BROOKS 0254 INSTALLATION AND OPERATION MANUAL

Installation and Operation Manual
X-SE-0254-eng
Part Number: 541B129AAG
September, 2010

Gas and Liquid Mass Flow Secondary Electronics

Model 0254
Table Top Four Channel
Secondary Electronics

Essential Instructions
Read before proceeding!

Brooks Instrument designs, manufactures and tests its products to meet many national and international standards. These products must be properly installed, operated and maintained to ensure they continue to operate within their normal specifications. The following instructions must be adhered to and integrated into your safety program when installing, operating and maintaining Brooks Instrument products.

- To ensure proper performance, use qualified personnel to install, operate, update, program and maintain the product.
- Read all instructions prior to installing, operating and servicing the product. If this instruction manual is not the correct manual, please see back cover for local sales office contact information. Save this instruction manual for future reference.

⚠ **WARNING: Do not operate this instrument in excess of the specifications listed in the Instruction and Operation Manual. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.**

- If you do not understand any of the instructions, contact your Brooks Instrument representative for clarification.
- Follow all warnings, cautions and instructions marked on and supplied with the product.
- Install your equipment as specified in the installation instructions of the appropriate instruction manual and per applicable local and national codes. Connect all products to the proper electrical and pressure sources.
- Operation: (1) Slowly initiate flow into the system. Open process valves slowly to avoid flow surges. (2) Check for leaks around the flow meter inlet and outlet connections. If no leaks are present, bring the system up to the operating pressure.
- Please make sure that the process line pressure is removed prior to service. When replacement parts are required, ensure that qualified people use replacement parts specified by Brooks Instrument. Unauthorized parts and procedures can affect the product's performance and place the safe operation of your process at risk. Look-alike substitutions may result in fire, electrical hazards or improper operation.
- Ensure that all equipment doors are closed and protective covers are in place to prevent electrical shock and personal injury, except when maintenance is being performed by qualified persons.

⚠ **WARNING: For liquid flow devices, if the inlet and outlet valves adjacent to the devices are to be closed for any reason, the devices must be completely drained. Failure to do so may result in thermal expansion of the liquid that can rupture the device and may cause personal injury.**

European Pressure Equipment Directive (PED)

All pressure equipment with an internal pressure greater than 0.5 bar (g) and a size larger than 25mm or 1" (inch) falls under the Pressure Equipment Directive (PED).

- The Specifications Section of this manual contains instructions related to the PED directive.
- Meters described in this manual are in compliance with EN directive 97/23/EC.
- All Brooks Instrument Flowmeters fall under fluid group 1.
- Meters larger than 25mm or 1" (inch) are in compliance with PED category I, II or III.
- Meters of 25mm or 1" (inch) or smaller are Sound Engineering Practice (SEP).

European Electromagnetic Compatibility (EMC)

The Brooks Instrument (electric/electronic) equipment bearing the CE mark has been successfully tested to the regulations of the Electro Magnetic Compatibility (2004/108/EC (EMC directive 89/336/EEC)).
Special attention however is required when selecting the signal cable to be used with CE marked equipment.

Quality of the signal cable, cable glands and connectors:

Brooks Instrument supplies high quality cable(s) which meets the specifications for CE certification.
If you provide your own signal cable you should use a cable which is overall completely screened with a 100% shield.
“D” or “Circular” type connectors used should be shielded with a metal shield. If applicable, metal cable glands must be used providing cable screen clamping.
The cable screen should be connected to the metal shell or gland and shielded at both ends over 360 Degrees.
The shield should be terminated to an earth ground.
Card Edge Connectors are standard non-metallic. The cables used must be screened with 100% shield to comply with CE certification.
The shield should be terminated to an earth ground.
For pin configuration : Please refer to the enclosed Instruction Manual.

ESD (Electrostatic Discharge)

⚠ **CAUTION: This instrument contains electronic components that are susceptible to damage by static electricity. Proper handling procedures must be observed during the removal, installation or other handling of internal circuit boards or devices.**

Handling Procedure:

1. Power to unit must be removed.
2. Personnel must be grounded, via a wrist strap or other safe, suitable means before any printed circuit card or other internal device is installed, removed or adjusted.
3. Printed circuit cards must be transported in a conductive container. Boards must not be removed from protective enclosure until immediately before installation. Removed boards must immediately be placed in protective container for transport, storage or return to factory.

Comments

This instrument is not unique in its content of ESD (electrostatic discharge) sensitive components. Most modern electronic designs contain components that utilize metal oxide technology (NMOS, SMOS, etc.). Experience has proven that even small amounts of static electricity can damage or destroy these devices. Damaged components, even though they appear to function properly, exhibit early failure.

Dear Customer,

We appreciate this opportunity to service your flow measurement and control requirements with a Brooks Instrument device. Every day, flow customers all over the world turn to Brooks Instrument for solutions to their gas and liquid low-flow applications. Brooks provides an array of flow measurement and control products for various industries from biopharmaceuticals, oil and gas, fuel cell research and chemicals, to medical devices, analytical instrumentation, semiconductor manufacturing, and more.

The Brooks product you have just received is of the highest quality available, offering superior performance, reliability and value to the user. It is designed with the ever changing process conditions, accuracy requirements and hostile process environments in mind to provide you with a lifetime of dependable service.

We recommend that you read this manual in its entirety. Should you require any additional information concerning Brooks products and services, please contact your local Brooks Sales and Service Office listed on the back cover of this manual or visit www.BrooksInstrument.com

Yours sincerely,

Brooks Instrument

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Figures

Tables

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1-1 Description

The Brooks Model 0254 is a versatile full-featured measurement and control process instrument, with precision multiple channel capabilities. The architecture supports a wide range of operating capabilities organized to meet the requirements of nearly any high-accuracy measurement and control application.

This system suits applications requiring advanced multiple channel operation. It provides control services including rate, batch, and proportional blending.

The system is all digital, based on microcomputer technology. There is no power switch to be left off, no feature selection switches or jumpers, and no analog trimming potentiometers.

It employs surface mount technology and incorporates floating-point digital signal processing arithmetic. Built-in test capabilities enable simple installation, and extensive self-tests ensures long-term operating reliability. The rugged package is modular, providing an ideal solution for use in demanding applications and tough environments. Options are available for panel mount, rack mount, and desktop.

1-1-1 Architecture

The system is built on the basics of a multiple-port based architecture, modularly organized, which are combined as channels, able to meet present and future instrumentation requirements.

Channels provide for value measurements and quantity accumulation, rate measurements, scalar measurements, supported by value scaling for process voltage and current process signals. Signal acquisition uses digital signal processing rejecting ambient noise and interference.

1-1-2 Communication

The communication facilities provide for data acquisition, command, and control functions, supporting configuration programming and information gathering.

1-1-3 Process Controls

Totalizer, batch, and proportional blending are readily achieved using the front panel key controls or serial commands.

1-1-4 Operator Controls and Indicators

Operation may be completely controlled from its integral eight-key pad used to view operation and programmed operating values. Key activations are single touch with hold-and-repeat capability. The front panel key pad provides splash proofing and environment protection.

The 0254 primary indicator is its large back lit liquid crystal graphic display - visible at a distance even in low light conditions - to view values, support programming operations, and indicate process state information. A user-selectable audio indicator annunciates key activations.

1-1-5 Diagnostic Capabilities

Powerful automatic diagnostics support easy installation and ensure a trouble-free operating life. Tests include memory facility scans, channel input-output status, and communication status.

1-2 Specifications

⚠ WARNING

Do not operate this instrument in excess of the specifications listed below. Failure to heed this warning can result in serious personal injury and/or damage to the equipment.

Programmable Control and Measurement Functions

Four independent channels.

Rate, Batch, Blend, Measure: 0.000 to 999999

Blend Ratio Percent: 0.000 to 999.999

Totalizer: 0.000 to 19,999,999,999

Gas Correction Factor: 0.000 to 999.999

Measurement Engineering Units: Refer to Appendix A.

Time Base: day, hrs, min, sec, none

Decimal Point : X. to X.XXX

Valve Override: Normal, Open, Closed

Input and Output Signal Selection: Volts or mA, independent, mix or match

Input and Output Full Scale Setting: Independent, 0.000 to 999,999

Setpoint Source: Keypad or RS232

Measurement and Setpoint Accuracy

0.090% of Full Scale

Electrical Specifications

Input Electrical Characteristics

Voltage Input: 0–5, 0-10, 1–5, 2–10 V

Volts Input Impedance: 10 K Ohms

Current Input: 0–20, 4–20 mA

Current Input Impedance: 100 Ohms

Output Electrical Characteristics

Voltage Output: 0–5, 0–10, 1–5, 2–10 V

Voltage Output Load: 2 K Ohms minimum

Current Output: 0–20, 4–20 mA

Current Output Load: 0–375 Ohms

Voltage Compensation

Voltage I/O signals are compensated to correct for voltage drop in the power return circuit of the attached wiring

Valve Override (VOR) Output

Normal: Open circuit

Open: 8.0 V @ 4 mA

Closed: –4.0 V @ 4 mA

Channel Connectors (4)

15-pin female D

Provides signal and power to connected devices

Serial Port

EIA-TIA232D full duplex D9S Load 4.7 K max

Baud Rate = 9600

Power for Model 0254 and Connected Equipment

Power Supply Requirements

Required: 12–24 Vdc, 2 Amps

Additional permitted: –15 Vdc, 1 Amp DC +/- 5%

Supply voltage flucuations up to +/- 10%

Max current draw per channel : 400 mA

Instrument power draw: 0.8 W

Power Connector: 9-pin female D, 5 A rated

Optional Power Supply Modules (available from Brooks)

• +15 Vdc/2 A, –15 Vdc/1 A, 100–240 Vac, 47–63 Hz

• +24 Vdc/2.5 A, 100–240 Vac, 47–63 Hz

Graphic Display

8-line x 40-character LCD display with backlight

Programmable Display Configuration

Two lines per channel

Line 1, Process Variable: Rate, Total, or Signal

Line 2, Setpoint: Rate, Batch, Blend, or Signal

Off: Unused individual lines can be turned off

Keypad/Display Window

8-Key Metal Dome Tactile with Selectable Audio Beep

Construction: Splash proof and chemically resistant

Hot Keys for Instant Access: Setpoint (rate, batch, blend), VOR, Emergency Stop

Key Functionality: Full operation and programming capability (refer to Figure 3-2 on p. 3-6)

Global Settings

Settings applied to all four channels

Information

Version/Check Sum: Factory-installed firmware information

Factory Setting: Allows reset of all channels to factory configuration

System Power

Key selectable power down, power up

Control Service Settings

Audio Beep: Selectable audible keystroke, 2 kHz

Leading Zero Suppress: Selectable leading zero suppression on display

Power Setpoint Clear: Selectable memory retention for Setpoint/VOR

Network Address

Unique factory set identifier

Environment

Temperature/Humidity

Operating: 32 to 122°F (0 to 50°C); 0 to 95% non-condensing

Ship Storage: –40 to 185°F (–40 to 85°C); 0 to 95% non-condensing

Warm-up

15 min typ to rated accuracy

Data Reliability

Data Retention: Non-volatile RAM/ROM, 100 year retention

Self-Diagnostics: On power up, memory checksum, communications, system status, display and keypad operation

Enclosure

Material: ABS Cycolac Resin FR23

Weight: 1.4 lbs (635 g)

Panel Cut-Out: 7.67 x 4.275 in., 0.125 in. radius maximum (194.8 x 108.6 m, 3.2 m radius maximum); 0.25 in. (6.35 mm) maximum panel thickness with optional panel mount kit

Certifications

CE Mark: EN61326-1

FCC: Part 15 Class A, Part 68

RoHS: EPD 2002/95/EC, 01Jul2006

UL: UL 61010 Electrical Safety for General Purpose

Indoor Use;

Altitude up to 2000 m;

RATED POLLUTION Degree 2

Mounting Options

Panel Mount Kit: Brackets accept panel thickness up to 0.25 in. (6.35 mm)

Table Top Kit: Weighted base with fixed tilt for easy viewing

Rack Mount Kit: Hardware for mounting the Model 0254 and optional power supply into 19-in. sub-rack.

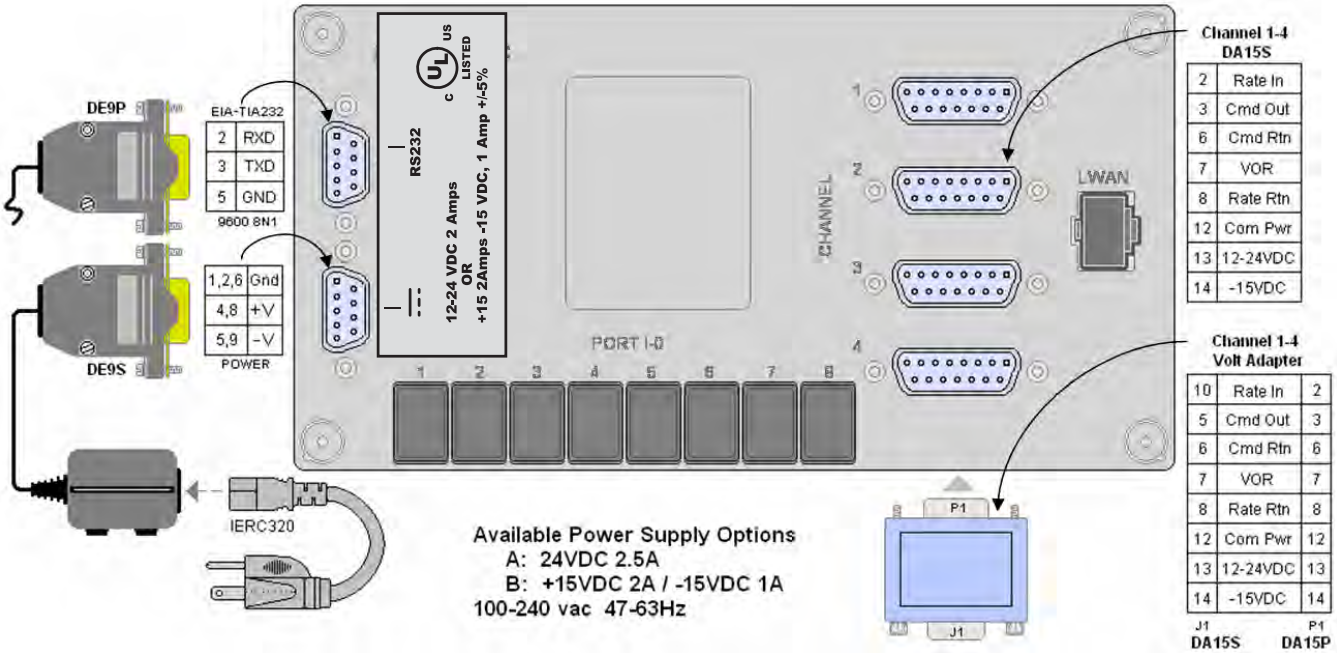
Rack Mount Kit with 19-in. sub-rack: 19-in. sub-rack included with Rack Mount Kit

Retrofit Applications, Model 0152/0154: Rack Mount Kit will adapt the Model 0254 and power supply to the table top enclosure used for the Model 0152/0154

Communications

Full communications capability for remote readout setpoint, control, programming, and data acquisition

1-3 Signal Wiring



NOTES:
1) The following nodes are directly connected inside the 0254:
   Pin 12 (COM PWR) of each DA15S channel
   Pin 5 (GND) of the SERIAL PORT connector
   Pins 1,2 and 6 (GND) of the ±12-24 Vdc 9-Pin SUB D connector
   All hex shield screwlocks for all SUB-D connectors
2) For each DA15S channel, Pins 6 (CMD RTN) and 8 (RATE RTN) are directly connected, are connected via approximately 10KΩ to Pin 12 (COM PWR)
   Pins 6 and 8 are not directly connected between channels
3) For all connectors, all unlisted pins are not internally connected

Figure 1-1 Model 0254 Signal Wiring

1-4 Optional Equipment

1-4-1 Mounting Kit Options

The Model 0254 can be mounted using the following kits:

- Panel Mount Kit
- Table Top Kit
- Rack Mount Kit
- Rack Mount Kit with 19-in. Rack

1-4-2 Power Supply Options

The Model 0254 supports the following power supply options:

- Factory supplied: +15 Vdc/2 A, –15 Vdc/1 A, 100–240 Vac, 47–63 Hz
- Factory supplied: +24 Vdc/2.5 A, 100–240 Vac, 47–63 Hz
- User supplied: 12–24 Vdc into 9-pin D connector, 5 A rated

1-4-3 Input/Output Pin-Out Adapters

The Model 0254 has four 15-pin female D-channel connectors. The pin configuration is compatible with standard Brooks 0(4)-20 mA cables.

An optional pin-out adapter kit with four adapters is available for use with Brooks 0(1)-5 Vdc cables.

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2-1 General

This section provides installation instructions for the Model 0254 Gas and Liquid Mass Flow Secondary Electronics device.

2-2 Receipt of Equipment

When the instrument is received, the outside packing case should be checked for damage incurred during shipment. If the packing case is damaged, the local carrier should be notified at once regarding his liability. A report should be submitted to your nearest Product Service Department.

Brooks Instrument
407 W. Vine Street
P.O. Box 903
Hatfield, PA 19440 USA
Toll Free (888) 554 FLOW (3569)
Tel (215) 362 3700
Fax (215) 362 3745
E-mail: BrooksAm@BrooksInstrument.com
www.BrooksInstrument.com

Brooks Instrument
Neonstraat 3
6718 WX Ede, Netherlands
P.O. Box 428
6710 BK Ede, Netherlands
Tel +31 (0) 318 549 300
Fax +31 (0) 318 549 309
E-mail: BrooksEu@BrooksInstrument.com

Brooks Instrument
1-4-4 Kitasuna Koto-Ku
Tokyo, 136-0073 Japan
Tel +81 (0) 3 5633 7100
Fax +81 (0) 3 5633 7101
Email: BrooksAs@BrooksInstrument.com

Remove the envelope containing the packing list. Carefully remove the instrument from the packing case. Make sure spare parts are not discarded with the packing materials. Inspect for damaged or missing parts.

2-3 Recommended Storage Practice

If intermediate or long-term storage of equipment is required, it is recommended that the equipment be stored in accordance with the following:

- Within the original shipping container.
- Stored in a sheltered area, preferably a warm, dry, heated warehouse.
- –40 to 185°F (–40 to 85°C); 0 to 95% non-condensing.
- Upon removal from storage, a visual inspection should be conducted to verify the condition of equipment is "as received".

2-4 Return Shipment

Prior to returning any instrument to the factory, contact your nearest Brooks location for a Return Materials Authorization Number (RMA#). This can be obtained from one of the following locations:

Brooks Instrument
407 W. Vine Street
P.O. Box 903
Hatfield, PA 19440 USA
Toll Free (888) 554 FLOW (3569)
Tel (215) 362 3700
Fax (215) 362 3745
E-mail: BrooksAm@BrooksInstrument.com
www.BrooksInstrument.com

Brooks Instrument
Neonstraat 3
6718 WX Ede, Netherlands
P.O. Box 428
6710 BK Ede, Netherlands
Tel +31 (0) 318 549 300
Fax +31 (0) 318 549 309
E-mail: BrooksEu@BrooksInstrument.com

Brooks Instrument
1-4-4 Kitasuna Koto-Ku
Tokyo, 136-0073 Japan
Tel +81 (0) 3 5633 7100
Fax +81 (0) 3 5633 7101
Email: BrooksAs@BrooksInstrument.com

2-5 Transit Precautions

To safeguard against damage during transit, transport the instrument to the installation site in the same container used for transportation from the factory if circumstances permit.

2-6 Removal from Storage

Upon removal from storage, a visual inspection should be conducted to verify the condition of the equipment is “as received.”

2-7 Ventilation and Mounting Requirements

Because of the low power consumption of the Model 0254, it does not have ventilation requirements. However, the ambient temperature surrounding the Model 0254 should not exeed 122°F (50°C). The optional power supply modules are also ventilation-free and limited to an ambient temperature of 122°F (50°C).

2-8 Cleaning Instructions

Do not use cleaning agents other than water because this might affect color and marking of the equipment.

Use a clean, soft and damp cloth for cleaning.

2-9 Cable Requirements

For compliance with the EMC directive 89/336/EEC, the equipment has to be installed with shielded signal cables which are overall completely screened with a shield of at least 80%. Sub-D connectors used must be shielded with a metal shield. The cable screen should be connected to the metal shell and shielded at both ends over 360°. The shield should be terminated to earth ground.

The optional power supplies available from Brooks are always supplied with a power cord that meets all agency certifications and has a protective conductor for grounding purposes. Any replacement cords must have similar construction and be certified by a recognized nartional test laboratory.

2-10 Installation Instructions

Do not use cleaning agents other than water because this might affect color and marking of the equipment.

2-10-1 Panel Mount Installation Instructions

1. Cut a hole according to the cut-out dimensions shown in Figure 2-1 on p. 2-4.
2. Pass the Model 0254 enclosure through the cut-out.
3. Position one of the two brackets included in the Panel Mount kit on the side of the enclosure, while aligning the two holes at the top and bottom of the bracket flange with the holes at the corners of the back of the enclosure. Secure the bracket to the enclosure with two of the screws provided in the kit.

⚠ CAUTION

Do not over-tighten these attachment screws.

4. Secure the second bracket to the other side of the enclosure.
5. Tighten the panel mounting screws in the middle of both brackets to secure the enclosure to the panel.

⚠ CAUTION

Do not over-tighten these attachment screws.

6. Connect the power supply cable with the D-connector to the power connector on the back of the enclosure.
7. Connect the power supply AC cord to a power outlet.
8. Connect the cables to the RS-232 and Channel connectors, as approprate for the application.

