alpha instruments

Installation Guide
Alpha Instruments Model 168
Differential Pressure Transducers

Every Model 168 has been tested and calibrated before shipment.

Alpha Instruments M168 pressure transducers sense differential or gauge (static) pressure and convert this pressure difference to a proportional high level analog output for both unidirectional and bidirectional pressure ranges. Three standard output versions are offered: Voltage output of 0 to 5 VDC, 0 to 10VDC and current output of 4 to 20mA.

Media Compatibility：

Model 168 transducers are designed to be used with air or nonconducting gases. Use with liquids or corrosive gases will damage the unit.

Environmental Requirement：

Operating Temperature	-18 ～ 85℃
Compensated Temperature Range	-5℃ ～ 85℃
Temperature Drift	＜±0.05%FS/℃

Pressure Fittings：

The Model 168 is designed to be used with 3/16” I.D. push-on tubing. 8mm barbed brass pressure fittings and other possible pressure fittings are optional. Both the positive (high) pressure port and the reference (low) pressure port are labeled as " + "and "- " respectively. For best results(shortest response times), 3/16” I.D. tubing is suggested for tubing lengths up to 25 meters long, 1/4” I.D. for tubing lengths up to 75 meters, and 3/8” I.D. for tubing lengths up to 220 meters.

Electrical Installation（Voltage Output）：

Wiring terminations are identified on the circuit board beside the terminal strip. To access the terminal strip, turn the screws on top of the case counter clockwise until the cover can be removed. (see Diagram1), The screws are captured and will be secured in the top of the case.

The model 168 voltage output is a 3-wire circuit, 0-5 or 0-10 VDC output. (See Diagram2).

The 168 voltage output can operate from 16-32VDC excitation. The unit is calibrated at the factory with a 24 VDC power, 50KΩ load resistor.

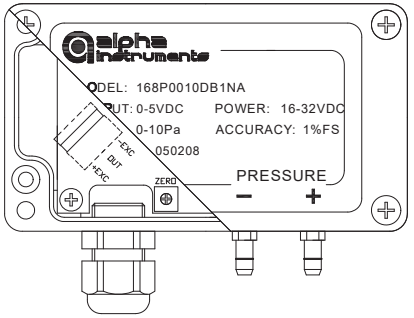

Diagram 1

Voltage Circuit Diagram

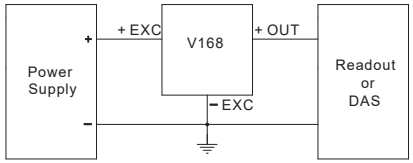

Diagram 2

+EXC: Connected to positive terminal of DC power supply.
+OUT: Connect to positive terminal of control or pressure monitor.
−EXC: Connect as the reference for power supply and output signal.

Electrical Installation(Current Output)：

Wiring terminations are identified on the circuit board beside the terminal strip. To access the terminal strip, turn the screws on top of the case counter clockwise until the cover can be removed. (see Diagram3), The screws are captured and will be secured in the top of the case.

The model 168 current output is a 2-wire circuit, 4-20mA current output. (See Diagram4).

The 168 current output can operate from 16-32VDC excitation. The unit is calibrated at the factory with a 24 VDC loop supply voltage and a 250ohm load.

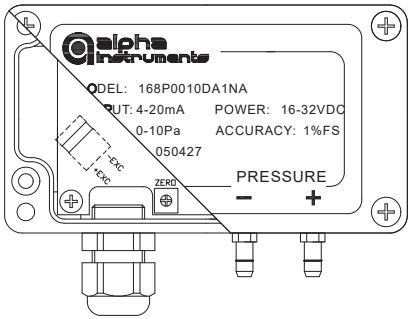

Diagram 3

Current Circuit Diagram

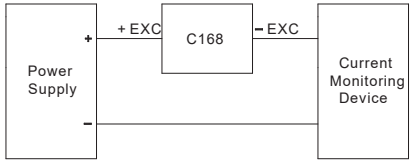

Diagram 4

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

V_{min}	V_{max}	R_{min}	R_{max}	RL at Supply Voltage (Vs)
16	32	0	800	RL≤50(Vs-16)

For Example：Voltage is 24VDC，RL≤50(24-16)=400Ω，the load resistance should not exceed 400Ω。

Calibration：

The 168 transducer is factory calibrated and should require no field adjustment, The unit is calibrated in vertical position at the factory (Pressure fitting vertical), the mounting position will have a zero shift when using in other positions, zero adjustment is accessible under the cover 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 Output: 0VDC

Bidirectional Pressure Ranges Output: 2.5VDC

Current Output:

Unidirectional Pressure Ranges Output: 4mA

Bidirectional Pressure Ranges Output: 12mA

RETURNING PRODUCTS FOR REPAIR：

Please contact with Alpha Instruments before returning unit for repair to review information relative to your application. The material should be carefully packaged and shipped prepaid 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.

Notes: Please remove any pressure fittings and plumbing that you have installed and enclose any required mating electrical connectors and wiring diagrams. 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.

LIMITED WARRANTY AND LIMITATION OF LIABILITY：

Alpha Instruments its products to be free from defects in materials and workmanship, subject to the following terms and conditions: Without charge, Alpha Instruments will repair or replace products found to be defective in materials or workmanship within the warranty period. Including:

a) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing.

b) the product has not been repaired or altered by anyone except Alpha Instruments.

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.

Unless otherwise specified in a manual or warranty card, or agreed to in Writing and signed by an Alpha Instruments officer, Alpha Instruments pressure products shall be warranted for three years from date of sale.

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 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.

E-mail: sales@alphainstruments.com