

Data Sheet

DS-PR-SLA5800-PC-eng

March, 2008

Brooks® Digital Elastomer Sealed Pressure Controllers Models SLA5810 and SLA5820

General Features:

- Digital software can store 10 selectable calibration and pressure ranges. Spares inventories are reduced by limiting the number of individual PCs required, lowering inventory holding costs.
- Accuracy: $\pm 0.5\%$ F.S., including linearity and hysteresis for precision control.
- MTBF of approx. 500,000 hours - drives preventive maintenance cost down and increases through-put, reducing the long term cost of ownership.*
- Eliminates droop, hysteresis, and boost.

Analog I/O Option:

- 15-pin D-Connector
- 0(1)-5 Volt setpoint and flow signals
- Single sided +15 Volt DC power supply
- Separate Valve-Override signal
- Precision 5 Volt Reference Output signal
- Compatible with Brooks' Model 0150 series secondary electronics
- TTL (open collector) Alarm Output signal

Digital Communication Options:

- DeviceNet™, ODVA™ certified
- FOUNDATION™ Fieldbus, H1 Certified
- HART® based RS-485 multidrop

DESCRIPTION

Brooks Instrument's Digital Series Elastomer sealed pressure measurement and control product line offers unparalleled flexibility and performance. The SLA5800 Series of Elastomer Seal pressure measurement and control is the most accurate, repeatable, and responsive controller on the market today!

Brooks® offers a traditional 0-5 volt analog option as well as RS-485 digital communications ("S-protocol", based on HART). Brooks also offers control interface via digital network protocols like DeviceNet, a high-speed (up to 500k baud) digital communication network, or FOUNDATION® Fieldbus. Brooks' communication capabilities and device-profiles have been certified by the ODVA (Open DeviceNet Vendor's Association) and the ITK Interoperability Test Kit. Other network protocols are in development. Talk to your Brooks representative about your specific needs.

* Based on data collected determining MTBF for Model 5964.



The process and command data may be 'wired' either using traditional 5 volt analog connections or digital communications networks; The measurement and control performance is the same!

The SLA5800 Series microprocessor uses a multi-point calibration to deal with any residual integral sensor non-linearity, yielding a highly accurate process signal.

The SLA5800 Series family of products utilizes a modular system in both its mechanical and electrical construction. This modularity allows for simplified customer ordering and factory configuration, enabling Brooks to easily meet the ever changing needs of our global customers.

Brooks® Models SLA5810 and SLA5820

This flexibility yields products for pressure measurement and control, using either traditional analog connections or leading edge network-communication protocols.

Brooks SLA5800 Series of controllers can directly replace existing analog products with the advantage of improved digital accuracy. Both analog and digital applications will see settling time and accuracy improvements.

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS:

Flow Ranges

Models SLA5810 and SLA5820 any range from 0-3 sccm to 0-30 slpm (N₂ eq.)

Accuracy

Integral Pressure products: ±0.5% of F.S. including linearity and hysteresis

Repeatability

Integral Pressure products: ±0.1% of F.S.

Temperature Sensitivity

Integral Pressure products: ±0.1% of F.S. per °C

Zero Stability

Integral Pressure products: ±0.001% of FS per 30 days

Pressure Ratings:

Maximum Pressure: 1450 psia
(Optional) Maximum Pressure: 4350 psia

Transducer Pressure Ratings:

21.75 psia for 0 - 14.5 psia full scale
108.5 psia for 14.5 - 72.5 psia full scale
435 psia for 72.5 - 290 psia full scale
1450 psia for 290 - 1450 psia full scale
4350 psia for 1450 - 4350 psia full scale

Pressure Equipment Directive (PED) 97/23/EC:

Equipment falls under Sound Engineering Practice (SEP)

Leak Integrity

Inboard to Outboard: 1x10⁻⁹ atm scc/sec Helium max.

Maximum Fluid Operating Temperature

0°C to 65°C (32°F to 149°F)

Ambient Temperature Limits

Operating: 0°C to 60°C (32°F to 140°F)
Non-operating: -25°C to 100°C (-13°F to 212°F)

PHYSICAL:

Materials of Construction

Wetted parts: 316L Vacuum Arc Remelt (VAR), 316L, and high-alloy ferritic stainless steel with external/internal seals: Viton® fluoroelastomers; Optional; Buna-N, Kalrez® and TFE
Valve seat: Viton® fluoroelastomers, Optional; Buna-N, Kalrez and TFE

Outline Dimensions

Refer to Figures 2 and 4.