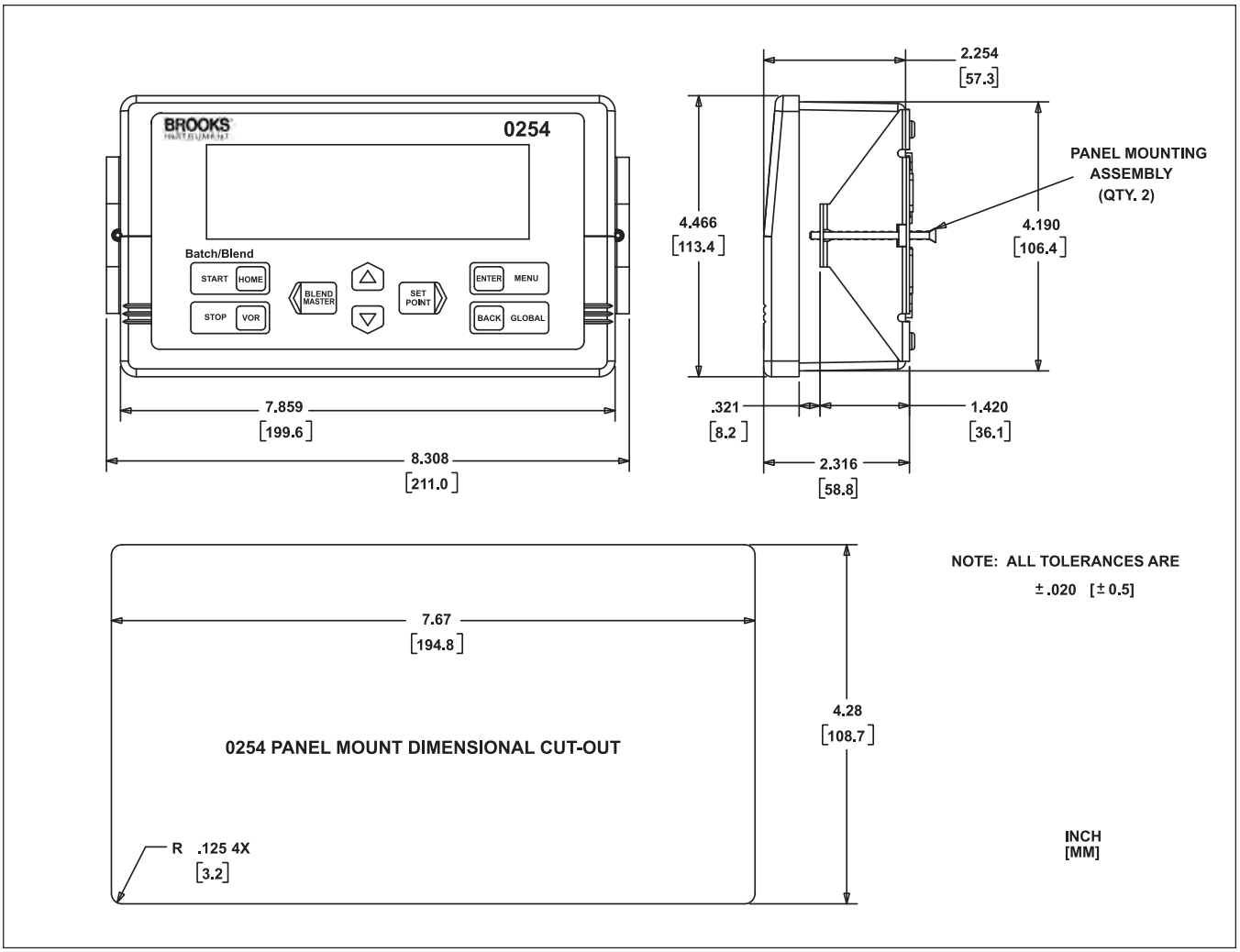

Figure 2-1 Panel Mount Cut-Out Dimensions

2-10-2 Table Top Stand Assembly Instructions

1. Attach the four rubber mounting feet to the base, as shown in Figure 2-2.
2. Use four of the provided screws to attach the two brackets to the base.
3. Slide the Model 0254 enclosure into the brackets.
4. Use four screws to secure the enclosure to the brackets.

⚠ CAUTION

Do not over-tighten these attachment screws.

5. Connect the power supply cable with the D-connector to the power connector on the back of the enclosure.
6. Connect the power supply AC cord to a power outlet.
7. Connect the cables to the RS-232 and Channel connectors, as approprate for the application.

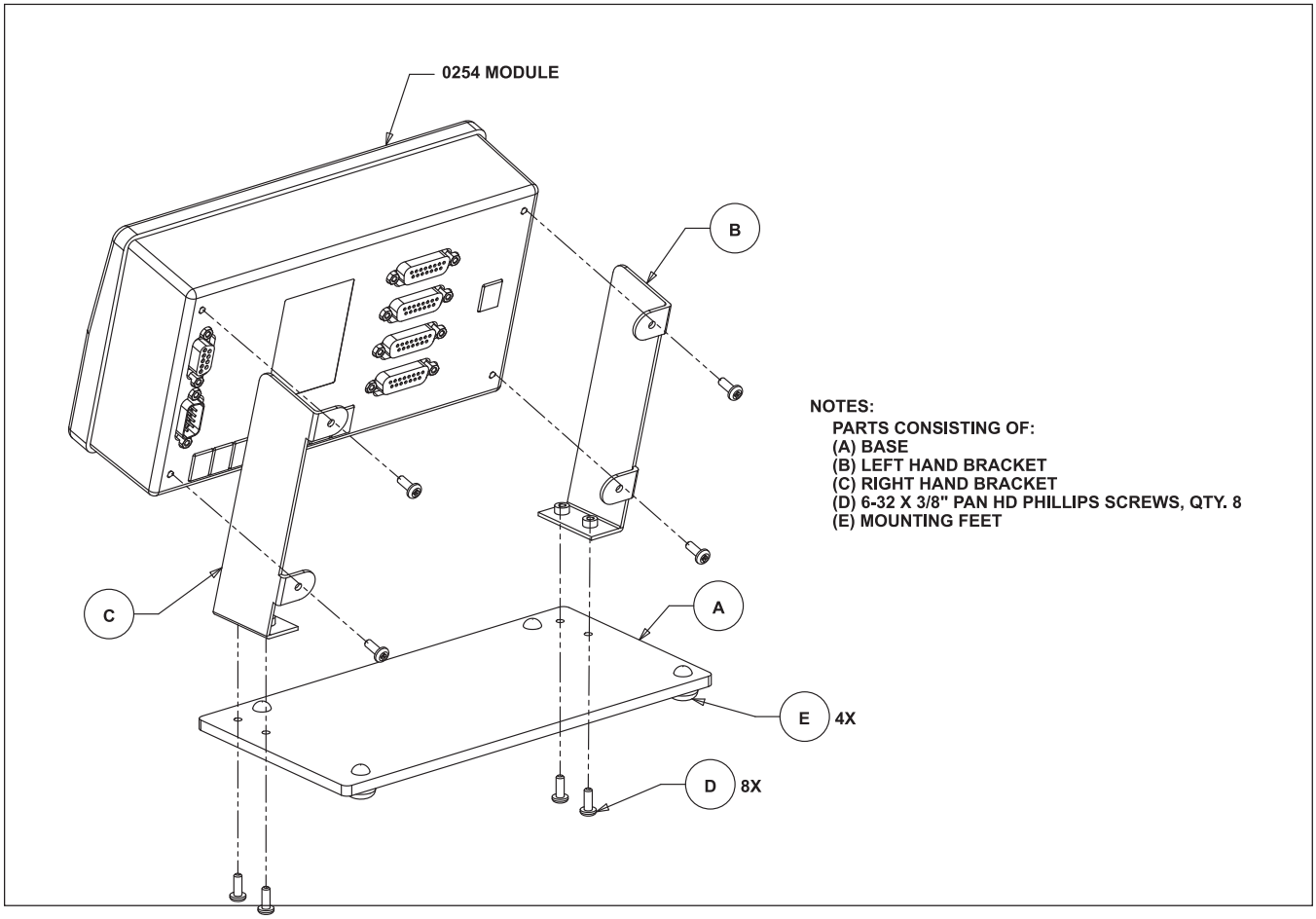

Figure 2-2 Table Top Stand Mount Installation

2-10-3 Retrofit to Model 0152/0154 Table Top Housing

It is possible to retrofit the Model 0254 into a table top box that was used for the Model 0152/0154.

1. Slide the flange on the front of the power supply bracket, shown in Figure 2-3 on p. 2-8, under the rear channel rail of the box. For an illustration of the rail engagement, refer to Figure 2-4 on p. 2-9.
2. Use the two thumbscrews at the back of the power supply bracket to slide the back flange under the front channel rail of the box. Finger tighten the two thumbscrews.
3. Place the power supply onto the bracket, with the AC cord receptacle facing the back of the box.
4. Secure the power supply to the bracket using the Velcro strap.
5. Install the four plastic screw retainers into the bezel, then add the bezel screws.
6. Slide the bezel over the back of the Model 0254 enclosure. Secure the bezel to the enclosure by threading two screws through the holes in the bezel mounting brackets and tightening them.

⚠ CAUTION

Do not over-tighten these attachment screws.

7. Connect the power supply cable with the D-connector to the power connector on the back of the enclosure.
8. Connect the cables to the RS-232 and Channel connectors, as approprate for the application.
9. Slide the enclosure into the box until the bezel is flush with the front of the box.
10. Secure the bezel to the front of the box using the bezel screws.
11. Connect the power supply AC cord to a power outlet.

2-10-4 19-in. Rack Assembly and Installation Instructions

Use these instructions whether you are installing the Model 0254 into your own rack or into the optional 19-in. rack assembly from Brooks Instrument.

1. The optional 19-in. rack comes with a blind front plate covering half of the rack. This plate can be removed or repositioned, depending on the application, such as installing two Model 0254 modules side by side.
2. Slide the flange on the front of the power supply bracket, shown in Figure 2-3 on p. 2-8, under the rear channel rail of the rack.
3. Use the two thumbscrews at the back of the power supply bracket to slide the back flange under the back channel rail of the rack. Finger tighten the two thumbscrews.
4. Place the power supply onto the bracket, with the AC cord receptacle facing the back of the box.
5. Secure the power supply to the bracket using the Velcro strap.
6. Install the four plastic screw retainers into the bezel, then add the bezel screws.
7. Slide the bezel over the back of the Model 0254 enclosure. Secure the bezel to the enclosure by threading two screws through the holes in the bezel mounting brackets and tightening them.

⚠ CAUTION

Do not over-tighten these attachment screws.

8. Connect the power supply cable with the D-connector to the power connector on the back of the enclosure.
9. Connect the cables to the RS-232 and Channel connectors, as approprate for the application.
10. Place the enclosure into the rack until the bezel is flush with the front of the rack.
11. Secure the bezel to the front of the rack using the bezel screws.
12. Connect the power supply AC cord to a power outlet.

Figure 2-4 on p. 2-9 shows a completed rack installation.

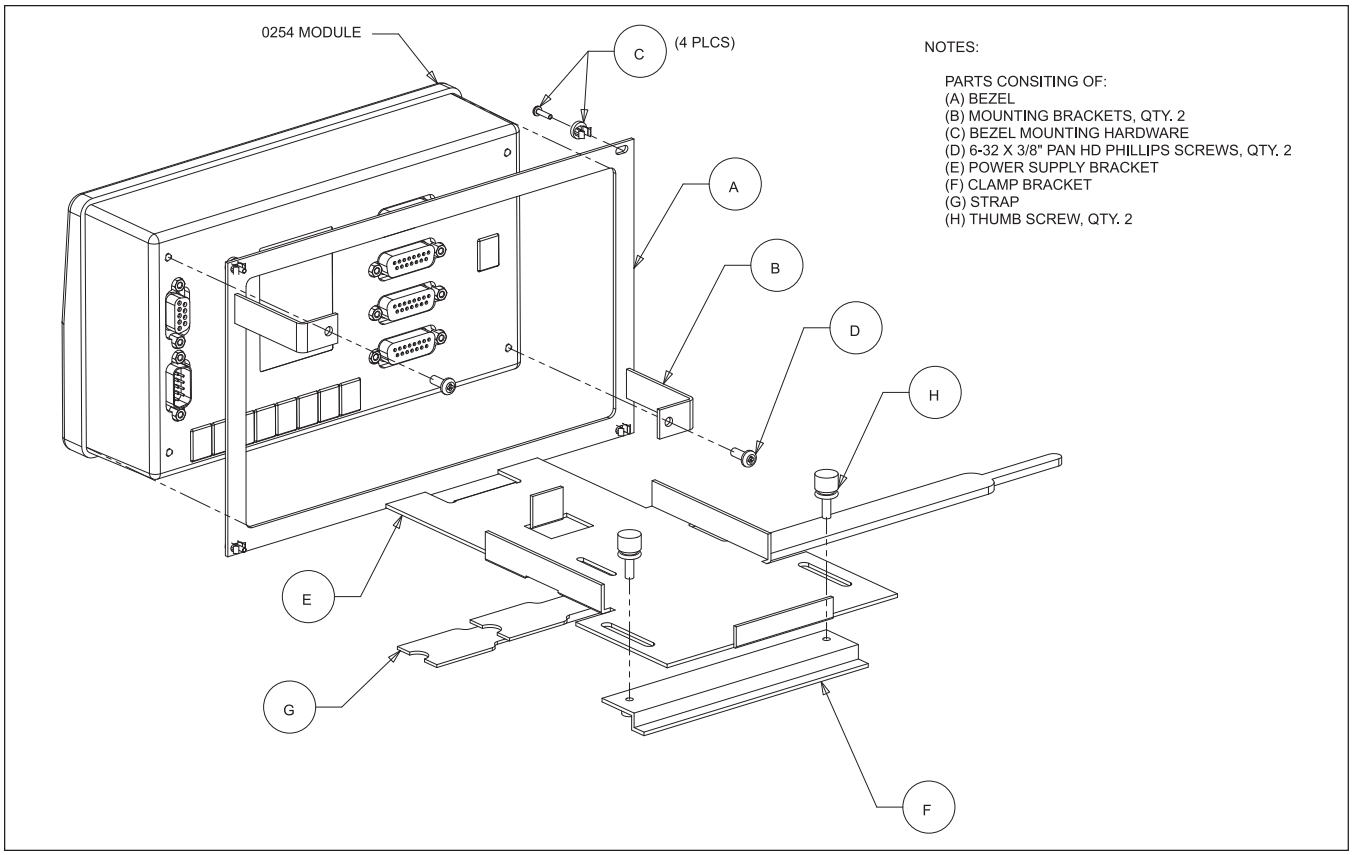

Figure 2-3 Power Supply Bracket and Bezel

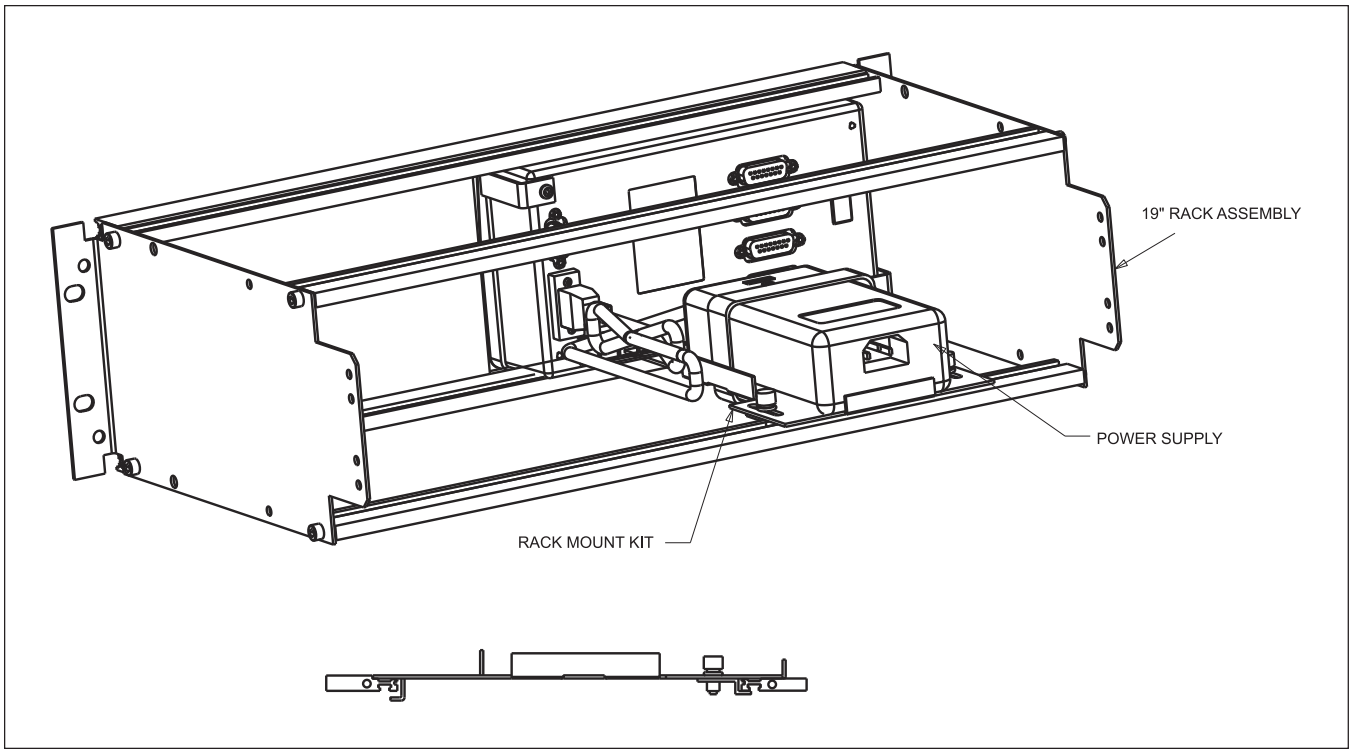

Figure 2-4 Rack Installation

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3-1 Home Screen

The Model 0254 home screen is the instrument's central information and navigation indicator. The home screen displays following initial power application, and automatically follows the make-model screen banner. It provides an overall view of the instrument's operation. Table 3-1 on p. 3-2 describes the main elements of the home screen.

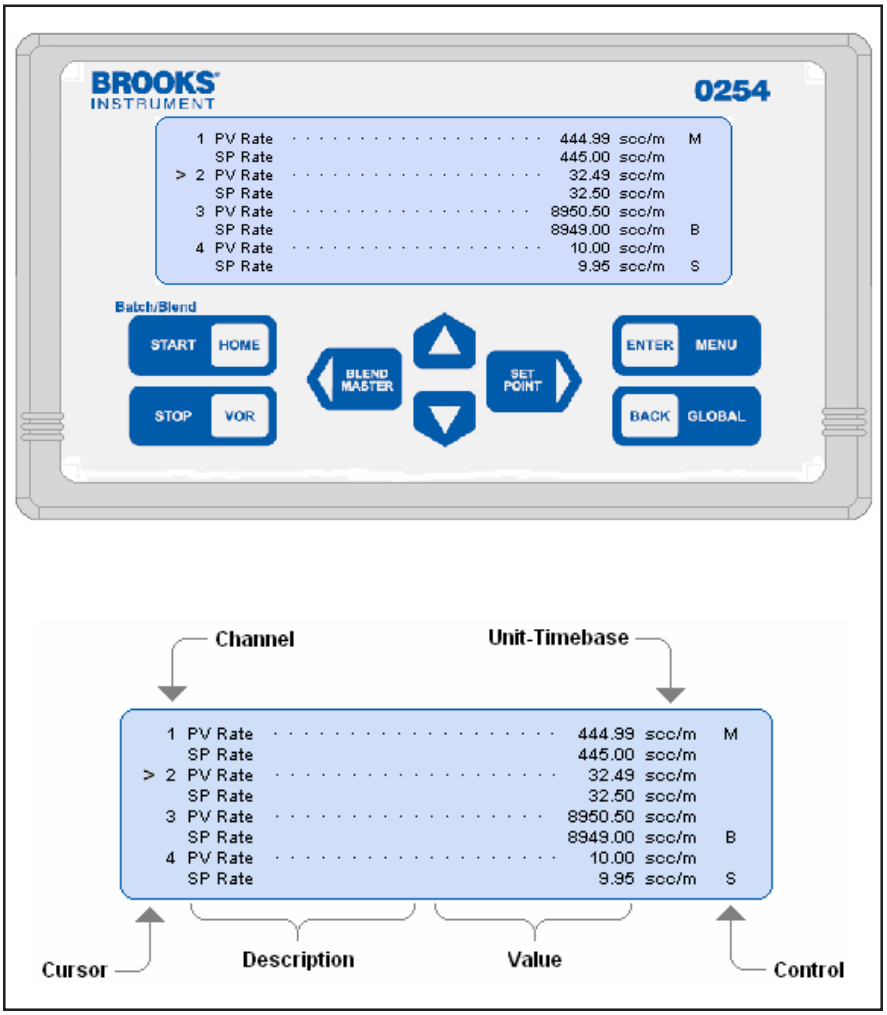


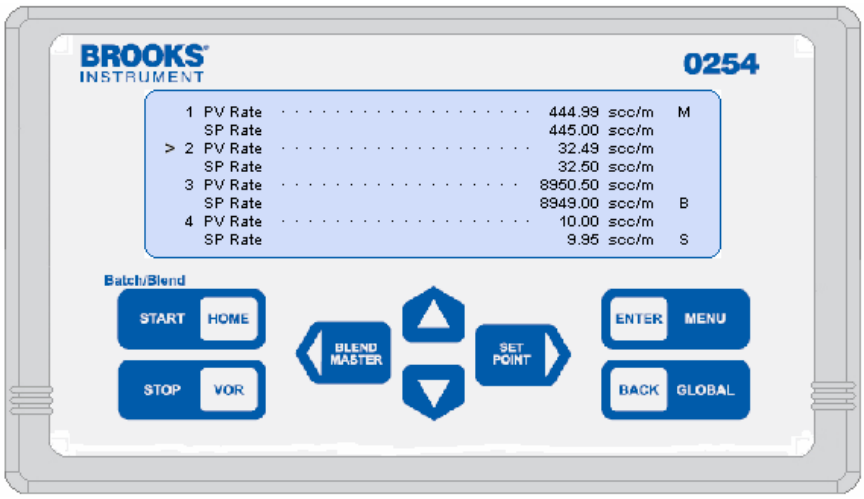
Figure 3-1 Home Screen

Table 3-1 Display Home Screen Fields

Cursor	Points to channel even when channel is Off.
Channel	Numbers 1-4.
Description	Process value text.
Value	Numeric process value.
Unit / Time-base	Combined measure units and rate time-base.
Control	Process control state indicators.

3-2 Operating Controls

The primary instrument control is supported by eight front panel tactile snap-action keys, and alternatively by serial communications. Every function that can be accomplished by using the keys can also be simultaneously be accomplished by serial communication commands. The serial communication functions are described more fully in Section D.



3-2-1 Primary Functions

Primary functions performed from the Home screen are as follows:

- Select a channel using the  and  keys
- Enter the configuration selection menu
- Enter the Global System Settings selection menus

- Quickly navigate to setpoint or valve override functions
- Start and stop control functions
- Select a blend control master
- Execute the emergency stop function

Instructions for the using the above are described in their respective subsections throughout this section.

3-2-2 Key Functions

The control function of the keys is dependant on the context of the function that has been requested to be accomplished as follows:

Key	Present Location	System Response
	Home Screen	Navigates to channel configuration screen.
	Function Select Screen	Selects viewing configuration or programming configuration.
	Display Configuration Screen	Selects the home screen value.
	Input Configuration Screen	Programs the value that the cursor points to and saves the value.
	Home Screen	Press three times to enter Global System Settings.
	All Other Screens	Navigates immediately to previous screen.
	Home Screen	Press three times to start batch and/or blend controls operation.
	Power Down Condition	Press to restore power.
	Home Screen	Terminates operating controls if any. Otherwise HOT navigates to change channel VOR state. This key can be used to power down the system when pressed for 3 seconds.
	All Screens	Move cursor up to desired item.
	All Screens: Selected Item	Increase blinking program selection to succeeding choice.
	All Screens	Move cursor down to desired item.
	All Screens: Selected Item	Decrease blinking program selection to preceding choice.

Key	Present Location	System Response
	All Screens: Selected Item	Move cursor left.
	Home Screen	Select channel pointed to by cursor as blend master unless the channel is already the master, in which case the existing master is deselected and no master is chosen.
	Display Configuration Screen	Zero PV Total when cursor points to PV Total.
	Program Screen	Move blinking program selection to next left choice.
	All Screens: Selected Item	Move cursor right.
	Home Screen	HOT navigates to change channel setpoint value.

3-3 Navigation

This subsection provides an overview of the various values that are available to set up the various program values, which determine how the instrument is desired to perform. It also describes the performance operating states.

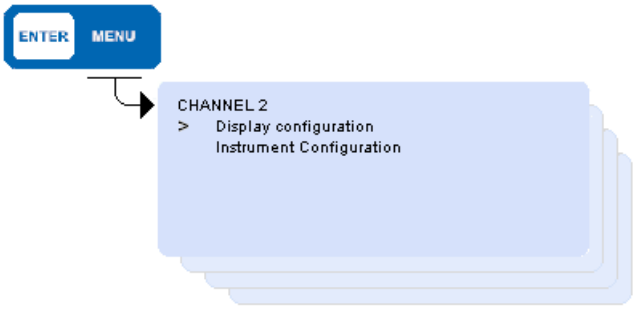
Navigation is primarily performed using the keypad controls described in "3-2-1 Primary Functions" on p. 3-2. The same operating characteristics set using the keypad are also fully supported by serial communication. The serial communication functions are described more fully in Section D.

