with a metal backing. The unique design makes it can be used at outdoor environment and with easy access to zero and sensitivity adjustments.

The Model 166 Series are available for full scale pressure range from 0 to 0.1"WC till 0 to 100"WC. Both unidirectional and bidirectional pressure ranges are offered.The output of the Model 166 Pressure Transducer is available in two versions: 0 to 5VDC and 0 to 10VDC, where 0VDC is true zero without offset. The output of Model 166 Pressure Transmitter is 4 to 20 mA. All units are temperature compensated. The accuracy can be 0.6%, 0.4% or 0.25% at room temperature.

The patented variable capacitance pressure sensor is constructed by stainless steel and glass, no glue or other organics. That provides excellent performance, corrosion resistance and long-term stability.

Additionally, our unique production setup allows us to accommodate special orders for nonstandard pressure ranges (e.g. -0.5"WC to +3.5"WC).

Model 166 Specifications

Performance Data	Standard	Optional	Optional
Accuracy* (at room temp)	±0.60%FS	±0.40%FS	±0.25%FS
Non-Linearity (BFSL)	±0.55%FS	±0.37%FS	±0.20%FS
Hysteresis	±0.10%FS	±0.10%FS	±0.10%FS
Non-Repeatability	±0.10%FS	±0.10%FS	±0.10%FS
Thermal Effects: Zero/Span Shift (/°F)	±0.025%FS	±0.02%FS	±0.015%FS
Compensated Range	0 to 170°F (-18 to 77°C)		
Maximum Line Pressure	15PSI(100kPa)		
Overpressure	15PSI(100kPa) in Positive or Negative Direction for all Ranges		
Stability	±0.5% FS/YR		
Warm-up Shift	±0.1%FS		
Position Effect	Each unit is calibrated in the vertical position. For best accuracy, adjust zero of the unit if it is mounted in other position. It is not necessary to adjust the sensitivity.		

* RSS of Non-Linearity, Hysteresis, and Non-Repeatability.

Environmental Data and Physical Description

Operating Temperature	0 to 170°F(-18 to 77°C)
Storage Temperature	-65 to 185°F(-54 to 85°C)
Electrical Termination	Screw Terminal Block
Pressure Fittings	3/16" O.D. barbed brass for 1/8" I.D. push-on tubing(standard). 8mm O.D. barbed brass(optional).
Output Adjustment	Accessible under the top slip cover.
Pressure Media	Typically air or similar non-conducting gases
Enclosure	ABS, 94V-0 Rated and stainless steel
Weight	8.65OZ/245g
Installation	See Diagram 1 for outline and installation.

Applications:

- HVAC and VAV Control
- Clean Room and Fume Hood Control
- Duct Static Pressure Measurement
- Draft Control
- Furnace Air Flow Control
- Power Plant Air Flow Monitor and Control

Features

- Up to 15 PSI Overpressure on All Ranges
- Incorrect Wiring Protection
- Unsymmetrical Bidirectional Pressure Ranges
- True Zero Output for Voltage Unit
- Meets CE Conformance Standards
- Meets RoHS Requirements
- Pressure Ranges as Low as 10Pa only!

Visit us Online:
www.alphainstruments.com
E-mail: sales@alphainstruments.com
978-264-2966

Model 166 Specifications

Electrical Data (Voltage)

Circuit	3-Wire (+EXC, -EXC, OUTPUT)，Protected against incorrect wiring
Excitation	16-32VDC
Output*	0-5VDC，0-10VDC
Output Impedance	⩽5.0 OHMS

* Zero output: factory set at ±25mV(0-5VDC), ±50mV(0-10VDC)
Span output: factory set at ±25mV(0-5VDC), ±50mV(0-10VDC)
Calibrate with a 50K OHM load. Operable with a load greater than 5K OHM for 0-5VDC output, greater than 10K OHM for 0-10VDC output.

Electrical Data (Current)

Circuit	2-Wire（+EXC, -EXC），Protected against incorrect wiring
Output**	4-20mA
Bidirectional Output at Zero	12mA as standard
Excitation	16-32VDC（see diagram 2 for maximum loop resistance）
External Load	0-800 OHM

* Zero output: factory set at ±0.08mA
Span output: factory set at ±0.08mA
Calibrated with a 250 OHM load and a 24VDC supply voltage.