Process Connections

Refer to Figures 2 and 4 for all connection options

Control Action

Upstream or Downstream pressure control (See Figure 1)

ELECTRICAL CHARACTERISTICS:

Electrical Connections

Analog I/O option: 15-pin, male
Digital I/O DeviceNet option: 5-pin Micro-Connector, male

Power Supply Voltage

Analog option: +15 Vdc, ±5%
(traditional -15 Vdc pin is ignored)

Digital I/O:

DeviceNet I/O: 11-25 Vdc

FOUNDATION Fieldbus I/O: 14-27 Vdc

| Power Requirements: | Watts, typical | Watts, max. |
|--------------------------------|----------------|-------------|
| Analog I/O option, with valve: | 3.6 | 4.0 |
| Digital I/O option, w/valve: | 6.9 | 7.6 |

Command-Setpoint Input (Analog I/O option only)

0-5Vdc: Input will accept signals to 5.5 Vdc (110% F.S.).
Input resistance: 825K ohm nominal.

Flow or Pressure Output (Analog I/O option only)

0-5 Vdc into 2K ohm-minimum load. Output will indicate process-variable up to 6 Vdc (120% F.S.).

PC-based Support Tools See Instruction Manual X-PR-SLA5800-PC-eng for more information.

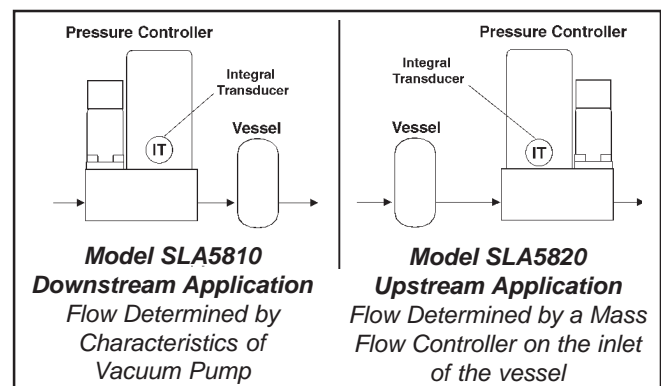


Figure 1 Typical Configurations

Brooks® Models SLA5810 and SLA5820

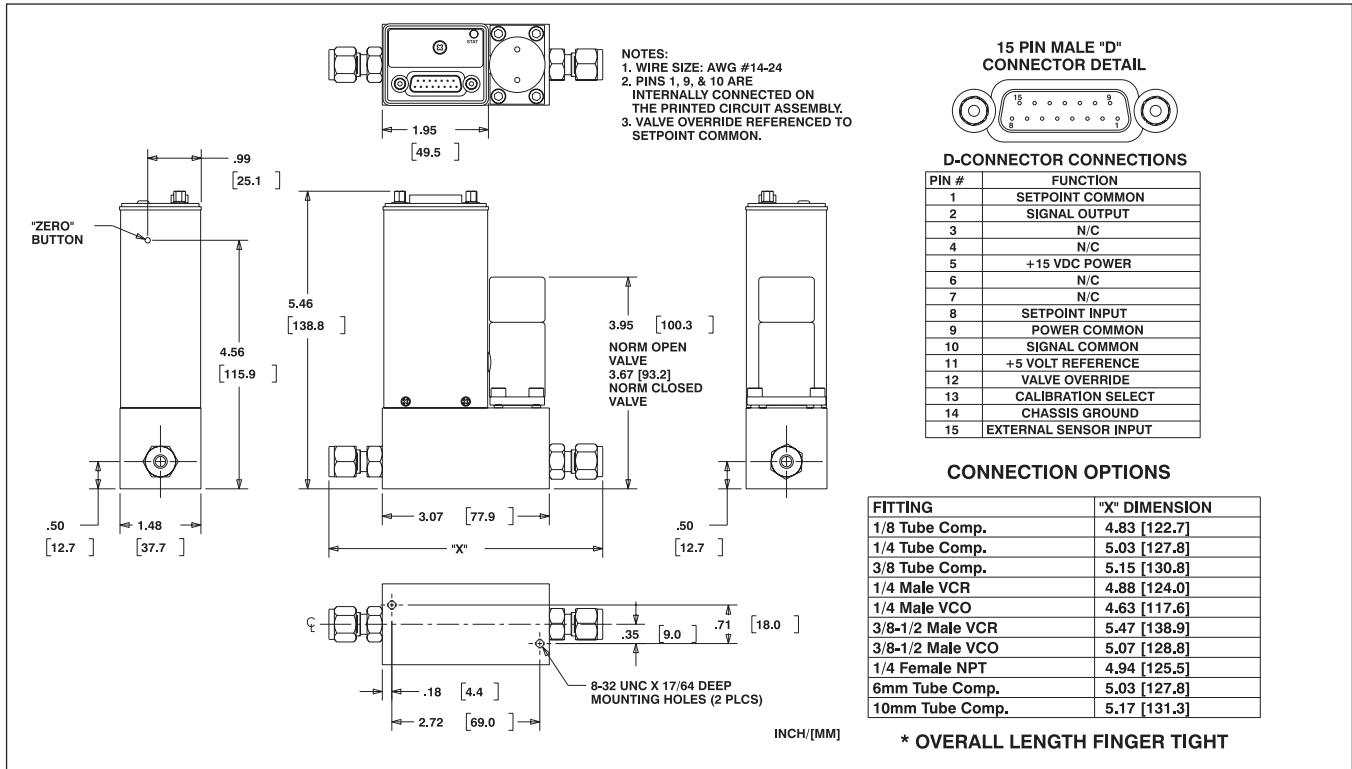


Figure 2 Models SLA5810A and SLA5820A Analog I/O Pressure Controller

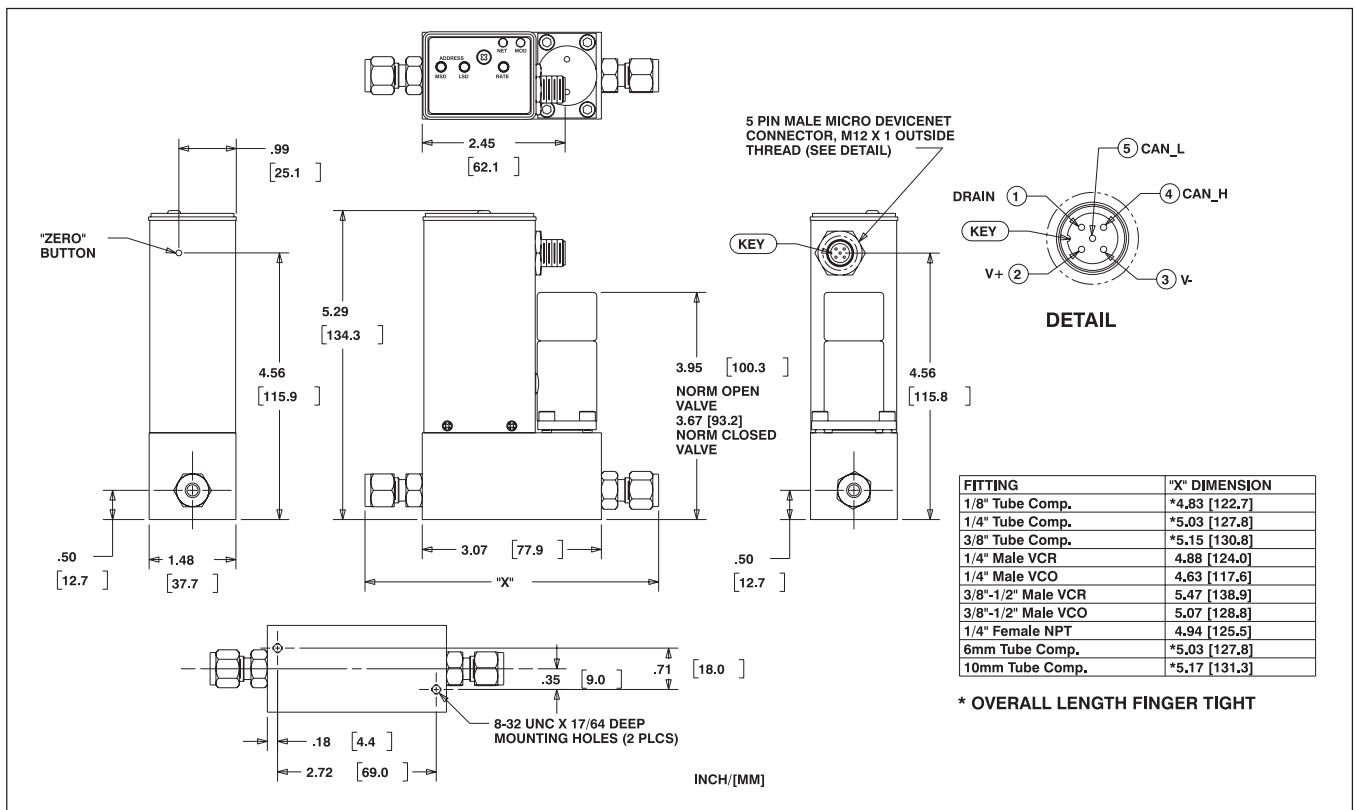


Figure 3 Models SLA5810D and SLA5820D Digital I/O DeviceNet Pressure Controller

Brooks® Models SLA5810 and SLA5820

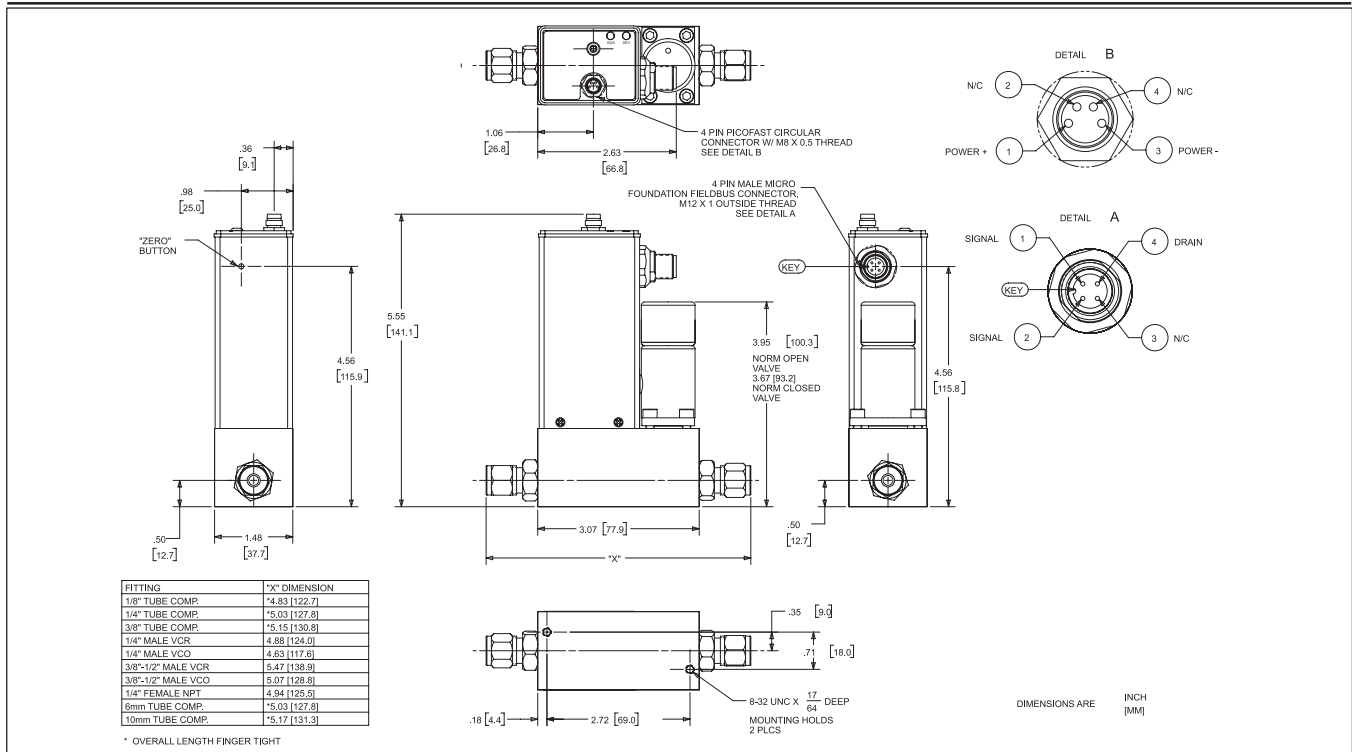


Figure 4 Models SLA5810F and SLA5820F Digital I/O FOUNDATION Fieldbus Pressure Controller

BROOKS LOCAL AND WORLDWIDE SUPPORT

- Brooks Instrument provides sales and service facilities around the world.
- Calibration facilities are available in locally based sales and service offices. Certified by our local Weights and Measures Authorities and traceable to the relevant international standards.

START-UP SERVICE AND IN-SITU CALIBRATION

- Brooks Instrument can provide start-up service prior to operation when required, if necessary under in-situ conditions, and the results will be traceable to the relevant international quality standards.

CUSTOMER SEMINARS AND TRAINING

- Brooks® can provide customer seminars and dedicated training to engineers, end users and maintenance persons.

HELP DESK

In case you need technical assistance:

- Americas ☎ 1-888-554-FLOW
 Europe ☎ +(31) 318 549 290 Within Netherlands ☎ 0318 549 290
 Asia ☎ +011-81-3-5633-7100



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
 DeviceNet Open DeviceNet Vendors Association, Inc.
 FOUNDATION Fieldbus Fieldbus FOUNDATION
 ITK Fieldbus FOUNDATION
 Kalrez DuPont Dow Elastomers
 ODVA Open DeviceNet Vendors Association, Inc.
 VCO Cajon Co.
 VCR Cajon Co.
 Viton DuPont Performance Elastomers

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