A complete map of the user interface screens is provided to support the overview of the instrument. It shows the entire organization of all of the instrument process values (PV), all setpoint (SP) values, and all system global settings.

3-3-1 Display or Instrument Configuration Screen Selection

Pressing the menu button from the Home screen provides a secondary navigation layer for the operator to specify whether PV-SP Display Configuration or PV-SP Instrument Configuration is desired for a channel. The screen shown below is displayed as a result of having pressed the ENTER key while viewing the home screen.

This screen shown is for Channel 2. Use the cursor keys to point to either Display Configuration to show the present PV Measurements and SP Status, or Instrument Configuration to program PV and SP values, and then press ENTER to proceed to the desired selection.



3-3-2 User Interface Screen Map

The following diagram showing the screen mapping from the home page to the channel values.

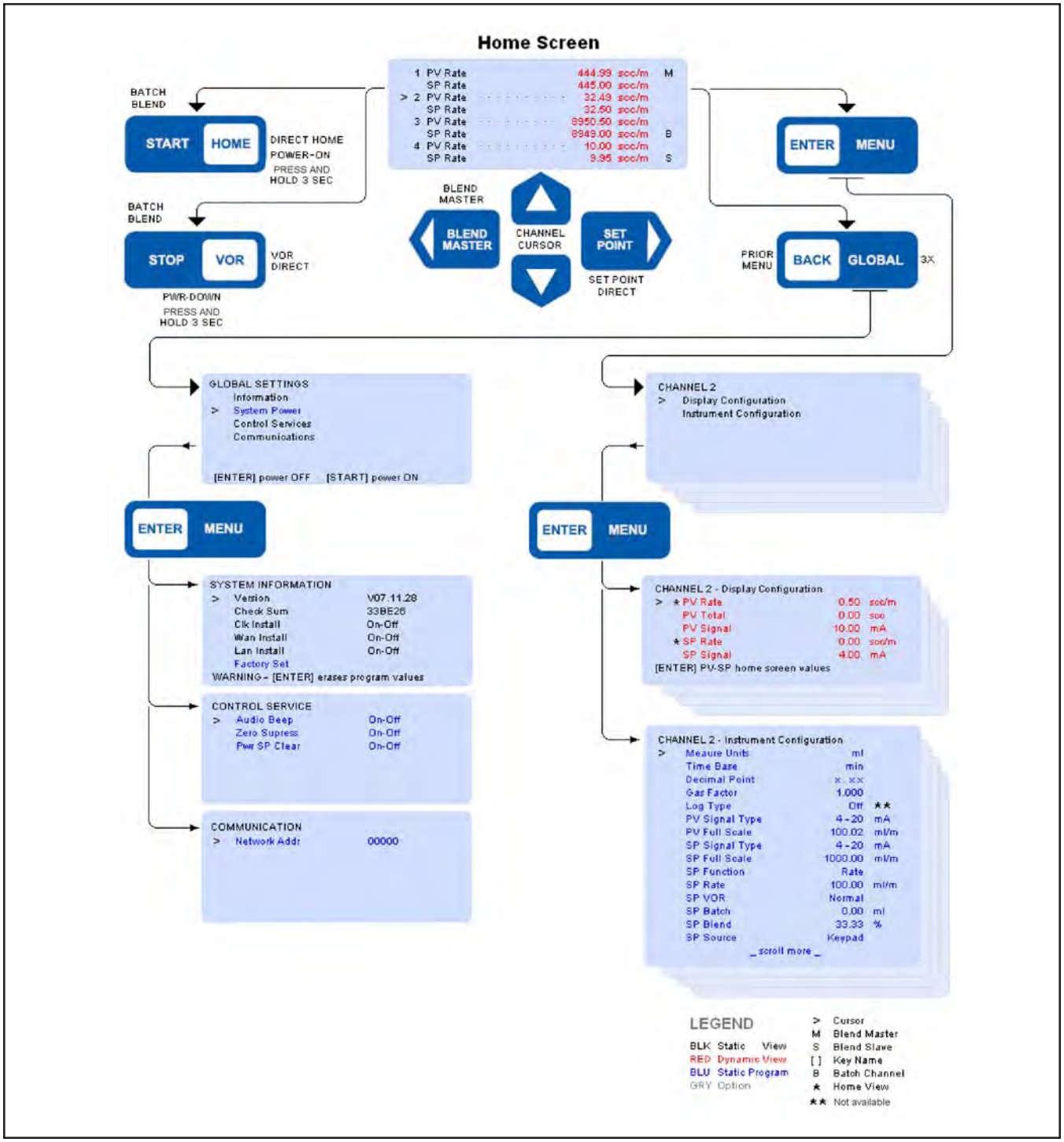
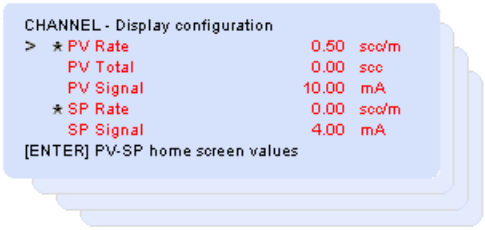


Figure 3-2 User Interface Screen Map

3-4 Process Values (PV) and Setpoints (SP)

This subsection provides a detailed description of the various system map values that are used to set up the instrument's desired operating characteristics. These characteristics establish how the instrument is desired to perform. The subsection also covers the various process values, which are the outcome of the setup, that show the operating state.

3-4-1 PV-SP Measures and Status



The present PV and SP values shown on the home screen are indicated by an asterisk (*) prefix.

To change the PV displayed on the home screen, point the cursor to the desired PV value and press the ENTER key.

To change the SP displayed on the home screen, point the cursor to the desired SP value and press the ENTER key.

For both PV and SP, note that the star indicator is now prefixed to a new PV or SP value.

PV Rate

This value is either a Rate, defined as quantity per unit time, or None, which is a scalar value not having a time associated attribute. The Rate and Time base are configured in the Channel Instrument Configuration screen. A Time base value must be configured for the totalizer function to operate. The value displayed is updated in real time as the value changes.

PV Total

This is a quantity accumulator for a rate value. The quantity values are displayed when the channel time base is NOT programmed for None. PV Total quantity is not accumulated for None values, and no PV Total will be shown on the screen. The value displayed is updated in real time as the value changes.

To clear an accumulated quantity to zero, point the cursor to PV Total and press the ◀ key. Note the value becomes zero.

PV Signal

This value is the measured electrical value being input into the instrument channel. It may be used to provide assistance in system installations, and is used to support instrument calibration. The value displayed is updated in real time as the value changes.

SP Setpoints

Separate setpoints are provided for rate control (SP Rate), Batch quantity (SP Batch), and Blend proportion (SP Blend). The specific setpoint shown on the screen is dependant on the SP Function control type that has been selected. The value displayed is updated in real time as the value changes.

SP Signal

This value is the output signal being sent form the instruments channel, and is expressed in the appropriate analog signal type units of Volts or mA.

3-4-2 PV-SP Configuration

The PV and SP channel configuration allows you to program the channel values to determine how signal inputs and outputs are displayed, calculated, operated, and scaled. These values are programmed in the Channel Instrument Configuration screen. For more information, refer to "3-6 Process Controls" on p. 3-15, which describes in greater detail the setup, configuration, operation, and termination of control processes.

The PV and SP program values are used to determine the following channel attributes:

- Gas type service
- Channel override signal
- PV signal type and full scale range
- SP signal type and full scale range
- Channel service function
- Channel override signal
- SP values
- SP programming source

The PV and SP values are static and are updated only after a value has been changed and saved.

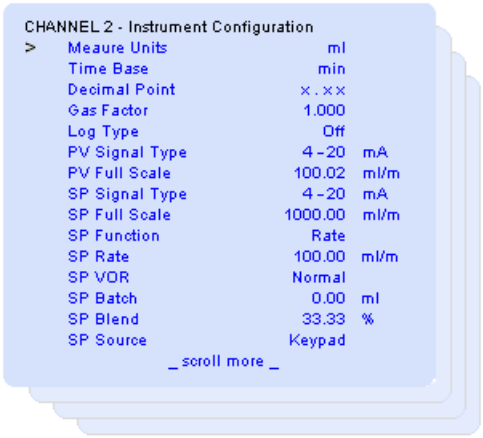
3-4-3 Value Programming

Program a value by pointing the cursor to its line and pressing the ENTER key. Note a character or string (character string) will be blinking, ready to be edited.

Edit the character string as follows:

1. Change character string to next value ▲ key or previous value ▼ key.
2. Move blinking character-string edit field left ◀ keyor right ▶ key
3. Press the ENTER key to save the changed value (any other key causes the edited value to be ignored and not saved) and the original value to be edited will remain unchanged.

When editing a character field that is blinking, the program state will be terminated if a key is not detected within 30 seconds of the last detected key. In this case, the value edited will not be saved, and the original value to be edited will remain unchanged.



Measure Units

Measure units are a combination of symbols used to identify a physical engineering measurement. The measure units may be selected from a fixed set of customary strings. Measure Units have no arithmetic affect. Supported measure units are listed in Section A.

Time Base

This selection is used to set the quantity per unit time (rate) measurement as either Sec, Min, Hrs, or Days and None. The None, or scalar, time base selection is presumed not to have a time-quantity association and does not perform quantity accumulation.

Decimal Point

The decimal point for values may be freely selected for none, one, two, or three places. The decimal sets the number of measurement value digits that are to the right of the decimal point. Setting the decimal has an arithmetic function that, when changed, automatically multiplies or divides an existing value so values continue to retain their power-of-ten value. The values so affected include PV and SP Full Scale, SP Rate, SP Batch.

Gas Factor

This value is a unit-less factor by which measured PV Signals are compensated by multiplication, and SP Signals corrected by division. This instrument performs the arithmetic compensation using the Gas Factor.

This capability makes it possible to compensate other gases that are not the calibration gas. However, the existing Gas Factor must be known and then methodically changed. By knowing the present factor for the calibration gas, and desiring to control known gases for which an attached TMF has not been calibrated, then just divide the *new gas factor* by the previously known *calibrated gas factor*. The result becomes the new Gas Factor.

Log Type (Future Option)

All logging option selections should be set to Off.

PV-SP Signal Types

Signal Selections	May be set for full scale ranges which include 0–20 mA, 4–20 mA, 0–5 V, 1–5 V, 0–10 V, 2–10 V, or OFF.
OFF selection	Suspends service for either or both channel PV and SP signals. Inactive OFF is indicated on the home screen as a blank line.

PV-SP Full Scale

This value sets the maximum engineering unit range over which the Signal Type is valid. The minimum is always presumed to be zero.

SP Function

The allowable setpoint Functions are Rate, Batch, or Blend.

Rate	The value set in SP Rate is converted to a corresponding analog signal, which is directly sent to the channel analog signal output. Refer to "3-6-1 Rate Control/Setpoint Control" on p. 3-15 for more details.

Batching	Batching is a discontinuous control process that delivers the quantity set in the SP Batch. This process is started using either the keypad or a serial communication command. Batching is terminated when the desired batch quantity has been delivered, or any time before delivery is complete by pressing the STOP. Refer to "3-6-3 Batch Control" on p. 3-18 for more details.
Blending	Blending is a continuous control process after having been started that delivers a rate proportion set in the SP Blend register, which is referred to as the prevailing Blend Master input rate. This process is started using either the keypad or a serial communication command. Blending is terminated any time by pressing the STOP key from the home screen. Refer to "3-6-4 Blend Control" on p. 3-19 for more details.

SP VOR (Valve Override)

This value is set to Normal for standard TMF operation. VOR Normal causes a VOR signal output voltage to be disconnected (i.e., floating). The VOR function is used in TMF applications to override the normal analog command signals, and is used for installation and system diagnostic purposes.

Valve Open	The VOR output signal is connected and provides a voltage > 8.0 Vdc, causing the TMF valve to be fully open.
Valve Closed	The VOR output signal is connected and provides a voltage < –4.0 Vdc, causing the TMF valve to be fully closed.

SP Source

This control enables selection of the source from which setpoints may be entered as either Keypad or Serial. When set for Serial,changing a setpoint using the keypad is prohibited.

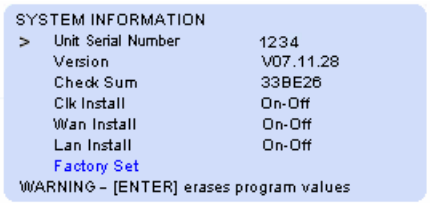
3-5 Global Settings

Global settings are the various system wide variables used to set up and review the overall operating characteristics that establish how the entire instrument will perform. The values include those provided only for viewing, those that can be selected, and those that invoke immediately action.

3-5-1 Global Information

To access the Global Settings screen, press the BACK/GLOBAL key three times from the Home screen.

This screen contains system information values and configuration states. These values are not programmable, with the only exception being the Factory Set immediate action selection described below, which erases present programmed values and replaces them with factory default values.



NOTE: The Clk Install, Wan Install, and Lan Install settings are not available for use.

Unit Serial Number

This is a factory-entered manufacturing serial number and does not relate directly to the device serial number.

Version

This is the date the firmware was last upgraded represented as year, month, and day, and is only for viewing.

Check Sum

This value is the hexadecimal double word sum of the instruction read-only memory used for factory quality assurance, and is only for viewing.

Factory Set

When the cursor is pointing to Factory Set, a pop-up warning displays “WARNING - ENTER erases program values” at the bottom of the display. Pressing ENTER will cause all user program values to be erased and over-written with factory standard default values. Factory Set does NOT erase factory pre-set calibration values, which continue to be retained.

3-5-2 Global System Power

To enter the System Power function, point the cursor to System Power on the Global Settings screen and press the ENTER key. This is an immediate action selection.

The System Power functions causes power to equipment connected to the instrument to placed in an Off state, allowing the user to conduct installation services and diagnostics. The power-off state is also useful for placing the instrument and connected equipments in an un-powered dormant state when the instrument is expected to remain unused for extended periods.

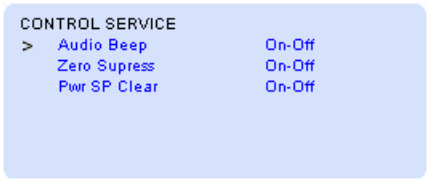
The pop-up at the bottom of the display is shown on the screen only when the cursor is pointing to System Power.

Power OFF	Press the ENTER key with the cursor pointing to System Power. This will cause entry into the power down state, the screen to become blank with its back-light off, and all signals and power to be removed from connected equipment.
Power ON	Press the START key to restore normal system operation.

3-5-3 Global Control Services

To enter the Control Services screen, point the cursor to Control Services on the Global Settings screen and press the ENTER key.

These Control Service settings are programmable but are not updated in real time. They establish operation of the several system level operating controls.

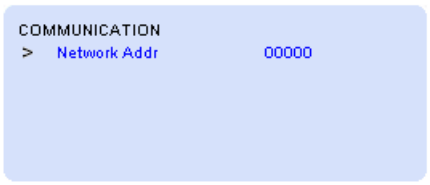


Audio Beep	When this control is selected ON, allows normal audio annunciation for alarms and key activation. Otherwise, all audio indications remain disabled.
Zero Suppress	When this control is selected ON, numeric measured values are displayed with leading zeros suppressed.
Pwr SP Clear	When this control is selected ON, power restoration causes every channel SP value to be erased and made zero. Any VOR setting will be returned to normal.

3-5-4 Global Communication

To enter the Communications service screen, point the cursor to Communications on the Global Settings screen and press the ENTER key.

The Network Addr (address) is shown on the service screen. The Network Address is a unique identification for the instrument operating in a network environment. It is factory pre-set and not customer programmable.



3-6 Instrument Confugration and Control

This subsection provides a detailed description of the instrument's Rate, Batch, and Blend control functions, and the channel configuration for the SP and PV signals.

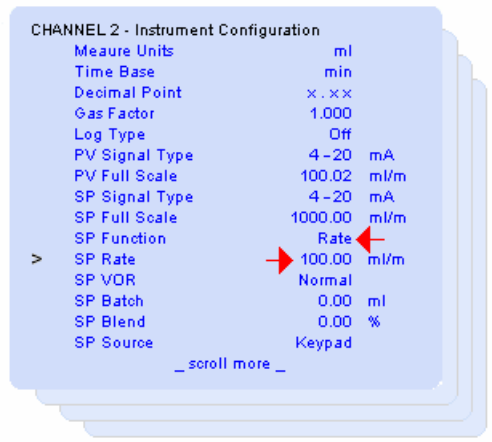
3-6-1 Rate (Setpoint) Control

Rate control is a continuous process performed on a channel-by-channel basis.

To configure Rate control:

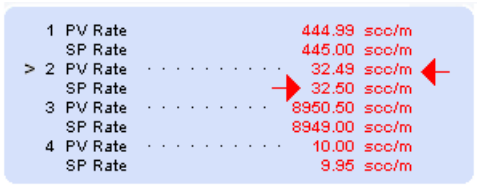
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the Enter/Menu key, and select Instrument Configuration by pressing the Enter/Menu key.
3. Once in the Instrument Configuration screen, scroll down to the SP Function option and select Rate.

4. Scroll down to the SP Rate option and select the flow rate setpoint that is desired. This control type causes an SP Rate signal programmed by the operator to be output to a controller. The setpoint can also be programmed by the Setpoint hot key.



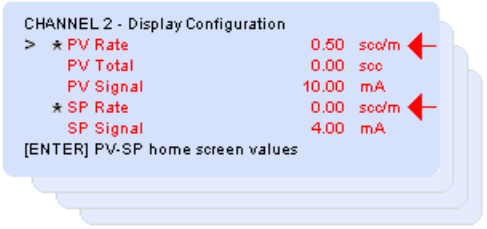
Start Rate Control

To start rate control, a setpoint must be provided. To set setpoint, use the Setpoint hot key or the Instrument Configuration screen.



Home Screen

The delivery process can be monitored as shown on the real-time updated screens above and below. Observing that the SP Rate is the same as the monitored PV Rate.



Terminate Rate Control

When the channel SP Rate is set to zero, the process is off.

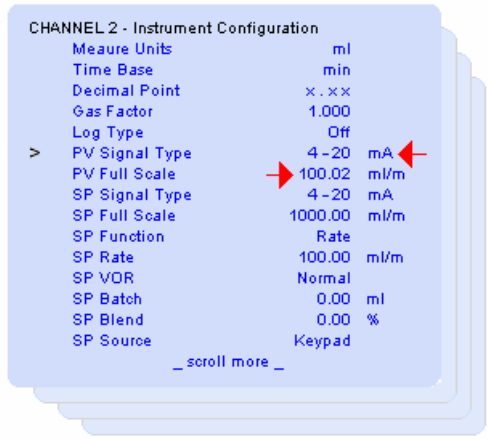
To set setpoint to zero, use the Setpoint hot key or the Instrument Configuration screen.

3-6-2 PV Configuration

Independently, the controller's output signal is monitored and indicated as the channel PV Rate, PV Signal, or PV Total, as selected in the Display Configuration screen. The PV Signal Type and PV Full Scale values are configured in the channel instrument configuration. Rate is a continuous process performed on a channel-by-channel basis.

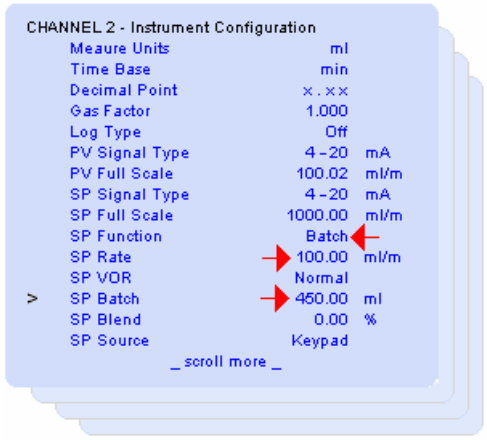
To configure the PV Signal Type and PV Full Scale values:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the PV Signal Type and PV Full Scale options and select the applicable PV Signal Type and PV Full Scale values that are desired.



3-6-3 Batch Control

Batch processing is a non-continuous process that is started, conducted, and terminated when a desired quantity has completed delivery. You can stop batch delivery at any time prior to completion.



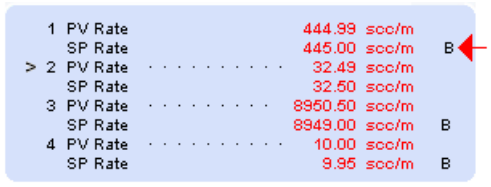
Setup

The following items must be programmed as follows:

SP Function	Select Batch
SP Rate	Set desired batch delivery rate
SP Batch	Set desired delivery quantity

Start Batch

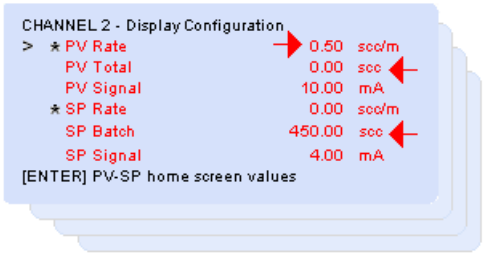
Return to the home screen. Note that the home screen indicates a ‘B’ control indicator for all channels selected to perform batching.



Home Screen

Press the START key three times. ‘B’ indicators will be blinking to indicate channels with batch now in process.

The delivery process can be monitored as shown on the screen below by observing that the PV Total increases toward the SP Batch amount, and verifying that the PV Rate properly indicates the desired delivery rate. The values in this screen are updated in real time. If the SP Function is set for Batch, the SP Batch quantity appears on this screen.



Terminate Batches

Batching for each channel set for batch will automatically terminate when each batch channel PV Total has reached or exceeded its programmed SP Batch setpoint.

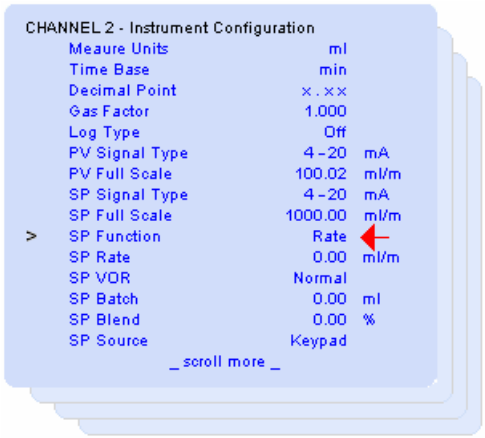
You can terminate any channels that continue with batching remaining in process by first returning to the home screen, then pressing the STOP key once. Note that the ‘B’ control indicators on the home screen stop blinking, indicating that all batch processes are stopped. Pressing the START key three times will always reset all batch totals to zero before starting the process.

3-6-4 Blend Control

Blending is a continuous process that, when started, causes slave SP Rates to be a proportion of the actual rate being delivered by the master rate.

NOTE: Blend parameters are saved when power is lost, allowing blending to continue after power is restored unless Pwr SP Clear is selected to be ON. Refer to "3-5-3 Global Control Services" on p. 3-14.

Select a master channel and set its delivery SP Rate. One or more slave channels are then selected, and the process is started from the home screen. Once started, blending will continue and may ONLY be terminated by an operator.



