

Installation Guide/Operation Instruction

Alpha Instruments Model 167 Differential Pressure Transducers

Alpha Instruments M167 pressure transducer senses differential or gauge (static) pressure and convert this pressure signal to a proportional high level analog output. The pressure range can be either unidirectional or bidirectional. There are three outputs offered: Voltage output of 0 to 5 VDC, 0 to 10VDC and current output of 4 to 20mA.

The Alpha Instruments M167 is designed to be mounted on a 35mm DIN rail.

Two LEDs located on the front show the working status of the unit. Both LEDs are off when the power is off or the pressure applied to the negative port is too high. The green LED turns on when the power is on and the light intensity increases as pressure increases. The red LED turns on when the pressure applied to the positive port is too high.

MEDIA COMPATIBILITY

Model 167 transducers are designed to be used with clean dry air or non-conducting gases. Use with liquids or highly corrosive gases will affect the accuracy and may damage the unit.

ENVIRONMENTAL REQUIREMENT

Operating Temperature	0 to 170°F
Compensated Temperature Range	20 to 170°F

PRESSURE FITTINGS

The standard 3/16" diameter barbed pressure fittings are designed to be used with 1/8" I.D. push-on tubing. 8mm barbed brass pressure fittings are also available as an option. The positive (High) pressure port and the negative (Low) pressure port are marked as "+" and "-" respectively.

ELECTRICAL WIRING

Caution: Please don't exceed specified supply voltage rating. This unit is NOT designed for 110VAC operation.

For Voltage Output:

1. Unplug the green terminal block on the front of the unit.
2. Following the markings on the front label, use 12-26 AWG wire to connect the unit per Diagram 2.

3. Firmly reinstall the terminal block to its mating connector.

The 167 voltage output can operate from 16-32VDC excitation. The unit is calibrated at the factory with a 24 VDC power, 50KΩ load resistor.

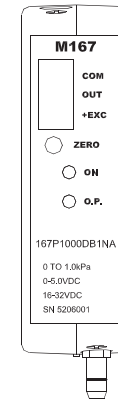


Diagram 1

Voltage Circuit Diagram

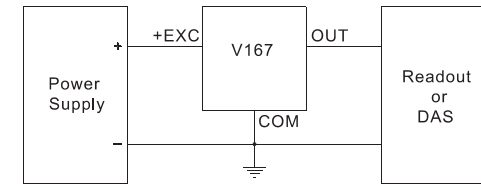


Diagram 2

For Current Output:

1. Unplug the green terminal block on the front of the unit.
2. Following the markings on the front label, use 12-26 AWG wire to connect the unit per Diagram 4 (The center terminal is not being used).
3. Firmly reinstall the terminal block to its mating connector.

The 167 current output can operate from 16-32VDC excitation. The unit is calibrated at the factory with a 24 VDC loop supply voltage and a 250Ω load.

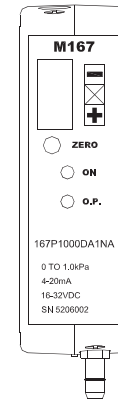


Diagram 3

Current Circuit Diagram

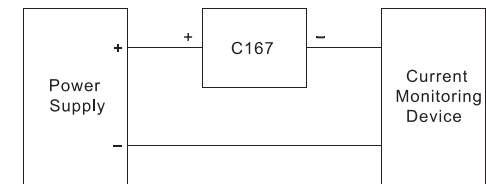


Diagram 4

The below table shows the maximum wire and receiver resistances as a function of supply voltage.

V_{min}	V_{max}	RL_{min}	RL_{max}	RL Calculation Equation
16	32	0	800	$RL \leq 50(V_s - 16)$

For Example: Voltage is 24VDC, $RL \leq 50(24-16)=400\Omega$, the load resistance should not exceed 400 Ω .

Calibration:

The 167 transducer is factory calibrated and should require no field adjustment. The unit is calibrated in vertical position at the factory. Mounting in horizontal position (side logo labels face up and down) can cause a zero shift, which can be minimized by adjusting the zero adjustment potentiometer located on the front of the unit.

Zero Adjustment:

While monitoring the output of the unit and with both pressure ports open to atmosphere, the zero may be adjusted by turning the zero adjustment screw to:

Voltage Output:

Unidirectional Pressure Ranges: 0VDC

Bidirectional Pressure Ranges: Normally 2.5VDC

Current Output:

Unidirectional Pressure Ranges: 4mA

Bidirectional Pressure Ranges: Normally 12mA

LIMITED WARRANTY AND LIMITATION OF LIABILITY

All products from Alpha Instruments, Inc. are warranted against defective material and workmanship for a period of three years from the date of purchase, subject to the following terms and conditions:

- a) The product has not been subjected to abuse, neglect, accident, improper installation or wiring.
- b) The product has not been repaired or altered by anyone except Alpha Instruments' personnel.
- c) The serial number or date code has not been removed, defaced or otherwise changed.
- d) Alpha Instruments is notified in advance of and the product is returned to Alpha Instruments transportation prepaid.

Alpha Instruments' liability for breach of warranty is limited to repair or replacement, or if the goods cannot be repaired or replaced, to a refund of the purchase price. Alpha Instruments' liability for all other breaches is limited to a refund of the purchased price. In no instance shall Alpha Instruments be liable for incidental or consequential damages arising from a breach of warranty, or from the use or installation of its products.

No representative or person is authorized to give any warranty other than as set out above or to assume for Alpha Instruments any other liability in connection with the sale of its products.

RETURNING PRODUCTS FOR REPAIR

Please contact us before returning unit for repair to review information relative to your application. The unit should be carefully packaged and shipped to:

Alpha Instruments Inc.
131 Nonset Path
Acton, MA01720, USA
Attn: Repair Department

To assure prompt handling, please supply the following information and include it inside the package or returned material:

1. Name and phone number of person to contact
2. Full description of the malfunction
3. Identify any hazardous material used with product.

Alpha Instruments will repair and return of the unit as soon as possible. Non-warranty repairs will not be made without customer approval and a purchase order to cover repair charges.

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