

Elastomer or Metal Seal Remote Transducer Pressure Controller / Flowmeter

GENERAL FEATURES

- High accuracy
- High leak integrity
- Electropolished wetted surfaces (optional)
- Pressure control and flow measurement
- Compact design
- Wide flow measurement range
- Dynamic tuning adjustments with top mounted DIP switches
- Electrically activated valve override

DESCRIPTION

The Brooks® Model 5866RT Pressure Controller/Flowmeter controls pressure while also measuring flow rate. The Model 5866RT receives a remote pressure transducer signal, and using adjustable integral PID control electronics and control valve, will maintain a desired set pressure. In addition to the pressure control function, the Model 5866RT provides a 0-5 V signal which is linear with mass flow rate. The Model 5866RT can also be configured as a mass flow controller for calibration or test purposes.

SPECIFICATIONS

Flow Ranges*

Any range from 0 to 3 sccm to 0 to 30,000 sccm N₂Eq.
*Standard pressure and temperature in accordance with SEMI (Semiconductor Equipment and Materials Institute) standard: 0°C and 101 kPa (760 torr).

Flow Output Signals

0-5 Vdc, max. load 1 k ohm

Flow Accuracy

±1.0% full scale including linearity at the calibration conditions. ±1.5% full scale for flow rates greater than 20 slpm.

Flow Repeatability

±0.25% of rate

Flow Temperature Coefficient

0.1% full scale/°C

Pressure Ranges

Dependent upon remote pressure transducer



Model 5866RT Pressure Controller / Flowmeter

Remote Pressure Sensor Input

Suitable for any pressure sensor with a 0-5 V or 0-10 V output signal.

Pressure Setpoint Signal

0-5 Vdc or 0-10 V. 5 Vdc reference output available for setpoint generation. 1 k ohm maximum load.

Pressure Ratings

Maximum pressure: 1500 psig

(PED) Pressure Equipment Directive 97/23/EC
Sound Engineering Practice (SEP)

Pressure Control Range

100:1 for a remote transducer with a 0-10 V output

Pressure Response Time

Less than 0.8 seconds typical for a 0-100% command step with less than 2% pressure overshoot. Actual pressure response depends on system design.

Temperature Range

32 to 150°F (0-65°C)

Input/Output Offset

0.2% full scale

Leak Integrity, Inboard to Outboard

1 x 10⁻⁹ atm cc/sec Helium max. (Elastomer Seal)
1 x 10⁻¹⁰ atm scc/sec Helium max. (Metal Seal)

Brooks® Model 5866RT

Physical Characteristics:

Materials of Construction

Wetted Parts - Standard: 316L/316L VAR Stainless Steel

Valve Seat - Standard: Viton® fluoroelastomers or metal.

External/Internal Seals: fluoroelastomers or metal
Optional: Buna-N, Teflon® or Kalrez®

Mechanical Connections

Model 5866RT Standard: 1/8" or 1/4" Stainless Steel Compression Fittings.

Optional: 1/4" VCO™ or VCR™

Model 5866RT(M) 1/4" VCR.

Dimensions

See Figures 3 and 4

Electrical Characteristics:

Electrical Connections

15 Pin D-Connector (DA-15P)

Power Requirements

N.C. 3.5 watts; +15 Vdc ($\pm 5\%$) @ 35 mA, -15 Vdc ($\pm 5\%$) @ 180 mA

N.O. 10.5 watts; ± 15 Vdc ($\pm 5\%$) @ 350 mA

EMC Directive 89/336/EEC EN 61326-1

Typical Configurations

A Pressure Controller System can be built in two different configurations as shown in Figures 1 and 2. When the controller is placed downstream of the pressure vessel, the flow is usually determined by a mass flow controller in the line upstream of the vessel.

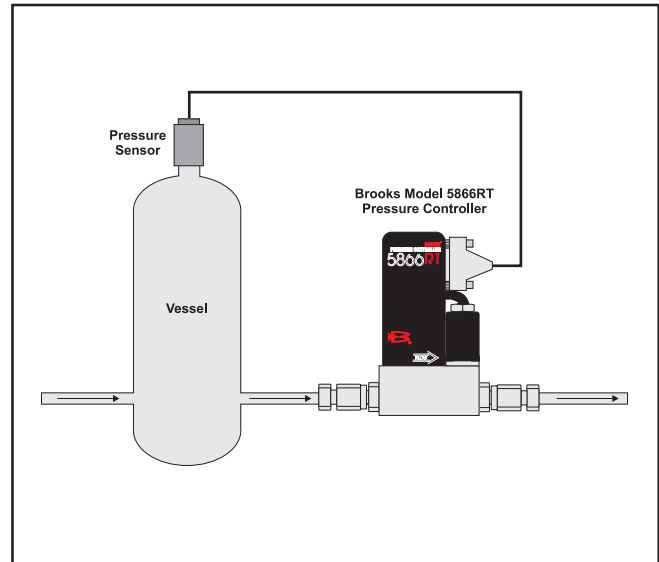


Figure 1 Typical Upstream Configuration

With the pressure controller upstream of the vessel, the inlet of the pressure controller can be at atmospheric gas pressure or at the vapor pressure of a liquid source. The flow in this situation is usually determined by the characteristics of a vacuum pump.