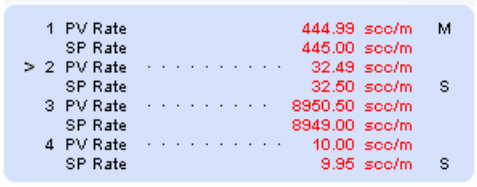
3-6-4-1 Blend Control Setup

Program the above values for master and slave channels desired to perform blending.

Select Blend Master

From the home screen, point to a channel desired to be the master and press the ◀ master blend key. This causes the home screen to show an 'M,' indicating master channel. If you press the master key again at that moment, the 'M' control indicator will no longer be present—no master is then selected—and blending will not be conducted.

To de-select a blend master, point to the present master channel and press the ◀ master blend key. Note that the 'M' control indicator is no longer present and the master has been de-selected.



Home Screen

Master Channel Setup

It is recommended that you wait until after the blending setup is complete before selecting the desired flow rate setpoint to the Master Channel (refer to "3-6-4-2 Start Blend" on p. 3-21).

To configure the Master Channel for blending:

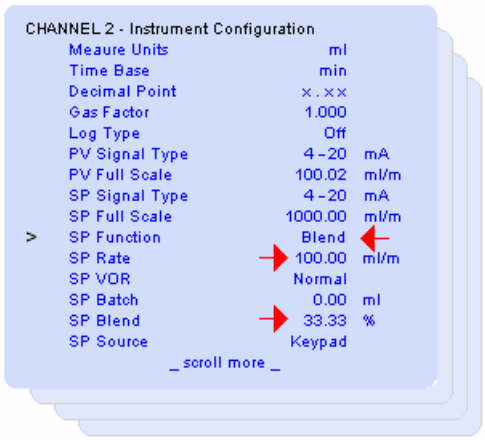
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP Function option and select Rate.
5. Scroll down to the SP Rate option and input a zero flow rate setpoint (or via the Setpoint hot key).

NOTE: If you input a flow rate setpoint other than zero, the Master Channel will immediately respond to that setpoint and will start to flow.

Slave Channels Setup

Navigate to each desired slave channel and set each SP Function to Blend, then set the desired SP Blend rate percentage referenced to the master channels actual delivery rate. Note that the home screen shows ‘S,’ indicating selected blend slave channels.

NOTE: Once a slave channel is set to Blend, SP Rate programming is prohibited for both keypad and serial command.



3-6-4-2 Start Blend

1. Return to the Home screen.
2. Press the START key three times. Note the 'M' and 'S' suffix now blinking to indicate channels with blend now in process.
3. Navigate to the Master Channel Instrument Configuration screen (or via the Setpoint hot key) and set the Master SP Rate to the desired value.

The blending process is visible on the Home screen, observing that the SP Rate of the slave channels is the programmed proportion of the master rate. If desired, the Home screen can be reconfigured to replace SP Rate of the slave channels with SP Blend ratio, as described in "3-4-1 PV-SP Measures and Status" on p. 3-7.

3-6-4-3 Terminate Blend In-Process

Once blending has started, it will continue unless manually terminated.

To terminate blending:

1. Return to the Home screen, if not already there, and press the STOP key. This resets the master channel SP Rate to zero, which stops all flow.
2. Observe that the 'M' and 'S' process indicators no longer blink.
3. To resume blending, press the START key three times and re-enter the setpoint of the master channel, as described in "3-6-4-2 Start Blend" on p. 3-21.

3-6-5 SP VOR (Valve Override) Function

The SP VOR function is typically used in Mass Flow applications to override the normal analog command signals for installation and system diagnostic purposes.

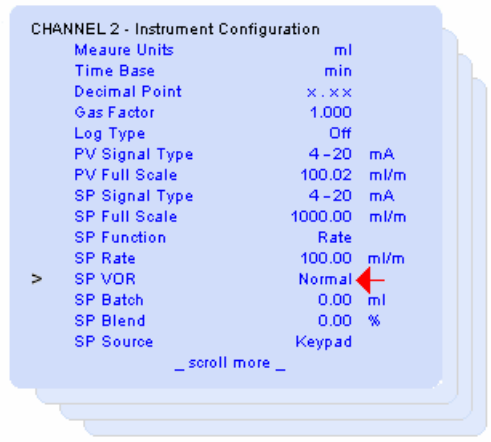
The SP VOR function allows operators to either open or close the Mass Flow Control (MFC) valve independent of the current setpoint value.

The SP VOR function has three available settings.

- The **Normal** setting is for normal MFC operation in which the valve is controlled by the selected Setpoint values.
- The **Open** setting causes the valve to be fully open regardless of setpoint. This allows operators to purge the system or to force maximum flow through the MFC.
- The **Closed** setting causes the valve to be fully closed regardless of setpoint.

To activate one of the SP VOR function modes:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP VOR Function option and select the mode that is desired (Normal, Open, or Closed). The SP VOR selection can also be accessed directly by the VOR hot key.



Once activated, the SP VOR function mode is shown on the appropriate channel display to indicate which VOR function mode is active. The setting of the SP VOR Valve override function is memorized. After power down and power up, the memorized SP VOR function mode will remain in the previous mode until it is changed by the operator.

To return to Normal operation after activating one of the SP VOR function modes:

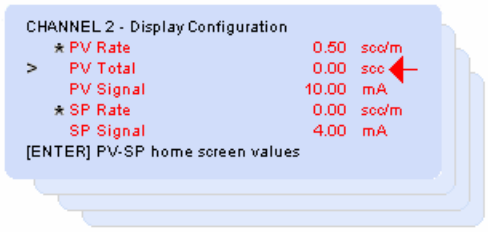
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP VOR Function option and select the Normal mode. The SP VOR selection can also be accessed directly by the VOR hot key.

3-6-6 Totalization

The Totalizer function is used to provide a total of a selected channel's PV Output Rate over time. The total is based on the Rate and Time base that is configured in the particular channel's Instrument Configuration screen. A Time base value must be configured for the Totalizer function to operate.

To display the Totalizer value:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Display Configuration by pressing the ENTER/MENU key.
4. Once in the Display Configuration screen, scroll down and select the PV Total option.



5. Once selected, return to the Home screen. The Totalizer value will now be displayed on the channel PV line. The accumulated quantity value displayed is updated in real time as the value changes.

To clear or reset an accumulated quantity to zero, point the cursor to PV Total and press the ◀ key. Note that the value is reset to zero.

3-6-7 Emergency Off

To shut down the instrument, press and hold the STOP/VOR button for three seconds.

3-1 Home Screen

The Model 0254 home screen is the instrument's central information and navigation indicator. The home screen displays following initial power application, and automatically follows the make-model screen banner. It provides an overall view of the instrument's operation. Table 3-1 on p. 3-2 describes the main elements of the home screen.

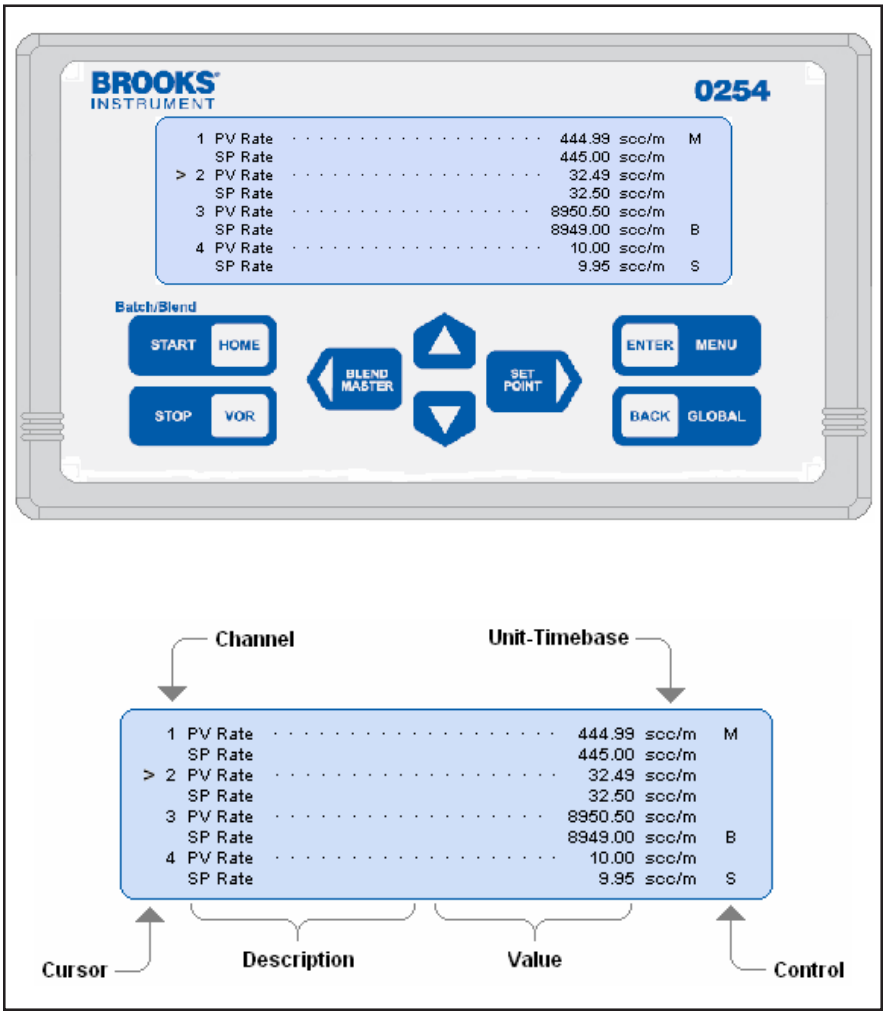


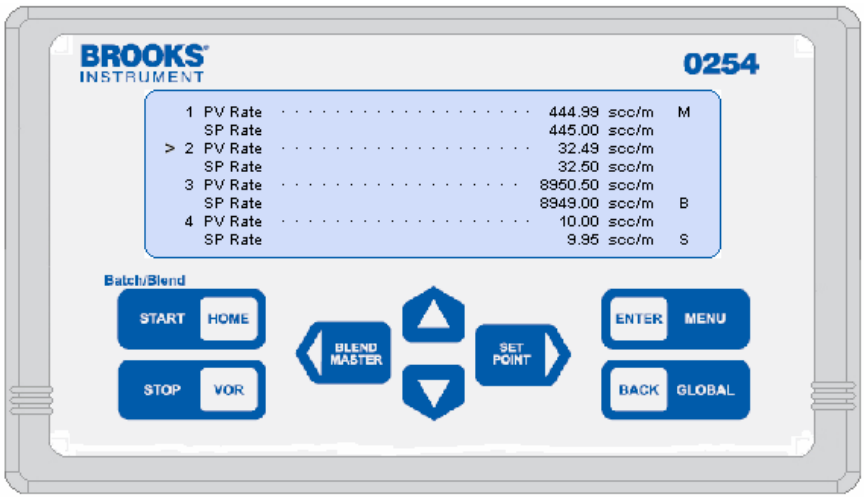
Figure 3-1 Home Screen

Table 3-1 Display Home Screen Fields

Cursor	Points to channel even when channel is Off.
Channel	Numbers 1-4.
Description	Process value text.
Value	Numeric process value.
Unit / Time-base	Combined measure units and rate time-base.
Control	Process control state indicators.

3-2 Operating Controls

The primary instrument control is supported by eight front panel tactile snap-action keys, and alternatively by serial communications. Every function that can be accomplished by using the keys can also be simultaneously be accomplished by serial communication commands. The serial communication functions are described more fully in Section D.



3-2-1 Primary Functions

Primary functions performed from the Home screen are as follows:

- Select a channel using the  and  keys
- Enter the configuration selection menu
- Enter the Global System Settings selection menus

- Quickly navigate to setpoint or valve override functions
- Start and stop control functions
- Select a blend control master
- Execute the emergency stop function

Instructions for the using the above are described in their respective subsections throughout this section.

3-2-2 Key Functions

The control function of the keys is dependant on the context of the function that has been requested to be accomplished as follows:

Key	Present Location	System Response
	Home Screen	Navigates to channel configuration screen.
	Function Select Screen	Selects viewing configuration or programming configuration.
	Display Configuration Screen	Selects the home screen value.
	Input Configuration Screen	Programs the value that the cursor points to and saves the value.
	Home Screen	Press three times to enter Global System Settings.
	All Other Screens	Navigates immediately to previous screen.
	Home Screen	Press three times to start batch and/or blend controls operation.
	Power Down Condition	Press to restore power.
	Home Screen	Terminates operating controls if any. Otherwise HOT navigates to change channel VOR state. This key can be used to power down the system when pressed for 3 seconds.
	All Screens	Move cursor up to desired item.
	All Screens: Selected Item	Increase blinking program selection to succeeding choice.
	All Screens	Move cursor down to desired item.
	All Screens: Selected Item	Decrease blinking program selection to preceding choice.

Key	Present Location	System Response
	All Screens: Selected Item	Move cursor left.
	Home Screen	Select channel pointed to by cursor as blend master unless the channel is already the master, in which case the existing master is deselected and no master is chosen.
	Display Configuration Screen	Zero PV Total when cursor points to PV Total.
	Program Screen	Move blinking program selection to next left choice.
	All Screens: Selected Item	Move cursor right.
	Home Screen	HOT navigates to change channel setpoint value.

3-3 Navigation

This subsection provides an overview of the various values that are available to set up the various program values, which determine how the instrument is desired to perform. It also describes the performance operating states.

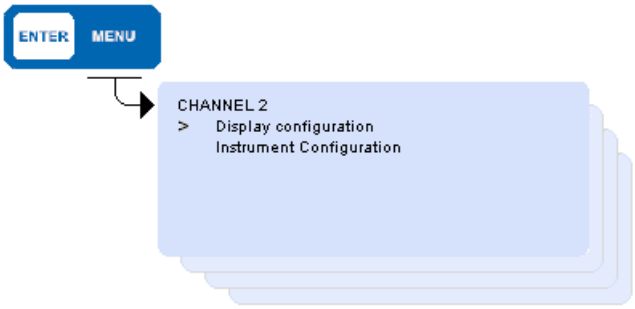
Navigation is primarily performed using the keypad controls described in "3-2-1 Primary Functions" on p. 3-2. The same operating characteristics set using the keypad are also fully supported by serial communication. The serial communication functions are described more fully in Section D.

A complete map of the user interface screens is provided to support the overview of the instrument. It shows the entire organization of all of the instrument process values (PV), all setpoint (SP) values, and all system global settings.

3-3-1 Display or Instrument Configuration Screen Selection

Pressing the menu button from the Home screen provides a secondary navigation layer for the operator to specify whether PV-SP Display Configuration or PV-SP Instrument Configuration is desired for a channel. The screen shown below is displayed as a result of having pressed the ENTER key while viewing the home screen.

This screen shown is for Channel 2. Use the cursor keys to point to either Display Configuration to show the present PV Measurements and SP Status, or Instrument Configuration to program PV and SP values, and then press ENTER to proceed to the desired selection.



3-3-2 User Interface Screen Map

The following diagram showing the screen mapping from the home page to the channel values.

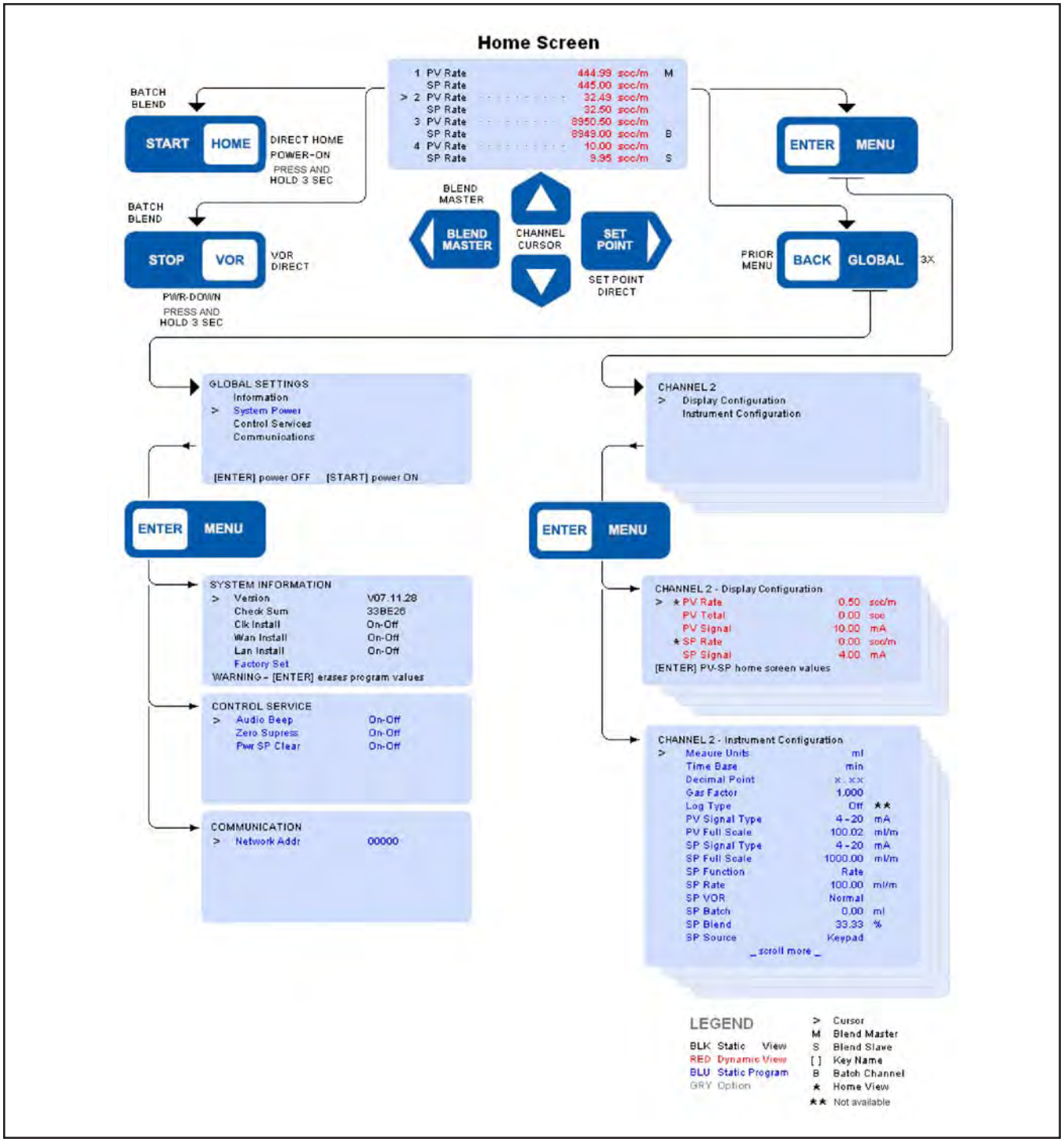
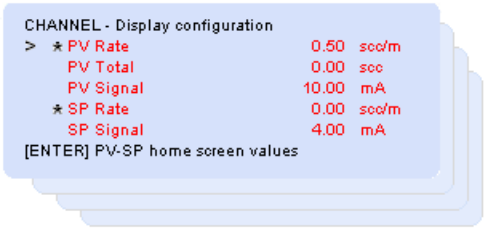


Figure 3-2 User Interface Screen Map

3-4 Process Values (PV) and Setpoints (SP)

This subsection provides a detailed description of the various system map values that are used to set up the instrument's desired operating characteristics. These characteristics establish how the instrument is desired to perform. The subsection also covers the various process values, which are the outcome of the setup, that show the operating state.

3-4-1 PV-SP Measures and Status



The present PV and SP values shown on the home screen are indicated by an asterisk (*) prefix.

To change the PV displayed on the home screen, point the cursor to the desired PV value and press the ENTER key.

To change the SP displayed on the home screen, point the cursor to the desired SP value and press the ENTER key.

For both PV and SP, note that the star indicator is now prefixed to a new PV or SP value.

PV Rate

This value is either a Rate, defined as quantity per unit time, or None, which is a scalar value not having a time associated attribute. The Rate and Time base are configured in the Channel Instrument Configuration screen. A Time base value must be configured for the totalizer function to operate. The value displayed is updated in real time as the value changes.

PV Total

This is a quantity accumulator for a rate value. The quantity values are displayed when the channel time base is NOT programmed for None. PV Total quantity is not accumulated for None values, and no PV Total will be shown on the screen. The value displayed is updated in real time as the value changes.

To clear an accumulated quantity to zero, point the cursor to PV Total and press the ◀ key. Note the value becomes zero.

PV Signal

This value is the measured electrical value being input into the instrument channel. It may be used to provide assistance in system installations, and is used to support instrument calibration. The value displayed is updated in real time as the value changes.

SP Setpoints

Separate setpoints are provided for rate control (SP Rate), Batch quantity (SP Batch), and Blend proportion (SP Blend). The specific setpoint shown on the screen is dependant on the SP Function control type that has been selected. The value displayed is updated in real time as the value changes.

SP Signal

This value is the output signal being sent form the instruments channel, and is expressed in the appropriate analog signal type units of Volts or mA.

3-4-2 PV-SP Configuration

The PV and SP channel configuration allows you to program the channel values to determine how signal inputs and outputs are displayed, calculated, operated, and scaled. These values are programmed in the Channel Instrument Configuration screen. For more information, refer to "3-6 Process Controls" on p. 3-15, which describes in greater detail the setup, configuration, operation, and termination of control processes.

The PV and SP program values are used to determine the following channel attributes:

- Gas type service
- Channel override signal
- PV signal type and full scale range
- SP signal type and full scale range
- Channel service function
- Channel override signal
- SP values
- SP programming source

The PV and SP values are static and are updated only after a value has been changed and saved.

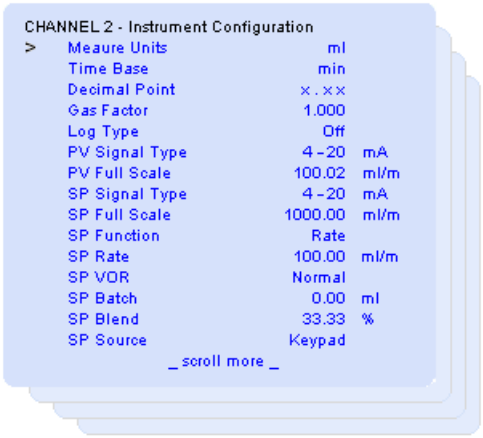
3-4-3 Value Programming

Program a value by pointing the cursor to its line and pressing the ENTER key. Note a character or string (character string) will be blinking, ready to be edited.

Edit the character string as follows:

1. Change character string to next value ▲ key or previous value ▼ key.
2. Move blinking character-string edit field left ◀ keyor right ▶ key
3. Press the ENTER key to save the changed value (any other key causes the edited value to be ignored and not saved) and the original value to be edited will remain unchanged.

When editing a character field that is blinking, the program state will be terminated if a key is not detected within 30 seconds of the last detected key. In this case, the value edited will not be saved, and the original value to be edited will remain unchanged.



Measure Units

Measure units are a combination of symbols used to identify a physical engineering measurement. The measure units may be selected from a fixed set of customary strings. Measure Units have no arithmetic affect. Supported measure units are listed in Section A.

Time Base

This selection is used to set the quantity per unit time (rate) measurement as either Sec, Min, Hrs, or Days and None. The None, or scalar, time base selection is presumed not to have a time-quantity association and does not perform quantity accumulation.

Decimal Point

The decimal point for values may be freely selected for none, one, two, or three places. The decimal sets the number of measurement value digits that are to the right of the decimal point. Setting the decimal has an arithmetic function that, when changed, automatically multiplies or divides an existing value so values continue to retain their power-of-ten value. The values so affected include PV and SP Full Scale, SP Rate, SP Batch.