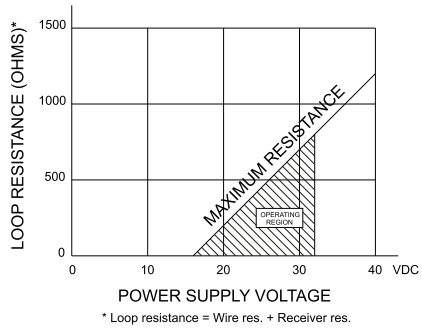

Diagram 2

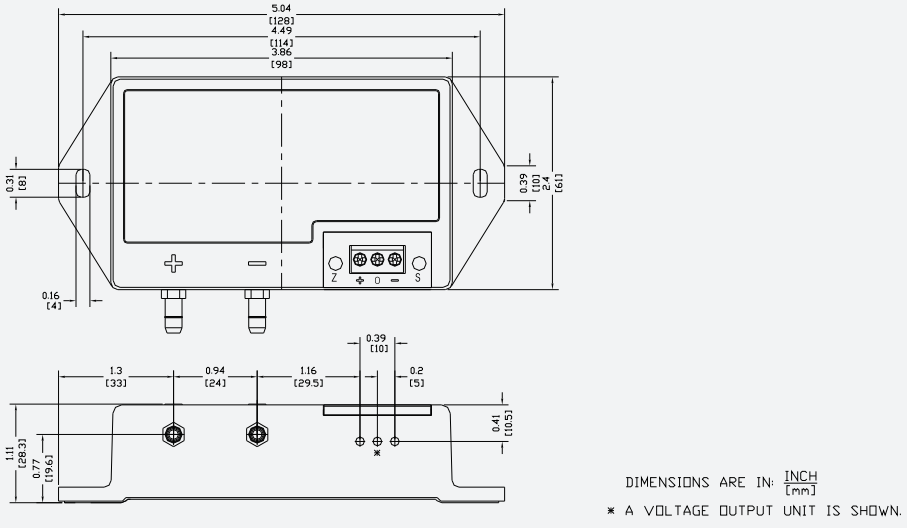

Diagram 1

Ordering Information

Code all blocks in table.

Example: 166W00R1DA6NA for 166 Tranmitter, 0~0.1 in. WC Range, Unidirectional, 4-20mA Output, 0.6% accuracy, No Calibration Certificate, 3/16"Barbed Brass Pressure Fittings.

1 6 6	☐	☐☐☐☐	☐	☐	☐	☐	☐
Model **166**	**Unit** **P:** Pascal **W:** in. W.C.	**Range** **NNNN**	**Pressure Type** **Differential** **D:** Unidirectional **B:** Bidirectional	**Output** **A:** 4-20mA **B:** 0-5VDC **C:** 0-10VDC	**Accuracy** **6:** 0.6%FS **4:** 0.4%FS **2:** 0.25%FS	**Certificate** **Y:** (with) **N:** (without)	**Pressure Fitting** **A:** 3/16" **B:** 8mm (Barbed Brass)

Pressure Unit/Range/Type

in. W.C. (Unidirectional)	**in. W.C. (Bidirectional)**	**Pascal (Unidirectional)**	**Pascal (Bidirectional)**
W00R1D=0 to 0.1 in. WC	W0R05B=-0.05 to 0.05 in. WC	P0025D=0 to 25 Pa	P0010B=-10 to 10 Pa
W0R25D=0 to 0.25 in. WC	W00R1B=-0.1 to 0.1 in. WC	P0050D=0 to 50 Pa	P0025B=-25 to 25 Pa
W00R5D=0 to 0.5 in. WC	W0R25B=-0.25 to 0.25 in. WC	P0100D=0 to 100 Pa	P0050B=-50 to 50 Pa
W0001D=0 to 1 in. WC	W00R5B=-0.5 to 0.5 in. WC	P0250D=0 to 250 Pa	P0100B=-100 to 100 Pa
W02R5D=0 to 2.5 in. WC	W0001B=-0.1 to 1 in. WC	P0500D=0 to 500 Pa	P0250B=-250 to 250 Pa
W0005D=0 to 5 in. WC	W02R5B=-2.5 to 2.5 in. WC	P1000D=0 to 1000 Pa	P0500B=-500 to 500 Pa
W0010D=0 to 10 in. WC	W0005B=-5 to 5 in. WC	P2500D=0 to 2500 Pa	P1000B=-1000 to 1000 Pa
W0025D=0 to 25 in. WC	W0010B=-10 to 10 in. WC	P5000D=0 to 5000 Pa	P1250B=-1250 to 1250 Pa
W0050D=0 to 50 in. WC	W0025B=-25 to 25 in. WC	P100CD=0 to 10000 Pa	P2000B=-2000 to 2000 Pa
W0100D=0 to 100 in. WC	W0050B=-50 to 50 in. WC	P250CD=0 to 25000 Pa	P5000B=-5000 to 5000 Pa
			P100CB=-10000 to 10000 Pa

* Specifications subject to change without notice. If you don't see what you need here, please contact us.

Tel: 978-264-2966 · E-mail: sales@alphainstruments.com · Web: alphainstruments.com