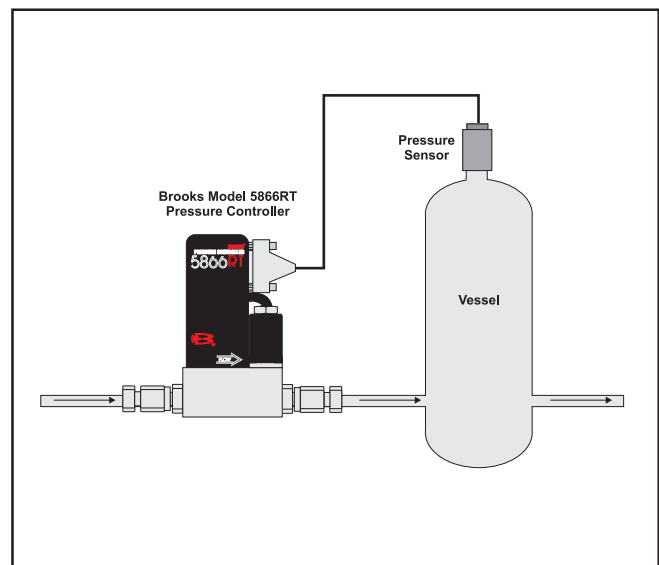


Figure 2 Typical Downstream Configuration

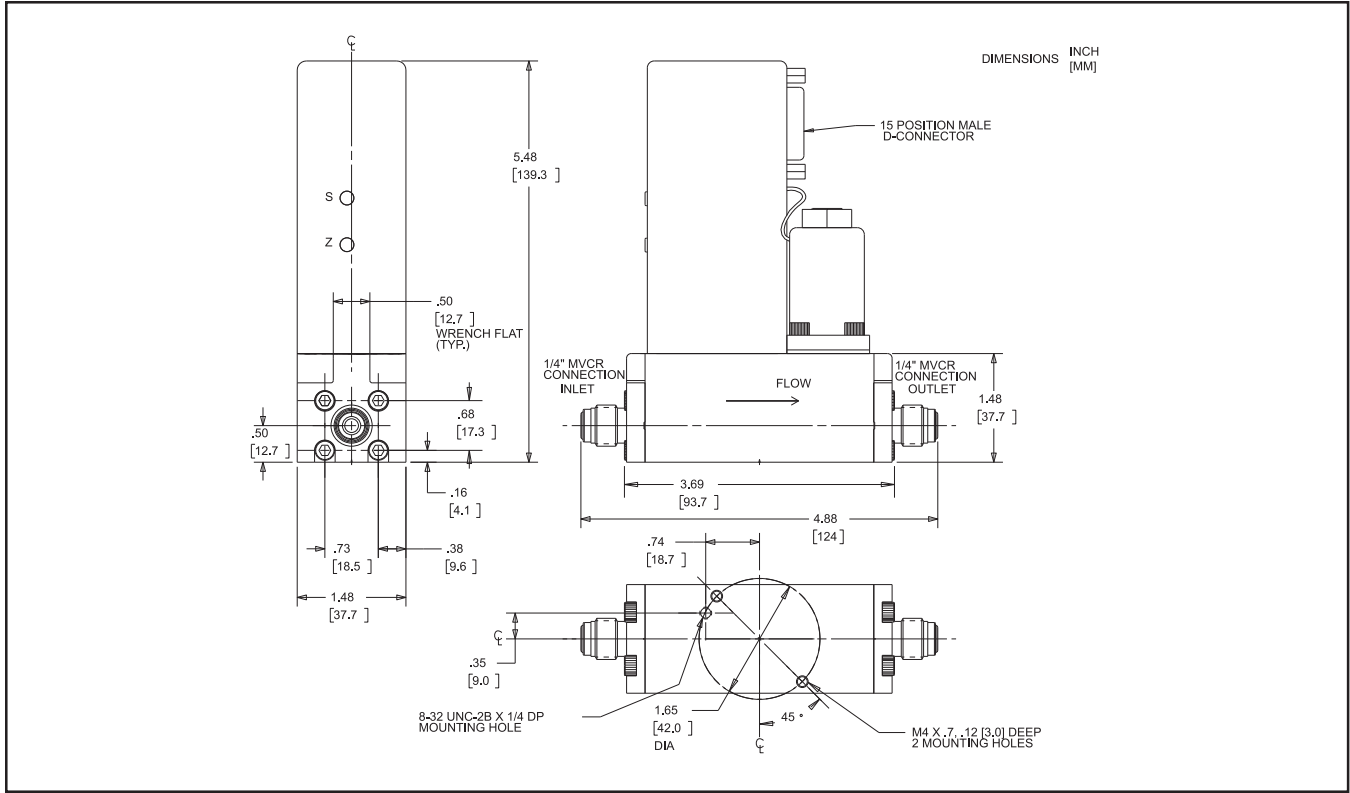


Figure 3 Model 5866RT Common Body with VCR and D-Connector

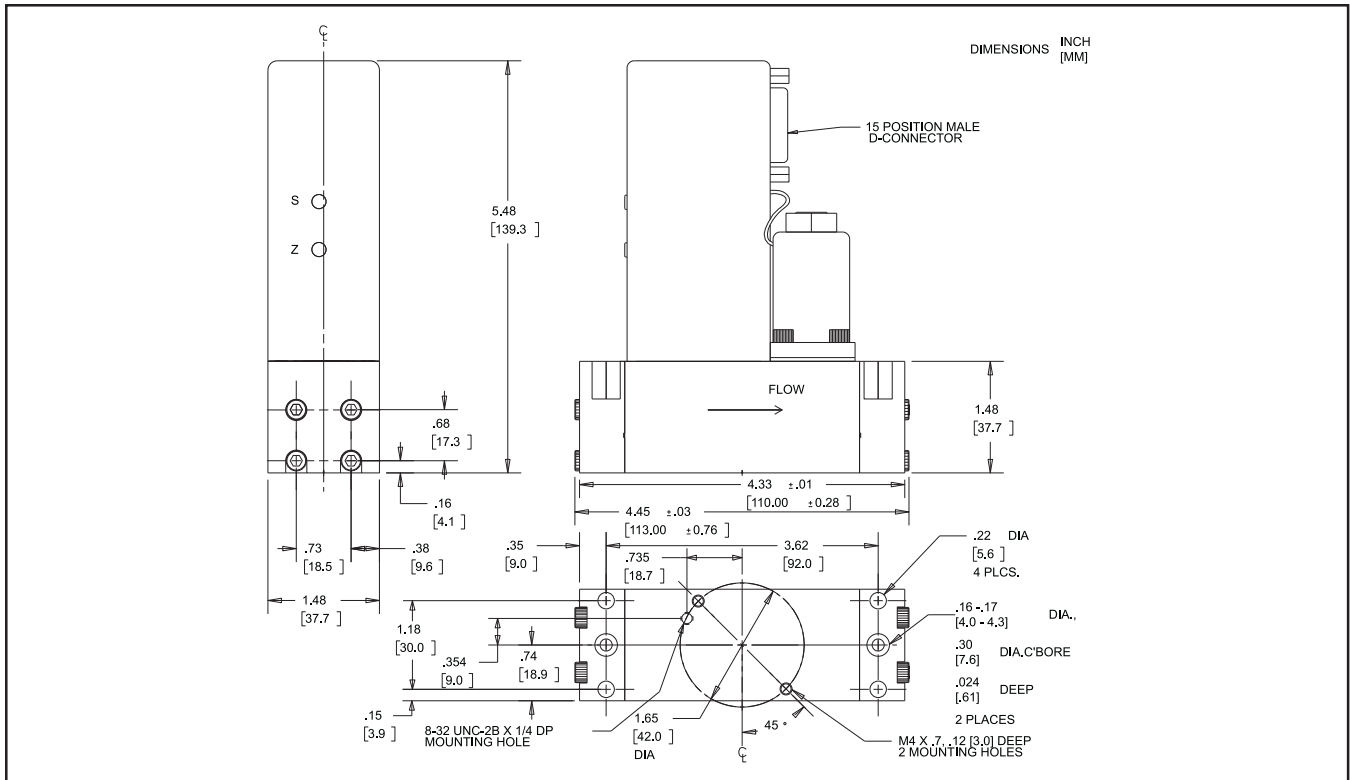


Figure 4 Model 5866RT Common Body Downport with VCR and D-Connector

Brooks® Model 5866RT

BROOKS SERVICE AND SUPPORT

Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration. The primary standard calibration equipment to calibrate our flow products is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required. For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

CUSTOMER SEMINARS AND TRAINING

Brooks Instrument can provide customer seminars and dedicated training to engineers, end users and maintenance persons. Please contact your nearest sales representative for more details.

HELP DESK

In case you need technical assistance:

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Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

TRADEMARKS

Brooks Brooks Instrument, LLC
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Teflon E.I. DuPont de Nemours & Co.
VCO, VCR Cajon Co.
Viton DuPont Performance Elastomers.



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