Gas Factor

This value is a unit-less factor by which measured PV Signals are compensated by multiplication, and SP Signals corrected by division. This instrument performs the arithmetic compensation using the Gas Factor.

This capability makes it possible to compensate other gases that are not the calibration gas. However, the existing Gas Factor must be known and then methodically changed. By knowing the present factor for the calibration gas, and desiring to control known gases for which an attached TMF has not been calibrated, then just divide the *new gas factor* by the previously known *calibrated gas factor*. The result becomes the new Gas Factor.

Log Type (Future Option)

All logging option selections should be set to Off.

PV-SP Signal Types

Signal Selections	May be set for full scale ranges which include 0–20 mA, 4–20 mA, 0–5 V, 1–5 V, 0–10 V, 2–10 V, or OFF.
OFF selection	Suspends service for either or both channel PV and SP signals. Inactive OFF is indicated on the home screen as a blank line.

PV-SP Full Scale

This value sets the maximum engineering unit range over which the Signal Type is valid. The minimum is always presumed to be zero.

SP Function

The allowable setpoint Functions are Rate, Batch, or Blend.

Rate	The value set in SP Rate is converted to a corresponding analog signal, which is directly sent to the channel analog signal output. Refer to "3-6-1 Rate Control/Setpoint Control" on p. 3-15 for more details.

Batching	Batching is a discontinuous control process that delivers the quantity set in the SP Batch. This process is started using either the keypad or a serial communication command. Batching is terminated when the desired batch quantity has been delivered, or any time before delivery is complete by pressing the STOP. Refer to "3-6-3 Batch Control" on p. 3-18 for more details.
Blending	Blending is a continuous control process after having been started that delivers a rate proportion set in the SP Blend register, which is referred to as the prevailing Blend Master input rate. This process is started using either the keypad or a serial communication command. Blending is terminated any time by pressing the STOP key from the home screen. Refer to "3-6-4 Blend Control" on p. 3-19 for more details.

SP VOR (Valve Override)

This value is set to Normal for standard TMF operation. VOR Normal causes a VOR signal output voltage to be disconnected (i.e., floating). The VOR function is used in TMF applications to override the normal analog command signals, and is used for installation and system diagnostic purposes.

Valve Open	The VOR output signal is connected and provides a voltage > 8.0 Vdc, causing the TMF valve to be fully open.
Valve Closed	The VOR output signal is connected and provides a voltage < –4.0 Vdc, causing the TMF valve to be fully closed.

SP Source

This control enables selection of the source from which setpoints may be entered as either Keypad or Serial. When set for Serial,changing a setpoint using the keypad is prohibited.

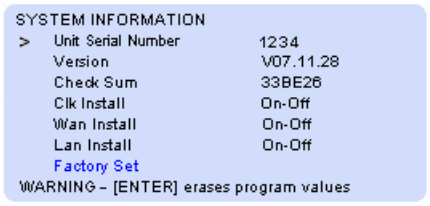
3-5 Global Settings

Global settings are the various system wide variables used to set up and review the overall operating characteristics that establish how the entire instrument will perform. The values include those provided only for viewing, those that can be selected, and those that invoke immediately action.

3-5-1 Global Information

To access the Global Settings screen, press the BACK/GLOBAL key three times from the Home screen.

This screen contains system information values and configuration states. These values are not programmable, with the only exception being the Factory Set immediate action selection described below, which erases present programmed values and replaces them with factory default values.



NOTE: The Clk Install, Wan Install, and Lan Install settings are not available for use.

Unit Serial Number

This is a factory-entered manufacturing serial number and does not relate directly to the device serial number.

Version

This is the date the firmware was last upgraded represented as year, month, and day, and is only for viewing.

Check Sum

This value is the hexadecimal double word sum of the instruction read-only memory used for factory quality assurance, and is only for viewing.

Factory Set

When the cursor is pointing to Factory Set, a pop-up warning displays “WARNING - ENTER erases program values” at the bottom of the display. Pressing ENTER will cause all user program values to be erased and over-written with factory standard default values. Factory Set does NOT erase factory pre-set calibration values, which continue to be retained.

3-5-2 Global System Power

To enter the System Power function, point the cursor to System Power on the Global Settings screen and press the ENTER key. This is an immediate action selection.

The System Power functions causes power to equipment connected to the instrument to placed in an Off state, allowing the user to conduct installation services and diagnostics. The power-off state is also useful for placing the instrument and connected equipments in an un-powered dormant state when the instrument is expected to remain unused for extended periods.

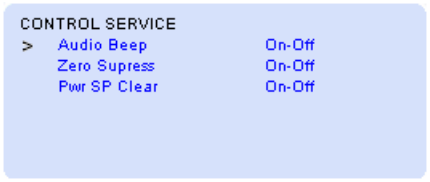
The pop-up at the bottom of the display is shown on the screen only when the cursor is pointing to System Power.

Power OFF	Press the ENTER key with the cursor pointing to System Power. This will cause entry into the power down state, the screen to become blank with its back-light off, and all signals and power to be removed from connected equipment.
Power ON	Press the START key to restore normal system operation.

3-5-3 Global Control Services

To enter the Control Services screen, point the cursor to Control Services on the Global Settings screen and press the ENTER key.

These Control Service settings are programmable but are not updated in real time. They establish operation of the several system level operating controls.

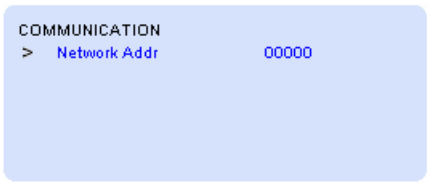


Audio Beep	When this control is selected ON, allows normal audio annunciation for alarms and key activation. Otherwise, all audio indications remain disabled.
Zero Suppress	When this control is selected ON, numeric measured values are displayed with leading zeros suppressed.
Pwr SP Clear	When this control is selected ON, power restoration causes every channel SP value to be erased and made zero. Any VOR setting will be returned to normal.

3-5-4 Global Communication

To enter the Communications service screen, point the cursor to Communications on the Global Settings screen and press the ENTER key.

The Network Addr (address) is shown on the service screen. The Network Address is a unique identification for the instrument operating in a network environment. It is factory pre-set and not customer programmable.



3-6 Instrument Confugration and Control

This subsection provides a detailed description of the instrument's Rate, Batch, and Blend control functions, and the channel configuration for the SP and PV signals.

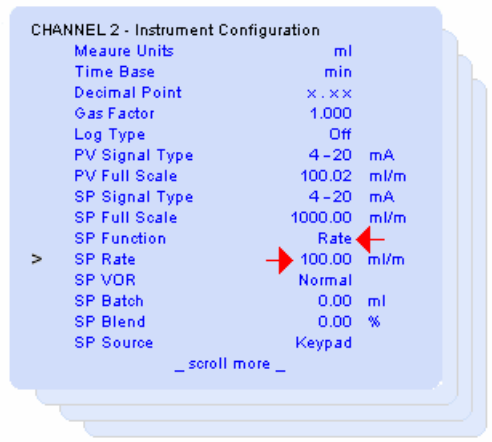
3-6-1 Rate (Setpoint) Control

Rate control is a continuous process performed on a channel-by-channel basis.

To configure Rate control:

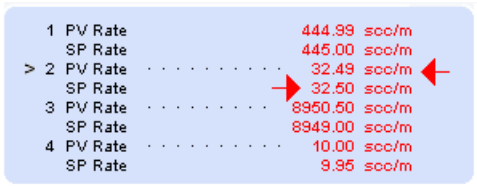
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the Enter/Menu key, and select Instrument Configuration by pressing the Enter/Menu key.
3. Once in the Instrument Configuration screen, scroll down to the SP Function option and select Rate.

4. Scroll down to the SP Rate option and select the flow rate setpoint that is desired. This control type causes an SP Rate signal programmed by the operator to be output to a controller. The setpoint can also be programmed by the Setpoint hot key.



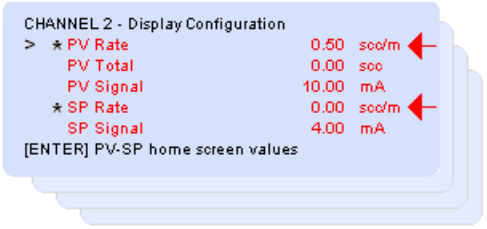
Start Rate Control

To start rate control, a setpoint must be provided. To set setpoint, use the Setpoint hot key or the Instrument Configuration screen.



Home Screen

The delivery process can be monitored as shown on the real-time updated screens above and below. Observing that the SP Rate is the same as the monitored PV Rate.



Terminate Rate Control

When the channel SP Rate is set to zero, the process is off.

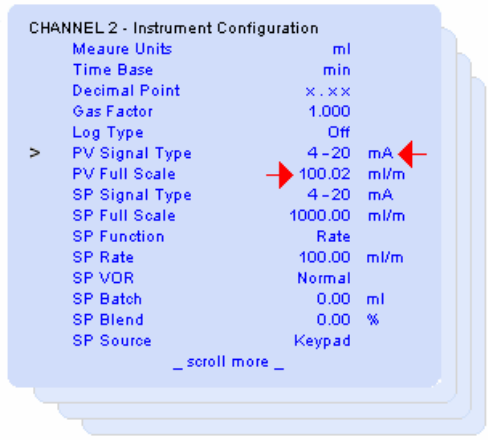
To set setpoint to zero, use the Setpoint hot key or the Instrument Configuration screen.

3-6-2 PV Configuration

Independently, the controller's output signal is monitored and indicated as the channel PV Rate, PV Signal, or PV Total, as selected in the Display Configuration screen. The PV Signal Type and PV Full Scale values are configured in the channel instrument configuration. Rate is a continuous process performed on a channel-by-channel basis.

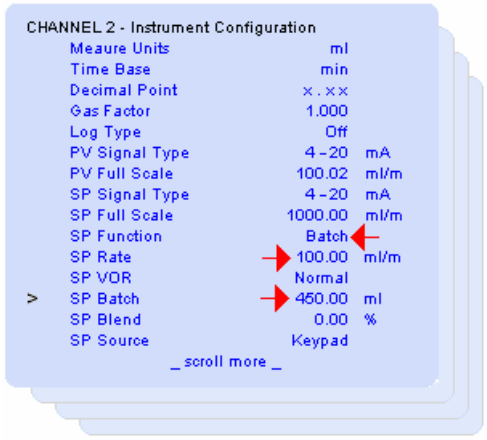
To configure the PV Signal Type and PV Full Scale values:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the PV Signal Type and PV Full Scale options and select the applicable PV Signal Type and PV Full Scale values that are desired.



3-6-3 Batch Control

Batch processing is a non-continuous process that is started, conducted, and terminated when a desired quantity has completed delivery. You can stop batch delivery at any time prior to completion.



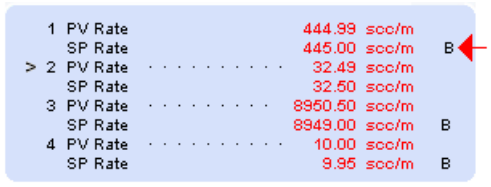
Setup

The following items must be programmed as follows:

SP Function	Select Batch
SP Rate	Set desired batch delivery rate
SP Batch	Set desired delivery quantity

Start Batch

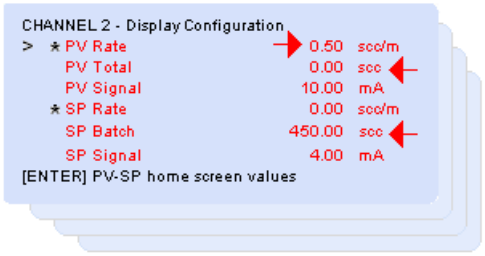
Return to the home screen. Note that the home screen indicates a ‘B’ control indicator for all channels selected to perform batching.



Home Screen

Press the START key three times. ‘B’ indicators will be blinking to indicate channels with batch now in process.

The delivery process can be monitored as shown on the screen below by observing that the PV Total increases toward the SP Batch amount, and verifying that the PV Rate properly indicates the desired delivery rate. The values in this screen are updated in real time. If the SP Function is set for Batch, the SP Batch quantity appears on this screen.



Terminate Batches

Batching for each channel set for batch will automatically terminate when each batch channel PV Total has reached or exceeded its programmed SP Batch setpoint.

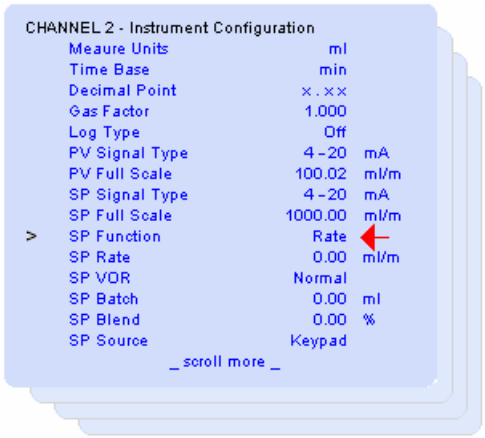
You can terminate any channels that continue with batching remaining in process by first returning to the home screen, then pressing the STOP key once. Note that the ‘B’ control indicators on the home screen stop blinking, indicating that all batch processes are stopped. Pressing the START key three times will always reset all batch totals to zero before starting the process.

3-6-4 Blend Control

Blending is a continuous process that, when started, causes slave SP Rates to be a proportion of the actual rate being delivered by the master rate.

NOTE: Blend parameters are saved when power is lost, allowing blending to continue after power is restored unless Pwr SP Clear is selected to be ON. Refer to "3-5-3 Global Control Services" on p. 3-14.

Select a master channel and set its delivery SP Rate. One or more slave channels are then selected, and the process is started from the home screen. Once started, blending will continue and may ONLY be terminated by an operator.



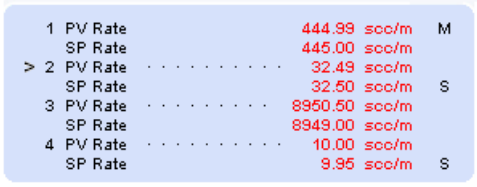
3-6-4-1 Blend Control Setup

Program the above values for master and slave channels desired to perform blending.

Select Blend Master

From the home screen, point to a channel desired to be the master and press the ◀ master blend key. This causes the home screen to show an 'M,' indicating master channel. If you press the master key again at that moment, the 'M' control indicator will no longer be present—no master is then selected—and blending will not be conducted.

To de-select a blend master, point to the present master channel and press the ◀ master blend key. Note that the 'M' control indicator is no longer present and the master has been de-selected.



Home Screen

Master Channel Setup

It is recommended that you wait until after the blending setup is complete before selecting the desired flow rate setpoint to the Master Channel (refer to "3-6-4-2 Start Blend" on p. 3-21).

To configure the Master Channel for blending:

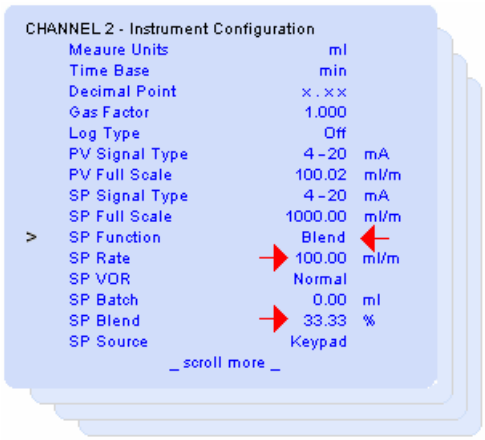
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP Function option and select Rate.
5. Scroll down to the SP Rate option and input a zero flow rate setpoint (or via the Setpoint hot key).

NOTE: If you input a flow rate setpoint other than zero, the Master Channel will immediately respond to that setpoint and will start to flow.

Slave Channels Setup

Navigate to each desired slave channel and set each SP Function to Blend, then set the desired SP Blend rate percentage referenced to the master channels actual delivery rate. Note that the home screen shows ‘S,’ indicating selected blend slave channels.

NOTE: Once a slave channel is set to Blend, SP Rate programming is prohibited for both keypad and serial command.



3-6-4-2 Start Blend

1. Return to the Home screen.
2. Press the START key three times. Note the 'M' and 'S' suffix now blinking to indicate channels with blend now in process.
3. Navigate to the Master Channel Instrument Configuration screen (or via the Setpoint hot key) and set the Master SP Rate to the desired value.

The blending process is visible on the Home screen, observing that the SP Rate of the slave channels is the programmed proportion of the master rate. If desired, the Home screen can be reconfigured to replace SP Rate of the slave channels with SP Blend ratio, as described in "3-4-1 PV-SP Measures and Status" on p. 3-7.

3-6-4-3 Terminate Blend In-Process

Once blending has started, it will continue unless manually terminated.

To terminate blending:

1. Return to the Home screen, if not already there, and press the STOP key. This resets the master channel SP Rate to zero, which stops all flow.
2. Observe that the 'M' and 'S' process indicators no longer blink.
3. To resume blending, press the START key three times and re-enter the setpoint of the master channel, as described in "3-6-4-2 Start Blend" on p. 3-21.

3-6-5 SP VOR (Valve Override) Function

The SP VOR function is typically used in Mass Flow applications to override the normal analog command signals for installation and system diagnostic purposes.

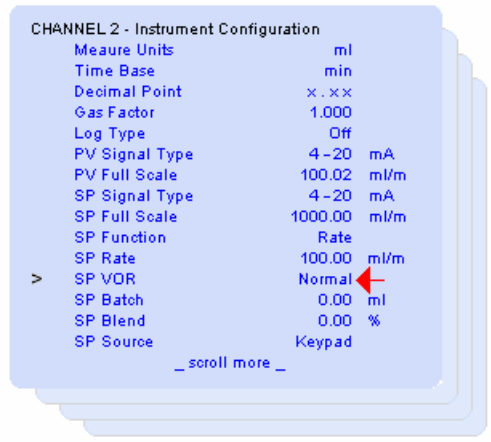
The SP VOR function allows operators to either open or close the Mass Flow Control (MFC) valve independent of the current setpoint value.

The SP VOR function has three available settings.

- The **Normal** setting is for normal MFC operation in which the valve is controlled by the selected Setpoint values.
- The **Open** setting causes the valve to be fully open regardless of setpoint. This allows operators to purge the system or to force maximum flow through the MFC.
- The **Closed** setting causes the valve to be fully closed regardless of setpoint.

To activate one of the SP VOR function modes:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP VOR Function option and select the mode that is desired (Normal, Open, or Closed). The SP VOR selection can also be accessed directly by the VOR hot key.



Once activated, the SP VOR function mode is shown on the appropriate channel display to indicate which VOR function mode is active. The setting of the SP VOR Valve override function is memorized. After power down and power up, the memorized SP VOR function mode will remain in the previous mode until it is changed by the operator.

To return to Normal operation after activating one of the SP VOR function modes:

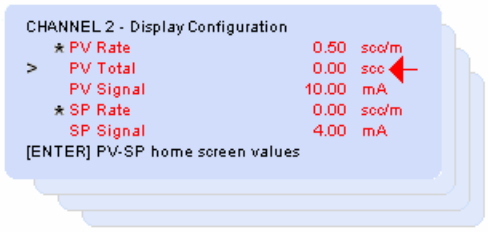
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the SP VOR Function option and select the Normal mode. The SP VOR selection can also be accessed directly by the VOR hot key.

3-6-6 Totalization

The Totalizer function is used to provide a total of a selected channel's PV Output Rate over time. The total is based on the Rate and Time base that is configured in the particular channel's Instrument Configuration screen. A Time base value must be configured for the Totalizer function to operate.

To display the Totalizer value:

1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Display Configuration by pressing the ENTER/MENU key.
4. Once in the Display Configuration screen, scroll down and select the PV Total option.



5. Once selected, return to the Home screen. The Totalizer value will now be displayed on the channel PV line. The accumulated quantity value displayed is updated in real time as the value changes.

To clear or reset an accumulated quantity to zero, point the cursor to PV Total and press the ◀ key. Note that the value is reset to zero.

3-6-7 Emergency Off

To shut down the instrument, press and hold the STOP/VOR button for three seconds.

A-1 Available Engineering Units

ml
mls
mln
l
ls
ln
cm^3
cm^3s
cm^3n
m^3
m^3s
m^3n
g
lb
kg
ft^3
ft^3s
ft^3n
scc
sl
mbar
bar
psi
kPa
Torr
atm
Volt
mA
oC
oK
oR
oF
g/cc
sg
%
lb/in^3
lb/ft^3
lb/gal
kg/m^3
g/ml
kg/l
g/l

Note: ". ^3" means cubic " $.^3$ "

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B-1 Blending Examples

Example 1:

Master channel flow is 80 l/min
Slave channel flow has to be 0.8 l/min

Mass flow controller selecions are :

Master channel unit: 100 l/min = Full Scale Value
Slave channel unit: 10 l/min = Full Scale Value

$$\text{Blending ratio is} = \frac{0.8 \text{ l/min}}{80 \text{ l/min}} = 0.01 = 1\%$$

Example 2:

Master channel flow is 240 l/min
Slave channel flow has to be 40 l/min

Mass flow controller selections are :

Master channel unit: 300 l/min = Full Scale Value
Slave channel unit: 50 l/min = Full Scale Value

$$\text{Blending ratio is} = \frac{40 \text{ l/min}}{240 \text{ l/min}} = 0.167 = 16.7\%$$

Example 3:

Master channel pressure is 1000 mbar
Slave channel flow has to be 50 l/min

Mass flow and pressure controller selections are :

Master channel unit: 2000 mbar = Full Scale Value
Slave channel unit: 100 l/min = Full Scale Value

$$\text{Blending ratio is} = \frac{50 \text{ l/min}}{1000 \text{ mbar}} = 0.05 = 5\%$$

Example 4:

Master channel flow is 100%
Slave channel flow has to be 50% (of slave channel full scale)

Mass flow controller selections are :

Master channel unit: 6 l/min = 100% Full Scale
Slave channel unit: 4 l/min = 100% Full Scale

Blending ratio is = 50%

NOTE: When the blend ratio is % of slave channel, use 100% as the full scale setting for master and slave.

Example 5:

Master channel flow is 80%
Slave channel flow has to be 20 kg/hr

Mass flow controller selections are :

Master channel unit: 100 kg/hr =100% Full Scale
Slave channel unit: 50kg/hr = Full Scale Value

Determination of entered setpoint:

$$\text{Blending ratio is} = \frac{20 \text{ kg/h}}{80\%} = 0.25 = 25\%$$

$$\text{Setpoint}_{\text{slave}} = 0.25 \frac{\text{kg/h}}{\%} \times 100\% = 25 \text{ kg/h}$$

Example 6:

Master channel pressure is 10 bar
Slave channel flow has to be 50% (of master channel full scale)

Mass flow controller selections are :

Master channel unit: 15 bar = Full Scale Value
Slave channel unit: 20 l/min = Full Scale Value

Blending ratio is = 50%

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C-1 Overview

This section describes in detail the various aspects of providing the Model 0254 commands and responses that result in operating value programming—fundamental to employing the system for acquiring and communicating measured information—and providing for process control output.

Firmware

Serial communication is supported by firmware versions V10.05.13 and later, see Section 3-5-1 for more information on the firmware version.

Structure

The Model 0254 is a general platform into which are installed certain standard and special operating modules. This section focuses on standard universal input-output module offerings. The platform supports input signal measures and control output signals. The platform supports various communication facilities.

Channels and Ports

The Model 0254 is comprised of pairs of ports, each of which has an input and output to form a channel, with four channels total.

Channel and port numbering

Channel Number	Port Number	Port Type	Description
1	1	Input	Input Port Settings
	2	Output	Output Port Settings
2	3	Input	Input Port Settings
	4	Output	Output Port Settings
3	5	Input	Input Port Settings
	6	Output	Output Port Settings
4	7	Input	Input Port Settings
	8	Output	Output Port Settings
N/A	9	Global	Global Settings

C-2 Communication Settings

C-2-1 RS-232 Port Settings

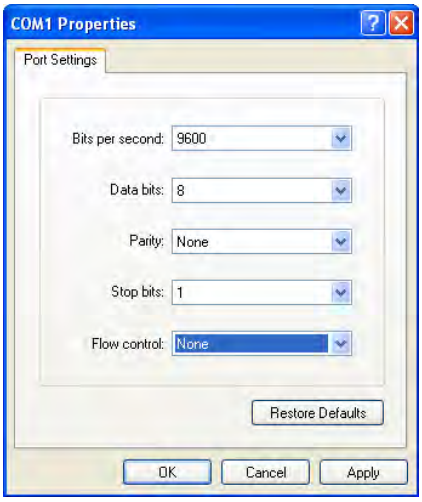
The RS-232 serial port setting of the PC which is used to communicate with the 0254 Read Out needs to be as follows:
Bit Rate 9600
Data Bits 8
Parity None
Stop Bits 1
Flow Control None

C-2-2 Hyperterminal Set-Up

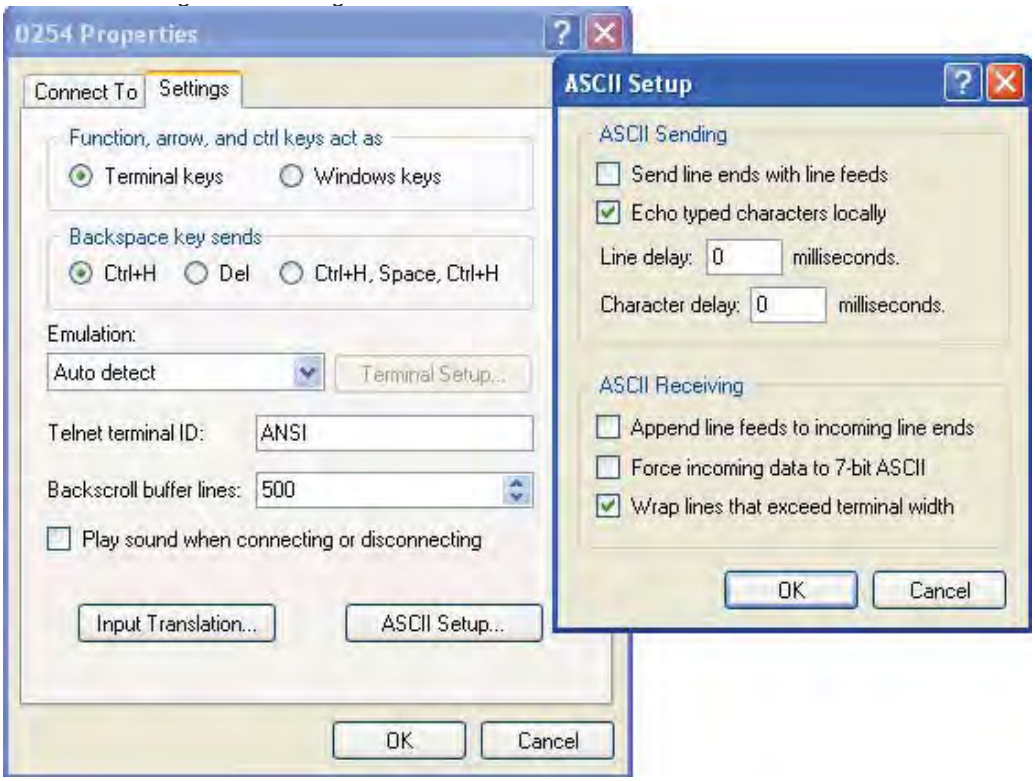
Within the windows operating system a software application is available, called Hyperterminal, which can be used to setup a serial connection to the 0254 Read Out. This software application is available in the following shortcut menu “Start->All Programs->Accessories->Communications->Hyperterminal”. This shortcut will put up the screen shown below.”

Enter a name for the connection and click the 'OK' button. In the next screen enter the right COM port number, see below.

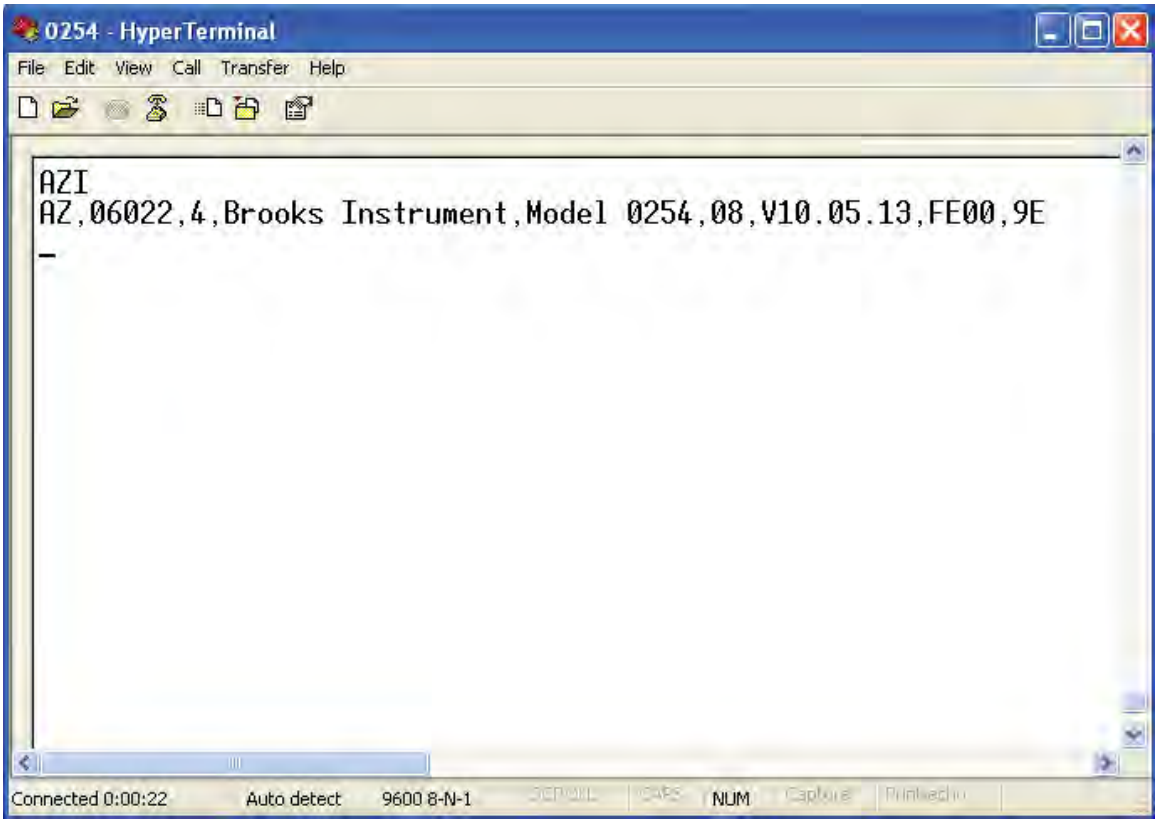
In the 'Port Settings' screen enter the values as shown in the picture below and click the 'OK' button.



Open the 'File->Properties' pull down menu and click the ASCII Setup' button and configure the settings as shown below.



Dismiss both screens by clicking the OK button and enter the command 'AZI' to check if the connection was successful, as seen in the following screen..


0254 - HyperTerminal
File Edit View Call Transfer Help
AZI
AZ,06022,4,Brooks Instrument,Model 0254,08,V10.05.13,FE00,9E
Connected 0:00:22
Auto detect
9600 8-N-1
NUM

C-3 Serial Command Organization

C-3-1 Command Structures

This protocol was selected to service the need for serial error control while operating in local or wide area networks to transfer information between a unit and host computer.

Elements

The command format is a free-form variable entry implementation, enabling expeditious economic means of achieving required programming results. Commands are comprised of the following structural elements:

Block Pre-limiter	Sentinel indicating start of multiple packets message
Packet Pre-limiter	Sentinel indicating start of a packet message.
Information Frame	Contains comma pre-limited fields that start with the first character immediately following the message pre-limiter and includes all successive characters up to and including a comma, which immediately precedes the first ASCII hexadecimal checksum character.
Checksum	Two ASCII hexadecimal characters created for a Model 0254 negated sum of all characters available in the Information Frame, which is used by a host computer to check a message packet's validity.
Packet delimiter	Sentinel indicating end of a packet message.
Block Delimiter	Sentinel indicating end of multiple packets message

Transfer

All messages are serial half-duplex send-response types.

Baud Rate = 9600

Mastering

The protocol initiator or originator is the master. The master is responsible for managing the communication link connection.

C-3-2 Command Addressing

Each Model 0254 unit is assigned a unique 5-digit address, from 0 to 65535, which must be pre-programmed in the instrument prior to deployment in a networked system. The ports that comprise a channel are designated with an appended [.x} or [.xx] sub-address.

The 5-digit address may be omitted when operating a single un-networked unit, but must be used in multiple unit networks to differentiate the units from each other.

Command arguments are single ASCII alpha non-case sensitive characters. No spaces are allowed between the 'AZ' and <cr>, i.e. start and respectively the end of the command.

```
HOST SEND
      AZ    yyyyy       .xx   K     <cr>
      |     |           |     |        |
      |     |           |     |        + — message delimiter
      |     |           |     +— command argument
      |     |           +— port sub-address
      |     +— unit address
      +— message prelimiter

      AZ[.xx]<argument><cr>   Non-networked sub-addressed port

      AZ[yyyyy.xx]<argument><cr>    Networked sub-addressed port

RESPONSE -  <argument> dependent
```

C-4 Command Operation

C-4-1 General Commands

These commands are general basic utility types.

C-4-1-1 Command Synchronize

This command string terminates commands that may be presently in process and resets the command state machine operation to the initial ready state. It can be sent to instruments in a network to provide command state machine synchronization.

```
HOST SEND
      <esc>AZ<cr>

RESPONSE - none
```

C-4-1-2 Menu Command

This command is provided for terminal-oriented use and causes display of a menu listing the basic available command arguments, make, model, code version, and object code start vector. The menu does not include special factory diagnostic and production test commands.

```
HOST SEND
      AZM<cr>                        Non-network
      AZ[yyyyy]M<cr>                 Network

RESPONSE

      <cr><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf><lf>
      Brooks Instruments
      COMMANDS - Model 0254 V01.03.21 FD00
      <cr><lf><lf>
      [M] Command Select Menu<cr><lf>
      [V] Display Port Values<cr><lf>
      [K] Send Measured<cr><lf>
      [I] Product Identify<cr><lf>
      [P] Program New Values<cr><lf>
      [Z] Clear Measured Values<cr><lf>
      [F] Batch Control Service<cr><lf>
      [B] Blend Control Service
      [G] Log Record Service
```

C-4-1-3 View Programmed Channel Port Values

This command enables the operator to review all present programmed channel port values.

```
HOST SEND
      AZ.xxV<cr>              Non-network xx=port number (1-8)
      AZ[yyyyy.xx]V<cr>       Network

RESPONSE
```

Response is dependent upon whether the port is off, input, output, or Global Settings (port 9), which will be further described in subsequent subsections.

C-4-1-4 Identify Command

This command causes the addressed unit to respond with a string providing identity information about the instrument. This command is useful to determine a networked instrument complement. More detailed structural information is available in Section 3.

The responding unit checksum may be validated by the host, who may request the information again if the received packet is in error. The checksum is calculated over the complete Information Frame, see Section C-3-1.

```
HOST SEND
      AZI<cr>                       Non-network
      AZ[yyyyy]I<cr>                Network

RESPONSE
      AZ,00000,4,BROOKS,0254,08,01.01.13,FE00,<sum><cr><lf>

FIELDS
      AZ                            Pre-limiter
      ,00000                        Unit address
      ,4                            Response type
      ,Brooks Instrument            Make
      ,Model 0254                   Model
      ,08                           Port provision count
      ,V09.01.30                    Code version date yy-mm-dd
      ,FE00                         Start vector
      ,<sum>                        Negated mod256 sum
      <cr><lf>                      Delimiter
```

C-4-1-5 Message Serial Character Pacing Controls

These commands provide for the terminal or host to suspend character sending or to re-enable the sending to continue. This facility is particularly useful when the instrument sends large data amounts, such as logged information.

Serial Character Pacing

This command acts as an XOF to temporarily suspend unit from sending further characters:

```
HOST SEND
      AZH<cr>                  Non-network
      AZ[yyyyy]H<cr>           Network

RESPONSE - none
```

This command acts as an XON to allow or re-enable unit to continue sending characters:

```
HOST SEND
      AZS<cr>                  Non-network
      AZ[yyyyy]S<cr>           Network

RESPONSE - none
```

C-4-1-6 Serial Message Error Control

Commands provide for error control of information packets sent by the instrument. This is particularly useful when transferring information over wide area networks, and causes the instrument to continue to send the next packet or to resend a previous sent packet.

The send-resend is determined by the receiving host based on having computed a checksum from the received characters, then comparing it with the checksum sent by the unit. The instrument must be pre-configured to enable the error control protocol.

Positive Acknowledge Command

This command must be issued by the receiving host to enable the instrument to send its packet, which is next eligible. Should the instrument not receive positive acknowledgement within four seconds, it will resend the previous packet up to four times before abandoning the send session.

```
HOST SEND
      AZA<cr>                  Non-network
      AZ[yyyyy]A<cr>           Network

RESPONSE - none
```

Negative Acknowledge Command

This command may be issued from the terminal or host to cause the instrument to resend its previous packet. Should the instrument not receive negative acknowledgement prior to a lapse of four seconds, it will automatically resend the previous unacknowledged packet up to four times before abandoning the send session.

```
HOST SEND
      AZN<cr>                  Non-network
      AZ[yyyyy]N<cr>           Network

RESPONSE - none
```

C-4-2 Channel Input Port Commands

C-4-2-1 Measured Channel Values Command

This command is used to gather measured information from one or all channel input ports. Protocol responses are compatible with existing published protocol formats. Frames noted below as lower case 'x' remain <reserved>, regardless of frame content.

```
HOST SEND
       Non-Networked
              AZ[.xx]K<cr>          Send one channel input port values
       Networked
              AZ[yyyyy.xx]K<cr>     Send one channel input port values


RESPONSE - ONE CHANNEL INPUT PORT MESSAGE
   AZ,00909.01,2,xxxxxxxx.xx,00162871.43,-0000003.27,xxxxxxx.xx,xxxxx,X,X,X,X,X,<sum><cr><lf>

                                    Explanation of response values above
```

Parameter Number	Value in Example	Description
1	AZ	response pre delimiter
2	00909	network address of 0254 Read Out device
3	01	port number (input port channel 1)
4	2	response type
5	xxxxxxxx.xx	Non resettable totalizer value
6	00162871.43	Totalizer value
7	0000003.27	process value
...		reserved parameters
15	<sum>	check sum
16	<cr>	carriage return character
17	<lf>	line feed character

C-4-2-2 Send Channel Input Port Programmed Values

This command enables a terminal operator or host to acquire the present state of input port programmed values. Valid input port numbers (xx) are [1, 3, 5, 7].

```
HOST SEND
      AZ[.xx]V<cr>                    Non-network
      AZ[yyyyy.xx]V<cr>               Network

RESPONSE

      PROGRAM VALUES - Channel 1 - Port 01

      <04>  Measure Units              ml
      <10>  Time Base                 min
      <03>  Decimal Point            x.xx
      <27>  Gas Factor              1.000
      <28>  Log Type                  Off
      <00>  PV Signal Type         0-20mA
      <09>  PV Full Scale           20.00 ml/m
```

Each of the input port programmed operating values can be individually queried or changed in accordance with the procedures in Section C-5-1 and C-5-2.

C-4-2-3 Program Channel Input Port Values

Each of the input port programmed operating values can be individually queried or changed in accordance with the procedures in Section 3 using the <xx> value index.

C-4-2-4 Clear Accumulated Values

This command allows any one channel input port accumulated value to be independently reset to zero, or all unit programmed values to be set to factory default.

```
HOST SEND
      AZ[.xx]Zn<cr>                Non-network
      AZ[yyyyy.xx]Zn<cr>           Network

          n=0,2,3,5,6  <reserved>
          n=1          Measured quantity for one channel input port
          n=4          Set all channels to be set to Factory default program values

RESPONSE - none
```

C-4-3 Channel Output Port Control Commands

C-4-3-1 Channel Control Output Port Values

This command enables terminal operator or host to acquire the present state of a channel output port programmed values. Valid output port numbers (xx) are [2, 4, 6, 8].

```
HOST SEND
      AZ[.xx]V<cr>            Non-network
      AZ[yyyyy.xx]V<cr>       Network

RESPONSE

      PROGRAM VALUES - Channel 1 - Port 02

      <00>  SP Signal Type    0-20mA
      <09>  SP Full Scale     20.00 ml/m
      <02>  SP Function       Rate
      <01>  SP Rate           0.00 ml/m
      <29>  SP VOR            Normal
      <44>  SP Batch          0.00 ml
      <45>  SP Blend          0.000 %
      <46>  SP Source         Keypad
```

Each of the port programmed operating values can be individually queried or changed in accordance with the procedures in Section C-5-1 and C-5-2.

C-4-3-2 Batch and Blend Control Commands

These commands are provided to conduct output port control operations that require starting and stopping.

Batch Command

This command is used to start a new batch quantity process, or stop a batch process that may currently be in processing.

Bulk Batching

Bulk batching starts all qualified batch processes for all qualified channel ports at the same time.

Qualified channel output ports [Control Function] must be programmed to [Batch] and [Batch Quantity] set greater than zero, with [Link] to the channel input port programmed to accumulate quantity.

```
HOST SEND
            AZ F*<cr>                              start all channel batches
            AZ F<cr>                               stop all channel batches

RESPONSE(S)
            AZ,[yyyyy.xx],5,FOK,DA,<cr><lf>     batch started and in process
            AZ,[yyyyy.xx],5,FDONE,4E,<cr><lf>   batch(s) completed
            AZ,[yyyyy.xx],5,FERROR,5D,<cr><lf>  command error
```

Blend Command

This command is used to select a blend master channel and thereafter start the desired blending operation. At least one, or more, slaves output rates are controlled to be a proportion of the selected masters delivery rate.

The qualified channel output port must have its [Control Function] set to [Blend].

The required master channel input port is specified in the start command by inserting its port sub-address [.xx] in the command, and must be one of the following:

Channel	Sub-Address
1	1
2	3
3	5
4	7

```
HOST SEND
      AZ[.xx] B<cr>     Start blending
      AZ F<cr>          Stop blending

RESPONSE - none
```

C-4-4 Global Settings Services

C-4-4-1 Global Setting Values

This command enables a terminal operator or host to acquire the present state of the Global programmed values. The Global Settings port number is one greater than the maximum number of available ports, which is 9 for Model 0254.

```
HOST SEND
      AZ[.09]V<cr>            Non-Network
            <or>
      AZ[.9]  V<cr>

      AZ[yyyyy.09]V<cr>       Network
      AZ[yyyyy.9]V<cr>

RESPONSE

      PROGRAM VALUES - Channel Global

      <39>  Audio Beep        On
      <32>  Zero Supress      On
      <33>  Pwr SP Clear      Off
      <43>  Record Count      000000 (view only)      log option
      <25>  Sample Rate       535 sec                 log option
      <22>  Date-Time         00Jan00 00:00:00        log option
      <17>  Network Addr      00000
```

C-4-4-2 Set Global Settings Values

Each of the system port programmed operating values can be individually queried or changed in accordance with the procedures in Section 3 using the <xx> value index.

C-4-5 Communication Message Basics

Messages between host and instrument are either polled (solicited) or un-polled (un-solicited), where the host is normally the polling (soliciting) party.

C-4-5-1 Message Structure

A packet is a group of information from channel input ports. A group of packets sent together is a block message, as shown in the examples below. Protocol responses are compatible with existing published protocol formats. Frames noted below as lower case 'x' remain <reserved>, regardless of frame content.

```
MESSAGE
AZ,00909.00,2,xxxxxxxx.xx,00162871.43,-0000003.27,xxxxxxx.xx,xxxxx,X,X,X,X,X,<sum><cr><lf>
```

C-4-5-2 Message Format

```
BLOCK PRELIMITER
      <dle><stx>                                  Start of multi-port block

PACKET PRELIMITER
      AZ                                          Start of a port packet

ADDRESS - unit and port(s) providing the information
      ,xxxxx                                      unit address
      .xx                                         port sub-address

TYPE - message purpose
      Un-polled Types
      ,0                                          <reserved>
      ,1                                          <reserved>
      ,2                                          <reserved>
      ,3                                          <reserved>
      ,6                                          <reserved>
      Polled Types
      ,4                                          Information request response
      ,5                                          Control batch status
      ,6                                          <reserved>
      ,7                                          <reserved>
      ,8                                          <reserved>
      ,9                                          <reserved>

MEASURE - channel input port values - sign convention as (+), space(+), or minus(-)

      ,xxx                                        <reserved>
      ,QTY                                        Quantity
      ,RATE                                       Rate-Value
      ,xxx                                        <reserved>
      ,xxx                                        <reserved>

CHECKSUM
      ,<sum>                                      Negated mod256 sum

PACKET DELIMITER
      <cr><lf>                                    Packet end
```

```
BLOCK DELIMITER
      <dle><etx>                                  Block end
```

C-5 Serial Value Programming

This sub-section is organized into reading and programming values. The <index> value is a numeric designator unique to each programmable value, except Port Type.

C-5-1 Read a Programmed Value

The command below is used to read a single parameter. The parameter is identified by the index number (zz), see Sections C-4-3, C-4-4 and C-4-5 for a list of index values.

```
HOST SEND
      AZ[.xx]P[zz]?<cr>        Non-Network
      AZ[yyyyy.xx]P[zz]?<cr>   Network

RESPONSE
      AZ,yyyyy.xx,4,Pzz,<present value>,<sum><cr><If>
```

A received response indicates that no error was detected.
Response parameters

Parameter Number	Value in Example	Description
1	AZ	response pre delimiter
2	yyyyy	network address of 0254 Read Out device
3	xx	port number
4	4	response type
5	Pzz	zz is the index indicating which parameter is retrieved
6	<present value>	value of retrieved parameter
7	<sum>	check sum
8	<cr>	carriage return character
9	<lf>	line feed character

The example below retrieves the setpoint, i.e. 20.00, for output port 8 channel 4
Request
AZ.08P01?<cr>

Response
AZ,00909.08,4,P01,20.00,DF<cr><if>

C-5-2 Program a New Value

The command below is used to write a single parameter. The parameter is identified by the index number (zz), see Sections C-5-3, C-5-4 and C-5-5 for a list of index values.

```
HOST SEND
      AZ[.xx]P[zz]=<new value><cr>        Non-network
      AZ[yyyyy.xx]P[zz]=<new value><cr>   Network

RESPONSE
      AZ,yyyyy.xx,4,Pzz,<new value>,<sum><cr><If>
```

A correct received response indicates that no error was detected. It is recommended that host software validate the responding message check-sum, followed by the unit message address, port number, value index, and new programmed value, to be certain that the desired value change was programmed successfully.

Response Parameters

Parameter Number	Value in Example	Description
1	AZ	response pre delimiter
2	yyyyy	network address of 0254 Read Out device
3	xx	port number
4	4	response type
5	Pzz	zz is the index indicating which parameter is retrieved
6	<new value>	value of retrieved parameter
7	<sum>	check sum
8	<cr>	carriage return character
9	<lf>	line feed character

The example below configures the setpoint for output port 8 channel 4 to be 10.00.
Request
AZ.08P010.00<cr>

Response
AZ,00909.08,4,P01,10.00,DF<cr><if>

C-5-3 Channel Input Port Values

Port Type is the input signal type and is the first serial character received when programming a new Type. An optional second character may be received after Port Type with a range from 0-2 and has no operational effect. The second character is always returned when Port Type is serially interrogated.

Note that the input and output port signal types have their own set of configuration values. If you use an input port signal type value to configure an output port the 0254 Read Out might not function well. If this is the case you need to configure factory settings again, see Section 3-5-1 in this manual.

Index	Value Title	Value	Range	Notes
0	Port Type			1 or 2 ascii chars with char range 0-2 not affecting proper operation
		0 Off		
		1-6		<reserved>
		7 0-20mA		1 ascii char min
		8 4-20mA		
		9 0-10V		
		: 2-10V		
		; 0-5V		
		< 1-5V		
	Excitation Type			1 ascii char optional
		0-2		<reserved>
Measurement magnitude range				
3	Decimal Point	0 xxx.	1 ascii char	
		1 xx.x		
		2 x.xx		
		3 .xxx		

Character string identifying the physical measurement type

Index	Value Title	Value	Range	Notes
4	Measure Units			fixed indexed strings
		0 ml		
		1 mls		
		2 mln		
		3 l		
		4 ls		
		5 ln		
		6 cm^3		
		7 cm^3s		
		8 cm^3n		
		9 m^3		
		10 m^3s		
		11 m^3n		
		12 g		
		13 lb		
		14 kg		
		15 ft^3		
		16 ft^3s		
		17 ft^3n		
		18 scc		
		19 sl		
		20 bar		
		21 mbar		
		22 psi		
		23 kPa		
		24 Torr		
		25 atm		
		26 Volt		
		27 mA		
		28 oC		
		29 oK		
		30 oR		
		31 oF		
		32 g/cc		
		33 sg		
		34 %		
		35 lb/in^3		
		36 lb/ft^3		
		37 lb/gal		
		38 kg/m^3		
		39 g/ml		
		40 kg/l		
		41 g/l		

Analog interpolator representing the engineering units of the greater measured signal

9	PV Full Scale	xxxxxx	0 to ±999.999	1-7 ascii chars var dp

Measurement per unit time relationship

10	Rate Time Base	0 none (Scalar)		1 ascii char
		1 sec		
		2 min		
		3 hrs		
		4 day		

Scale Factor by which interpolated channel units are multiplied

27	Gas Factor	xxx.xxx	0 to ±999.999	1-7 ascii chars fix dp

C-5-4 Channel Output Port Values

Port Type is the output signal type and is the first serial character received when programming a new Type. An optional second or third character may be received after Port Type with a range of 0-99 and has no operational effect. These characters represent the port number of the linked input and are always returned when Port Type is serially interrogated.

Index	Value Title	Value	Range	Notes
0	Port Type			1 or 2 ascii chars with second or third chars range 0-99 not affecting proper operation
		0 Off 1 0-20mA 2 4-20mA 3 0-10V 4 2-10V 5 0-5V 6 1-5V		1 ascii char min
	Link Input Port	0-99		1 or 2 ascii char optional
Rate (Manual) output set-point				
1	SP Rate xxxxxx		0 to ±999.999	1-7 ascii char var dp
Select output control service				
2	SP Function	1 Rate 2 Batch 3 Blend		1 ascii char
Analog De-Interpolate representing the engineering units of the greatest signal allowed				
9	SP Full Scale	xxxxxx	0 to ±999.999	1-7 ascii char var dp
Valve Override valve state selection				
29	SP VOR		0-2	1 ascii char
		0 Normal 1 Closed 2 Open		tri-state vo < -4V vo > +8V
Batch Delivery Set-Point				
44	SP Batch	xxxxxx	0 to ±999.999	1-7 ascii char var dp
Blend Mixing Set-Point				
45	SP Blend	xxxxxx	0 to ±999.999	1-7 ascii char var dp (automatic % units)
Set-Point Programming Source				
46	SP Source		0-1	1 ascii char
		0 Keypad 1 Serial		keypad prohibit

C-5-5 Global Setting Values

These settings affect all aspects of the system; they are not port or channel associated.

Index	Value Title	Value	Range	Notes
Zero Suppression - ON suppresses leading value zero values				
32	Zero Supress		0-1	1 ascii char
		0 Off		
		1 On		
Power Set-Points Clear - ON causes all channel set-points to become zero				
33	Pwr SP Clear		0-1	1 ascii char
		0 Off		
		1 On		
Audio Annunciate Control - ON enables annunciate key activation and alarms				
39	Audio Beep		0-1	1 ascii char
		0 Off		
		1 On		

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Bulgarian

Основни инструкции Прочетете преди работа!

Brooks Instrument проектира, произвежда и тества продуктите си по такъв начин, че те да отговарят на многобройни национални и международни стандарти. Тези оборудвания трябва правилно да се инсталират, експлоатират и поддържат за да се гарантира, че ще могат да работят съответно на техните нормални спецификации. Следващите инструкции трябва да се спазват и трябва да се включат в програмата за безопасност на труда при инсталирането, експлоатацията и поддръжката на продуктите на Brooks Instrument.

- За да се гарантира характерната производителност, инсталирането, експлоатацията, актуализирането, програмирането и поддръжката на продукта трябва да се извършват само от квалифициран персонал.
- Прочетете всички инструкции преди инсталирането, експлоатацията и поддръжката на продукта. Ако това ръководство не е съответстващото издание, вижте на задната обложка информацията за контакт с местния търговски офис. Запазете това ръководство за по-късно информиране.

⚠ **ВНИМАНИЕ: Не работете с оборудването извън диапазоните, указани в инструкцията и ръководството по експлоатация. Неизпълнението на това може да доведе до сериозни телесни повреди и / или повреждане на оборудването.**

- Ако не разбирате някои инструкциите, свържете се с представителя на Brooks Instrument за изясняване на проблема.
- Спазвайте всички предупреждения, призови и инструкции означени върху оборудването или доставени заедно с него.
- Инсталирайте оборудването съответно на указанията в инструкцията за инсталиране и на действащите на местни и национални предписания. Свързвайте продуктите само към подходящи източници на електричество и налягане.
- Ход: (1) Бавно въведете системата под налягане. Бавно отворете работните клапани за да се избегнат колебанията на потока. (2) Проверете дали няма изтичане при входното и изходното съединение на разходомера. Ако няма изтичане, напълнете системата до работно налягане.
- Преди извършване на поддръжката непременно проверете дали работният тръбопровод не се намира под налягане. Ако са необходими резервни части, с определените от Brooks Instrument резервни части трябва да борави само квалифициран персонал. Неразрешените части и процедури могат да окажат влияние върху работата на продукта, и също да застрашат безопасността на експлоатацията. Заместването с неоригинални части може да доведе до пожар, опасност от токов удар или неправилна работа.
- Всички врати на оборудването непременно да бъдат затворени, а защитните покрития да бъдат на мястото си, за да се избегнат токовите удари и телесните повреди, освен ако квалифицирани специалисти извършват работи по неговото поддържане.

⚠ **ВНИМАНИЕ: При оборудванията с протичащи течности, ако по някаква причина е необходимо да се затворят намиращите се до оборудването изходни и входни клапани, оборудването трябва напълно да се изпразни. Неизпълнението на това може да причини топлинно разширение на течността, което може до спука оборудването и да доведе до телесни повреди.**

Европейска директива за уреди под налягане (PED)

Всички съоръжения под налягане с вътрешно налягане над 0,5 bar (g) и с размер по-голям от 25 mm или 1" (инч), попадат под действието на европейската директива за уреди под налягане (PED).

- Глава „Технически данни" на настоящото ръководство съдържа свързаните с директивата PED инструкции.
- Указаните в настоящото ръководство измерителни уреди съответстват на европейската директива 97/23/ЕО.
- Всички разходомери на Brooks Instrument се отнасят към флуиди от група 1.
- Измерителните уреди по-големи от 25 mm или 1" (инч) съответстват на I, II или III категория според PED.
- Измерителните уреди с размери 25 mm или 1" (инч), или по-малки, следват добрата инженерна практика (SEP).

Европейска директива за електромагнитна съвместимост (EMC)

Носещото знака CE (електрическо/електронно) оборудване на Brooks Instrument е изпълнило успешно тестовете за проверка на изискванията за електромагнитна съвместимост (директива EMC 89/336/ЕИО).
Особено внимание трябва да се обръща обаче на избирането на сигналните кабели, използвани с оборудването, носещо знака CE.
Качество на сигналните кабели, кабелните салници и съединители:
Brooks Insturment предлага висококачествени кабели, отговарящи на изискванията на CE сертификацията.
Ако използвате собствен сигнален кабел, трябва да изберете такъв, който е напълно защитен със 100%-ово екраниране.
Съединителите тип „D" или „кръгов" трябва да бъдат екранирани с метален щит. При необходимост за фиксирането на щита на кабела трябва да се използват метални кабелни салници.
Щитът на кабела трябва да се свърже с металното покритие или металния салник и в двата края да се екранира в 360°. Щитът трябва да бъде заземен.
Съединителите за печатни платки са стандартно неметални. Използваните кабели трябва да бъдат защитени със 100%-ово екраниране, за да отговарят на CE сертификацията.
Щитът трябва да бъде заземен.
Конфигурация на контактите: Виж приложената инструкция за експлоатация.

Електростатичен разряд (ESD)

⚠ **ВНИМАНИЕ: Приборът съдържа електронни компоненти, които са чувствителни към статичното електричество и могат да се повредят от него. Трябва да се спазват съответните процедури по време на изваждане, слагане или друго боравене с вътрешните монтажни платки и устройства.**

Процедура за работа:

1. Изключете оборудването.
2. Персоналът трябва да се заземи с гривна или друго безопасно и подходящо за целта средство, преди да инсталира, изважда или регулира монтажна платка или друго вътрешно устройство.
3. Печатните монтажни платки трябва да се транспортират в проводяща опаковка. Печатните платки могат да се изваждат от защитното покритие само непосредствено преди инсталирането. Отстранените печатни платки незабавно трябва да се сложат в защитна опаковка, служеща за транспортиране, складиране или връщане на производителя.

Забележки:
Не е уникално явление, че този прибор съдържа чувствителни към електростатичния заряд (ESD) компоненти. Болшинството от съвременните електронни прибори съдържат компоненти, изготвени по технология метал-окис (NMOS, SMOS и т.н.). Опитът доказва, че даже и малко количество статическо електричество може да повреди или съсипе тези прибори. Повредените компоненти даже ако привидно работят правилно, проявяват начални неизправности.

Czech

Základní instrukce
Před instalací si přečtěte následující instrukce!

Společnost Brooks Instrument konstruuje, vyrábí a testuje tento produkt tak, aby splnil mnoho národních a mezinárodních standardů. Přístroje musí být řádně nainstalovány, používány a udržovány tak, aby byl zajištěn jejich nepřetržitý provoz v rámci normálních technických specifikací. Musíte dodržovat následující pokyny a integrovat jejich obsah do svého bezpečnostního programu při instalování, používání a udržování produktů společnosti Brooks.

- Pro zajištění správné funkce zařízení mohou jeho instalaci, obsluhu, programování, údržbu a aktualizace firmwaru provádět výhradně kvalifikované osoby.
- Před instalací, provozem a údržbou produktu si prostudujte všechny pokyny. Pokud tato příručka není tou správnou příručkou pro dané zařízení, informujte se na zadní straně obálky o kontaktu na místní prodejní kancelář. Uchovejte si tuto příručku pro pozdější potřebu.

⚠UPOZORNĚNÍ: Neprovozujte zařízení v rozsahu mimo daný rozsah v provozní příručce. Porušení tohoto upozornění může mít za následek vážné újmy na zdraví a vést k poškození zařízení.

- Pokud některým pokynům nerozumíte, kontaktujte svého prodejního zástupce společnosti Brooks a vyžádejte si objasnění.
- Dodržujte všechny výstrahy, upozornění a pokyny, uvedené a vyznačené na produktu, nebo s ním dodané.
- Namontujte zařízení specifikovaným způsobem podle správné montážní příručky a podle platných místních a národních předpisů. Připojte všechny produkty ke správným zdrojům elektrické energie a stlačených médií.
- Postup: (1) Pomalu do systému přivádějte médium. Pro zabránění vzniku rázů v systému otvírejte procesní ventily postupně. (2) Překontrolujte těsnost vstupního a výstupního připojení průtokoměru. Pokud nezjistíte žádné netěsnosti, postupně zvedejte tlak na provozní hodnotu.
- Před prováděním servisních prací zkontrolujte, zda systém není pod tlakem. V případě potřeby výměny dílů zajistěte, aby byly použity náhradní součásti specifikované společností Brooks Instrument a výměnu prováděla kvalifikovaná osoba. Použití neschválených dílů a postupů může negativně ovlivnit efektivitu a bezpečnost procesu. Použití náhrad za originální díly může způsobit požár, úraz elektrickým proudem nebo nesprávnou funkci.
- Pokud není zrovna prováděna údržba kvalifikovanou osobou, ujistěte se, že zařízení je opatřeno všemi předepsanými kryty.

⚠UPOZORNĚNÍ: Pokud je u zařízení s průtokem kapalin nutno z jakéhokoli důvodu uzavřít vstupní a výstupní ventily, je nutné zařízení kompletně vyprázdnit. Pokud tak neučiníte, může z důvodu teplotní roztažnosti zbytků média v zařízení dojít k jeho poškození nebo k ohrožení zdraví osob.

Evropská směrnice pro tlakové zařízení (PED)

Na veškerá tlaková zařízení s vnitřním tlakem vyšším než 0,5 baru (g) a velikosti větší než 25 mm nebo 1" (palec) se vztahuje platnost směrnice o tlakovém zařízení (PED).
Kapitola „Technické údaje“ v této příručce obsahuje důležité bezpečnostní a provozní pokyny související se směrnicí PED.

- Měřicí přístroje popsané v této příručce jsou v souladu se směrnicí EN 97/23/ES.
- Všechny průtokoměry společnosti Brooks Instrument spadají do rámce Kapaliny, skupina I.
- Měřicí přístroje větší než 25 mm nebo 1" (palec) jsou v souladu se směrnicí PED, kategorii I, II nebo III
- Měřicí přístroje s velikostí 25 mm nebo 1" (palec) a menší spadají do rámce Správných technických postupů (SEP).

Evropská směrnice pro elektromagnetickou kompatibilitu (EMC)

Elektrické/elektronické zařízení Brooks Instrument nesoucí značku CE bylo úspěšně testováno dle předpisů pro elektromagnetickou kompatibilitu (směrnice EMC č. 89/336/EHS).
Výběru signálních kabelů pro použití se zařízením označeném CE je nutné věnovat zvláštní pozornost.
Kvalita signálních kabelů, kabelových průchodek a konektorů:
Brooks Instrument dodává vysoce jakostní kabely splňující požadavky kvalitativního zařazení CE. Pokud chcete použít vlastní signální kabely, zvolte typy s kvalitním stíněním všech žil a v celé délce trasy.
V případě použití konektorů kruhových nebo tvaru „D“, musí mít tyto kovové stínění. V případě jejich použití, musí kovové kabelové průchodky být propojeny se stíněním kabelu.
Stínění by mělo být připojené ke kovovému tělesu přístroje nebo krytu, na obou koncích kabelu a po celém jeho obvodu.
Stínění by mělo být uzemněno.
Přípojky vedoucí ke kartám podle norem jsou nekovová. Pro splnění požadavků předpisů CE musí být použité kabely kompletně stíněny.
Stínění by mělo být uzemněno.
Konfigurace kontaktů je uvedena v přiloženém návodu k obsluze.

Elektrostatický výboj (ESD)

⚠UPOZORNĚNÍ: Tento přístroj obsahuje komponenty citlivé na poškození statickou elektřinou. Při montáži, demontáži či jiné manipulaci s vnitřními elektronickými obvody je potřeba dodržovat příslušné postupy.
Postup ošetřování:

1. Odpojte přístroj od napájení.
2. Osoba provádějící údržbu má být při instalaci, vyjímání či práci na desce plošných spojů nebo jiné vnitřní elektronice uzemněna zemnícím náramkem, nebo jiným vyhovujícím způsobem.
3. Desky plošných spojů je nutné přepravovat v elektricky vodivém obalu. Plošné spoje vyjímejte z vodivého obalu až bezprostředně před instalací do přístroje! Plošné spoje vyjmuté z přístroje a určené pro další využití, opět neprodleně umístěte do ochranného obalu.

Poznámky:
Existence prvků, citlivé na elektrostatické výboje (ESD) v přístrojích je častým jevem. Prvky s technologií oxidu kovů (NMOS,SMOS) jsou používány u většiny moderních elektronických zařízení. Zkušenosti dokazují, že i jen malé elektrostatické výboje mohou poškodit nebo zničit tyto zařízení. U poškozených součástek, jakkoli zdánlivě pracujících bezchybně, dochází brzy k poruše.

Dansk

Grundlæggende vejledninger Læs disse før anvendelse!

Brooks Instruments designer, fremstiller og afprøver sine produkter således, at de tilpasser sig både de indenrigs og internationale standarder. Disse udstyr bør installeres, bruges og repareres omhyggeligt, så at de kan virke tilsvarende deres normale anvendelsesperiode. De følgende regler skal overholdes og implementeres under installeringen samt ved brug og reparation.

- For at garantere den passende kapacitet, er udstyrets installation, anvendelse, opdatering, programmering kun tilladt for kvalificeret personale. Alle vejledninger skal læses før produktets installation, anvendelse og reparation.
- Hvis denne manual ikke er den passende udgave, kontakt venligst jeres leverandør for yderligere information.
- Det anbefales at gemme denne manual for senere brug.

⚠ OBS.: Udstyret må ikke anvendes til andet end det er angivet i brugsanvisningen. Hvis denne regel brydes, kan der forekomme alvorlige personskader eller brist på udstyret.

Hvis vejledningerne ikke er forståelig, kontakt venligst Deres Brooks repræsentant for at afklare problemet som er opstået.

- Overhold alle regler, som er markeret eller leveret sammen med udstyret.
- Installer udstyret efter den angivne installationsvejledning og gældende lovgivning for anvendelsesområde. Udstyret må kun tilsluttes med kabler og stik som overholder kravspecifikationerne i vejledningen.
- Ibrugtagning: (1) Åbn langsomt for trykket i systemet.. Åbn langsomt for alle procesventiler for at forhindre ustabil gas flow. (2) Tjek systemet for lækage ved tilsluttet måleinstrumenter, samlinger og andet tilsluttet udstyr. Derefter øg trykket i systemet indtil arbejdstrykket er opnået.
- Før reparation tjek altid at procesledningen ikke står under tryk. Hvis der er brug for at udskifte defekte dele må kun kvalificeret personale udføre arbejdet og af sikkerhedsmæssige årsager må der kun anvendes originale Brooks reservedele. Det er ikke tilladt at anvende reservedele eller udføre arbejde der på nogen måde kan ændre produktet fra dens oprindelige specifikationer. Manglende overholdelse af de foreskrevne procedurer kan resultere i brænd, og fare for elektrisk stød eller kortslutning.
- Af sikkerhedsmæssige årsager sørg for at alle sikkerhedsforanstaltninger er overholdt. Eksempelvis at alle afskærmninger eller anden form for installationsbeskyttelse er lukket eller installeret ved normal drift.

⚠ Advarsel.: Ved brug af udstyr som anvendes til væske skal det sikres at indgangsventilen og udgangsventilen ikke bliver lukket på samme tid i forbindelse med aftapning. Såfremt dette ikke overholdes, er der risiko for at væsken på grund af varmeudvikling ekspanderer og dette kan forårsage skade på udstyr og personer.

Det Europæiske direktiv for trykudstyr (PED)

På alt udstyr hvis indgangstryk er større end 0,5bar (g) og større end 25 mm eller en tomme, gælder det europæiske direktiv for trykapparater. Manualens afsnit "tekniske data" indeholder anvisninger om PED direktivet.

- I manualen angives måleinstrumenter der er tilpasset direktivet 97/23/EK EU.
- Alle Brooks gennemstrømningsmålere tilhører væskegruppen nr. 1.
- Alle målinstrumenter som er større end 25 mm eller en tomme beskrives i direktivet PED´s kategorier I, II eller III.
- Alle målinstrumenter som er på 25 mm eller en tomme, eller mindre, beskrives i Sound Engineering Practice (SEP).

Det europæiske direktiv for elektromagnetisk kompatibilitet (EMC)

Alle Brooks instrumenter (elektrisk/elektronisk) som har CE markering er godkendt og testet ifølge direktiv nr. 89/336/EGK EMC om elektromagnetiske kompatibilitets forskrifter.
OBS: Man skal være opmærksom på hvilken type kabler der bruges til CE mærket udstyr..

Om kvalitet af signalkabler, kabeltilslutninger og koblinger:
Brooks tilbyder kabler af højest kvalitet, som er tilpasset CEE kvalificeringens forskrifter. Hvis man vælger at bruge egne kabler, skal man vælge et kabel som har den nødvendige afskærmning for at sikre 100 % mod udefra kommende støj.
Tilslutningerne "D" eller rundformede tilslutninger skal være afskærmet med skal af metal.
Stikket skal være afskærmet på alle sider. Al afskærmning skal jordes..
Card Edge tilslutninger er ifølge standarden ikke metalliske.. De anvendte kabler og stik skal være 100 % afskærmet for at opfylde CE kravene.. De skal ligeledes jordes.
For stik konfigurationen se vedlagte brugsvejledning.

Elektrostatisk afladning (ESD)

⚠ OBS.: Udstyret indeholder tilbehør som kan skades ved elektrostatisk elektricitet. Alle forskrifter skal overholdes ved kontakt med alle elektriske komponenter både under drift og vedligeholdelse..

Behandlingsproceduren:

1. Sluk for al strømtilførsel til udstyret.
2. Personer som skal i kontakt med udstyret skal være jordet eller bære anden form for elektrisk beskyttende udstyr Manglende overholdelse af dette kan medføre skader på alle elektriske komponenter.
3. Alle elektriske komponenter skal opbevares eller transporteres i deres originale indpakning for at sikre komponenter mod statiske elektriske skader. Emballagen må ikke åbnes før komponenten skal installeres i udstyret. Ved afslutning af vedligeholdelse/reparation af udstyret, skal udstyret installeres med det samme eller pakkes forsvarligt hvis det skal på lager eller transporteres.

Bemærkninger:
Dette udstyr er ikke unik i den hensigt, at det indeholder for elektrostatisk afladning (ESD) sensitive reservedel. I de fleste elektronisk udstyr findes der metaloxyd teknologiske reservedel (NMOS, SMOS m.m.). Erfaringerne viser at selv den mindste statiske elektricitet kan skade, eller ødelægge disse instrumenter. Selv en fungerende elektrisk del kan have levetiden markant reduceret på grund af statisk elektricitet..

Dutch

Essentiële instructies
Lees ze voordat u verder gaat!

Brooks Instrument ontwerpt, produceert en test haar producten zodanig dat ze voldoen aan vele nationale en internationale normen. Deze producten moeten correct worden geïnstalleerd, bediend en onderhouden zodat ze binnen hun normale specificaties blijven werken. De volgende instructies moeten worden toegevoegd aan en geïntegreerd in uw veiligheidsprogramma als u producten van Brooks Instrument installeert, bedient en onderhoudt.

- Om de juiste prestaties te kunnen garanderen mag alleen gekwalificeerd personeel het product installeren, bedienen, updaten, programmeren en onderhouden.
- Lees alle instructies voordat u het product gaat installeren, bedienen en onderhouden. Als dit niet de juiste handleiding is, kijk dan op de achterzijde voor contactinformatie van uw vertegenwoordiger. Bewaar deze handleiding voor later.

WAARSCHUWING: gebruik dit instrument niet als niet is voldaan aan de specificaties in de handleiding. Het niet naleven van deze waarschuwing kan ernstig letsel en/of schade aan de apparatuur tot gevolg hebben.

- Als u één of meer instructies niet begrijpt, vraag dan om uitleg aan uw vertegenwoordiger van Brooks Instrument.
- Neem alle waarschuwingen, voorschriften en instructies in acht die op het product zijn aangebracht of bij het product zijn geleverd.
- Installeer uw apparatuur volgens de instructies in de bijgeleverde handleiding en in overeenstemming met de geldende lokale en nationale voorschriften. Sluit alle producten aan op de juiste elektrische voedings- en drukbronnen.
- Bediening: (1) Laat het systeem langzaam volstromen. Open de procesafsluiters langzaam om drukstoten te voorkomen. (2) Controleer op lekkages rondom de inlaat- en uitlaataansluitingen van de stromingsmeter. Als er geen lekkages zijn, kan het systeem op de bedrijfsdruk worden gebracht.
- Zorg ervoor dat de procesleiding drukvrij is gemaakt voordat u servicewerkzaamheden gaat uitvoeren. Als vervangingsonderdelen nodig zijn, zorg er dan voor dat gekwalificeerd personeel de door Brooks Instrument gespecificeerde vervangingsonderdelen gebruikt. Niet goedgekeurde onderdelen en procedures kunnen de prestaties van het product en de veilige werking van uw proces in gevaar brengen. Niet goedgekeurde vervangingsonderdelen kunnen brand, elektrische schokken of een onjuiste werking tot gevolg hebben.
- Zorg ervoor dat alle deksels van de apparatuur gesloten zijn en de afdekkingen gemonteerd zijn om elektrische schokken en lichamelijk letsel te voorkomen, behalve als gekwalificeerd personeel de onderhoudswerkzaamheden uitvoert.

WAARSCHUWING: bij vloeistofstroomapparaten waarvan de inlaat- en uitlaatkleppen om welke reden dan ook gesloten zijn, moet de vloeistof volledig worden afgetapt. Als dat wordt nagelaten, kan dit leiden tot thermische expansie van de vloeistof waardoor het apparaat kan barsten en lichamelijk letsel kan veroorzaken.

PED-richtlijn (Pressure Equipment Directive)

Alle drukapparatuur met een interne druk van meer dan 0,5 barg en een diameter van meer dan 25 mm valt onder de PED-richtlijn.

- In het hoofdstuk Specificaties van deze handleiding staan aanwijzingen die verband houden met de PED-richtlijn.
- De meters die in deze handleiding worden beschreven, voldoen aan de Europese richtlijn 97/23/EG.
- Alle stromingsmeters van Brooks Instrument vallen in groep 1.
- Meters met een diameter van meer dan 25 mm voldoen aan de categorieën I, II of III van de PED-richtlijn.
- Meters met een diameter van 25 mm of kleiner voldoen aan de regels van goed vakmanschap.

Elektromagnetische compatibiliteit (EMC)

De elektronische apparatuur van Brooks Instrument met de CE-markering is succesvol getest in overeenstemming met de EMC-voorschriften volgens richtlijn 89/336/EEG.
De keuze van de signaalkabel voor gebruik in combinatie met apparatuur met CE-markering verdient speciale aandacht.
Kwaliteit van de signaalkabel, kabelafdichtingen en stekkers:
Brooks Instrument levert hoogwaardige kabels die voldoen aan de specificaties voor de CE-markering.
Als u zelf voor signaalkabel zorgt, moet u altijd een volledig afgeschermde kabel gebruiken.
Stekkers van het type “D” of ronde stekkers moeten zijn voorzien van een metalen afscherming. Indien nodig moeten metalen kabelafdichtingen worden gebruikt waarvan de afscherming voor het klemmen van de kabel kan worden gebruikt.
Het kabelscherm moet met het metalen omhulsel of de metalen afdichting worden verbonden en aan beide uiteinden rondom volledig worden afgeschermd.
De afscherming moet aan de aardpotentiaal worden aangesloten.
Card Edge Connectors zijn standaard niet van metaal. De gebruikte kabels moeten volledig zijn afgeschermd om te voldoen aan de CE-markering.
De afscherming moet aan de aardpotentiaal worden aangesloten.
Voor de pinconfiguratie: Raadpleeg de bijgevoegde handleiding.

Elektrostatische ontlading

VOORZICHTIG: Dit instrument bevat elektronische componenten die gevoelig zijn voor statische elektriciteit. Neem de juiste procedures in acht bij het verwijderen en installeren of bij andere werkzaamheden aan de interne printplaten of apparaten.
Procedure:
1. Schakel de voeding van de eenheid uit.
2. Het personeel moet zich met een polsbandje of ander veilig en geschikt hulpmiddel aarden voordat een printplaat of ander intern apparaat mag worden geïnstalleerd, verwijderd of aangepast.
3. Printplaten moeten in een geleidende verpakking worden vervoerd. De platen mogen pas vlak voor de eigenlijke installatie uit de beschermende verpakking worden gehaald. Verwijderde printplaten moeten onmiddellijk in de beschermende verpakking worden geplaatst om te worden getransporteerd, opgeslagen of teruggestuurd naar de fabriek.

Opmerkingen
Dit instrument is niet uniek als het gaat om componenten die gevoelig zijn voor elektrostatische ontlading. De meeste moderne elektronische apparaten bevatten componenten die gebruik maken van de metaaloxidetechnologie (NMOS, SMOS, enz.). Uit ervaring blijkt dat zelfs kleine hoeveelheden statische elektriciteit deze apparaten al dan niet onherstelbaar kunnen beschadigen. Beschadigde componenten, zelfs als ze goed lijken te functioneren, raken eerder defect.

Estonian

Olulised juhised
Enne kasutamist lugege hoolikalt läbi!

Brooks Instrument konstrueerib, valmistab ja katsetab oma tooteid selliselt, et need vastaksid paljude erinevate riiklike ja rahvusvaheliste standardite nõuetele. Ainult nõuetekohane paigaldamine, kasutamine ja hooldamine tagab toodete katkematu talitluse tavaspetsifikatsiooni raames. Brooks Instrument'i toodete paigaldamisel, kasutamisel ja hooldamisel tuleb täita alljärgnevaid juhiseid ja integreerida need asjakohasesse ohutusprogrammi.

- Nõuetekohase talitluse tagamiseks tohib toodet paigaldada, kasutada, täiustada, programmeerida ja hooldada ainult kvalifitseeritud personal.
- Enne toote paigaldamist, kasutamist ja hooldamist lugege kõik kasutusjuhised hoolikalt läbi. Kui käesolev kasutusjuhend ei vasta teie tootele, pöörduge kohaliku edasimüüja poole, kelle kontaktandmed leiate kasutusjuhendi tagakaanelt. Hoidke see kasutusjuhend edaspidiseks alles.
  ⚠ HOIATUS: ärge kasutage seda instrumenti väljaspool kasutusjuhendis spetsifitseeritud piirväärtusi. Selle hoiatuse eiramine võib põhjustada tõsiseid kehavigastusi ja/või kahjustada seadet.
- Kui te saa mõne juhise mõttest aru, pöörduge selgituste saamiseks kohaliku Brooks Instrument'i edasimüüja poole.
- Järgige kõiki hoiatusi, tähelepanule manitsusi ja juhiseid, mis on tootele peale kantud või tootega kaasa antud.
- Seadme paigaldamisel järgige vastavas kasutusjuhendis toodud paigaldusjuhiseid ning asjakohaseid kohalikke ja riiklikke eeskirju. Ühendage tooted nõuetekohaste toite- ja surveallikatega.
- Talitlus: (1) Avage aeglaselt vool süsteemi. Vooluimpulsside vältimiseks avage tööventiilid aeglaselt. (2) Kontrollige, et voolukulumõõturi sisend- või väljundühenduste ümber ei ole lekkeid. Kui lekkeid ei ole, laske süsteemil saavutada töösurve.
- Enne seadme hooldamist veenduge, et kogu süsteem on surve alt vabastatud. Varuosasid tohib vahetada ainult kvalifitseeritud personal, kasutades selleks Brooks Instrument'i poolt heakskiidetud varuosi. Mitteoriginaalvaruosade kasutamine ja ebapädev toimingute tegemine võivad kahjustada toote tööomadusi ja põhjustada riski tootmistegevuse ohutuse tagamisel. Originaalvaruosadele sarnaste osade kasutamine võib põhjustada tule- või elektrilöögiohtu või seadme väärtalitlust.
- Elektrilöögi- ja vigastuseohu vältimiseks peavad seadme luugid olema alati suletud ja kaitsekatted oma kohal, va seadme hooldamisel kvalifitseeritud isikute poolt.
  ⚠ HOIATUS: voolava vedelikuga seadmete kasutamisel – kui seadmega külgnevad sisend- ja väljundklapid on vaja mingil põhjusel sulgeda, tuleb seadmed vedelikust täiesti tühjaks lasta. Vastasel korral võib vedelik soojuse mõjul paisuda niivõrd, et seade puruneb. See võib põhjustada tõsiseid kehavigastusi.

Euroopa surveseadmete direktiiv (PED)

Euroopa surveseadmete direktiiv kohaldub kõikidele surveseadmetele, mille sisesurve on üle 0,5 baari (g) ja läbimõõt üle 25 mm või 1 tolli.

- Käesoleva kasutusjuhendi spetsifikatsiooniosa sisaldab surveseadmete direktiiviga seonduvaid juhiseid.
- Käesolevas kasutusjuhendis kirjeldatud mõõturid vastavad EN direktiivi 97/23/EÜ nõuetele.
- Brooks Instrument'i voolukulumõõturid kuuluvad vedelike 1. gruppi.
- Mõõturid läbimõõduga üle 25 mm või 1 tolli vastavad surveseadmete direktiivi kategooriale I, II või III.
- Mõõturitele läbimõõduga alla 25 mm või 1 tolli kohaldatakse häid inseneritavasid.

Euroopa elektromagnetilise ühilduvuse direktiiv (EMÜ)

Brooks Instrument'i (elektrilised/elektroonilised) seadmed, millele on omistatud CE-tähis, on edukalt läbinud asjakohased katsed ja vastavad elektromagnetilise ühilduvuse nõuetele (EMÜ direktiiv 2004/108/EC (89/336/EMÜ)).
Kuid signaalkaabli valimisel on vaja pöörata suurt tähelepanu CE-tähisega seadmetele.

Signaalkaabli, läbiviigutihendite ja konnektorite kvaliteet

Brooks Instrument turustab kõrgekvaliteedilisi kaableid, mis vastavad CE-sertifikaadi nõuetele.
Olemasoleva kaabli kasutamisel jälgige, et kaabel oleks täielikult ümbritsetud varjestusega.
„D" või „Ring"-tüüpi konnektorid peavad olema varustatud metallvarjestusega. Kus kohaldatav, tuleb kasutada metallist läbiviike, mis tagavad kaabli varjestuse ühenduse.
Kaabli varjestus ühendatakse metallkesta või läbiviigutihendiga ja on mõlemast otsast kaitstud 360° ulatuses.
Varjestus peab olema maandatud.
Mikroskeemide servaühendused on üldjuhul mittemetallist. Vastavuse tagamiseks CE-sertifikaadi nõuetele peavad kasutatud kaablid olema 100% varjestatud.
Varjestus peab olema maandatud.
Klemmide konfigureerimine: vt komplekti kuuluvat kasutusjuhendit.

Elektrostaatiline laeng

⚠ TÄHELEPANU: seade sisaldab staatilise elektri suhtes tundlikke elektroonikakomponente. Seadmesse paigaldatud trükkplaatide eemaldamisel ja paigaldamisel, samuti trükkplaadi või seadmega muude toimingute teostamisel järgige nõuetekohase käsitsemise juhiseid.

Käsitsemisjuhised

1. Lahutage seade toiteallikast.
2. Enne trükkplaadi või mõne muu siseelemendi paigaldamist, eemaldamist või konfigureerimist peab personal olema maandatud läbi randmepaela või mõne muu sobiva vahendi.
3. Trükkplaate transporditakse voolujuhtivas konteineris. Võtke trükkplaat kaitsvast konteinerist välja vahetult enne selle paigaldamist. Seadmest eemaldatud trükkplaadid tuleb viivitamatult asetada kaitsvasse konteinerisse kas siis edasiseks transportimiseks, hoiustamiseks või tehasesse tagasisaatmiseks.

Kommentaarid

See seade ei ole ainus, mis sisaldab staatilise elektri suhtes tundlikke elemente. Enamik kaasaegsetest elektroonikaseadmetest sisaldavad komponente, mille valmistamiseks on kasutatud metalloksiidtehnoloogiat (NMOS, SMOS jne). Kogemused näitavad, et isegi väike kogus staatilist elektrit võib neid seadmeid kahjustada või isegi hävitada. Kuigi võib näida, et kahjustatud komponendid töötavad nõuetekohaselt, hakkavad talitlushäired ilmnema juba varakult.

Finnish

Perusohjeet
Lue ensin ohjeet huolellisesti!

Brooks Instrument suunnittelee, valmistaa ja testaa laitteensa vastaamaan useimpien kotimaisten ja kansainvälisten standardien vaatimuksia. Tuotteet tulee asentaa, käyttää ja huoltaa käyttöohjeiden mukaan jotta niiden toimivuus taataan. Brooks Instrumentin laitteiden asennuksessa, käytössä ja huollossa on noudatettava soveltuvia määräyksiä ja ohjeita, lisäksi mainitut ohjeet on huomioitava työsuojelun ohjeistuksessa.

Oikean toiminnan varmistamiseksi vain valtuutettu huoltohenkilö saa asentaa, käynnistää, päivittää, ohjelmoida ja huoltaa laitteita.
Lue kaikki käyttöohjeet koskien tuotteen asennusta, käyttöä ja huoltoa. Jos käyttöohje on puutteellinen, lisätietoja saa paikalliselta jälleenmyyjältä. Yhteystiedot löytyvät oppaan kansilehdestä. Säilytä ohjeet.

⚠ **VAROITUS!: Käyttöohjeessa ilmoitettujen standardien mukaisia ohjeita ja raja-arvoja ei saa ylittää. Rajoitusten laiminlyönti voi aiheuttaa tuotteen rikkoutumisen ja/tai vakavan henkilövahingon vaaran.**

- Jos ohjeissa on epäselvyyttä, ota yhteyttä Brooks Instrumentin edustajaan ongelman selvittämiseksi.
- Noudata kaikkia laitteessa olevia tai siihen liittyviä ohjeita, määräyksia ja varoituksia.
- Laittteen asennuksessa on noudatettava erityisiä asennusohjeita sekä voimassa olevia paikallisia ja kansainvälisiä määräyksiä. Laitteet saa yhdistää vain soveltuvaan sähkö- ja paineverkkoon.
- Asennusohjeita: (1) Päästä virtaus hitaasti järjestelmään. Avaa venttiilit hitaasti, jotta virtaus pysyy tasaisena. (2) Tarkista, ettei virtausmittarin sisään- ja ulosmenon vieressä ole vuotoa. Jos järjestelmässä ei ole vuotoa, aseta oikea käyttöpaine.
- Tarkista, että laitteeseen menevä paine on katkaistu ennen laitteen korjaamista välttääksesi äkillisen painepäästön aiheuttaman loukkaantumisriskin. Mahdollisten varaosien tulee olla Brooks Instrumentin hyväksymiä. Vain valtuutettu huoltohenkilö saa asentaa varaosat. Ei-hyväksyttyjen varaosien käyttö voi vahingoittaa tuotteen toimintaa ja aiheuttaa turvallisuusriskin. Samoin ei-hyväksyttyjen varaosien käyttö voi aiheuttaa tulipalon, sähköiskun tai virhetoiminnan riskin.
- Varmista että kaikki kaikki laitteen ovet/luukut ovat suljettuina ja tarkista että suojakannet ovat paikoillaan estääksesi mahdollisen sähköisku- ja loukkaantumisvaaran.

⚠ **VAROITUS!: Jos järjestelmässä virtaa neste ja laitteen sisään- ja ulosmenoventtiilit pitää sulkea, laite on ensin tyhjennettävä kokonaan. Tyhjentämisen laiminlyönti aiheuttaa nesteen lämpölaajenemista, joka saattaa johtaa laitteen rikkoutumiseen ja henkilövahingon vaaraan.**

Eurooppalainen painelaitedirektiivi (PED)

Painelaitteet, joidenpaine on suurempi kuin 0,5 bar ja joiden koko on suurempi kuin 25 mm tai 1 tuuma , kuuluvat eurooppalaiseen painelaitedirektiiviin (PED).

- PED direktiiviä koskevat määräykset löytyvät käyttöoppaan ''Tekniset tiedot" -luvusta.
- Käyttöoppaassa kuvatut mittarit ovat 97/23/EC EU-direktiivin mukaisia.
- Kaikki Brooks Instrumentin virtausmittarit kuuluvat virtausryhmään 1. Laitteet jotka ovat suurempia, kuin 25 mm tai 1 tuuma, ovat PED I, II, III kategorien mukaisia.
- Mittarit joiden koko on alle 25 mm tai 1 tuuma ovat hyvän konepajakäytännön (SEP) mukaisia.

Eurooppalainen direktiivi sähkömagneettisesta yhteensopivuudesta (EMC)

Brooks Instrumentin CE-merkin saaneet (sähkö/sähköiset) laitteet täyttävät EMC direktiivin vaatimukset ja testit sähkömagneettisesta yhteensopivuudesta (2004/108/EC (no. 89/336/EGK EMC direktiivi)).
Erityistä huomioita on kiinnitettävä CE-merkittyjen laitteiden käytössä olevien kaapelien valintaan.
Kaapelien, kiinnikkeiden ja liittimien laatu:
Brooks Insturmentin kaapelit ovat korkealaatuisia ja täyttävät CE-merkintä direktiivin vaatimukset.
Muun valmistajan kaapelia käytettäessä on käytettävä 100% suojattua kaapelia.
Liittimien tulee olla häiriösuojattua tyyppiä. Tarvittaessa käytetään metallisia kiinnikkeitä kaapelin suojuksen kiinnittämiseen. Kaapelin suojakuoren pitää olla yhdistettynä metallisuojukseen tai laippaan ja sen pitää olla molemmista päistä suojattuna 360°. Suojaus päättyy maadoitukseen.
Standardin mukaan korttien liittimet eivät ole metallisia. Käytettyjen kaapelien suojaus on oltava 100%, jotta se täyttäisi CE-merkinnän direktiivin vaatimukset.
Suojaus päättyy maadoitukseen.
Napojen järjestys: Katso liitteenä oleva käyttöopas.

Elektrostaattinen purkaus (ESD)

⚠ **VAROITUS!: Tuote sisältää elektroniikkakomponentteja jotka voivat vahingoittua staattisesta sähköstä. Sisäisten piirilevyjen purkamisessa,asennuksessa ja käsittelyssä tulee noudattaa kaikkia määräyksiä ja ohjeita.**

Asennusohjeet:

1. Järjestelmän sähköt katkaistaan.
2. Laitteen kanssa työskentelevä henkilö on suojattava sähköiskuilta rannehihnalla tai muulla suojavarustuksella ennen piirilevyn tai muun sisäosan asennusta, poistamista tai korjaamista.
3. Piirilevyt kuljetetaan konduktiivisessa pakkauksessa. Piirilevyt puretaan paketista juuri ennen asennusta. Poistettu piirilevy on heti pakattava soveltuvaan suojapakkaukseen kuljettamista, varastoimista tai palautusta varten.

Huomautukset:
Tuotteen herkkyys elektrostaattiselle purkaukselle (ESD) ei ole epätavallista. Suurin osa elektroniikkatuotteista sisältää komponentteja jotka hyödyntävät metallioksidiitekniikkaa (NMOS, SMOS jne.) Kokemusten mukaan pienikin elektrostaattinen purkaus voi aiheuttaa laitteiden virhetoiminnan tai vahingoittumisen. Vahingoittuneet komponentit saattavat aiheuttaa laitteen ennenaikaisen rikkoutumisen vaikka laite näyttäisi toimivan normaalisti.

French

Instructions essentielles
A lire avant de commencer !

Brooks Instrument conçoit, fabrique et teste ses produits pour répondre à de nombreuses normes nationales et internationales. Ces produits doivent être correctement installés, utilisés et entretenus pour pouvoir fonctionner dans le cadre de leurs spécifications normales. Les instructions qui suivent doivent être respectées et intégrées à votre programme de sécurité lors de l'installation, l'utilisation et l'entretien des produits Brooks Instrument.

- Afin d'assurer un fonctionnement correct, faites appel à du personnel qualifié pour l'installation, l'utilisation, la mise à jour, la programmation et l'entretien du produit.
- Lisez toutes les instructions avant l'installation, l'utilisation et l'entretien du produit. Si le présent manuel d'utilisation n'est pas le bon, consultez la dernière page de la couverture pour connaître le point de vente le plus proche. Conservez ce manuel d'utilisation pour pouvoir vous y reporter par la suite.

AVERTISSEMENT : n'utilisez pas cet instrument au-delà des spécifications énumérées dans le manuel d'utilisation.
Le non-respect de cet avertissement peut entraîner de graves blessures et / ou endommager l'équipement.

- Si vous ne comprenez pas l'une des instructions, prenez contact avec un représentant de Brooks Instrument pour obtenir des explications.
- Tenez compte de tous les avertissements, précautions et instructions marquées sur le produit et fournies avec celui-ci.
- Installez votre équipement de la façon indiquée dans les instructions d'installation du manuel d'utilisation et conformément à la législation en vigueur au niveau local et national. Branchez tous les produits aux sources d'électricité et de pression agréées.
- Utilisation : (1) Faites lentement entrer le débit dans le système. Ouvrez progressivement les vannes de procédé pour éviter des pics de débits. (2) Vérifiez qu'il n'y a pas de fuite au niveau des branchements d'entrée et de sortie du débitmètre. S'il n'y a pas de fuite, amenez le système à sa pression d'utilisation.
- Avant de procéder à l'entretien, assurez-vous que la conduite de procédé n'est plus sous pression. Lorsqu'il faut remplacer une pièce, assurez-vous que les pièces de rechange sont celles indiquées par Brooks Instrument et que des personnes qualifiées effectuent le remplacement. Les pièces et procédures non autorisées peuvent porter atteinte au fonctionnement du produit et mettre en péril la sécurité de votre procédé. Les remplacements par des pièces d'apparence similaire peuvent entraîner des incendies, des risques électriques ou un mauvais fonctionnement.
- Vérifiez que toutes les trappes de l'équipement sont fermées et que les couvercles de protection sont en place pour éviter les chocs électriques et les blessures, sauf lorsque l'entretien est réalisé par des personnes qualifiées.

AVERTISSEMENT : dans le cas d'appareils à écoulement liquide, si les vannes d'entrée et de sortie adjacentes aux appareils doivent être fermées pour une raison quelconque, les appareils doivent être complètement vidangés. Si cela n'est pas fait, une éventuelle dilatation thermique du fluide peut casser l'appareil et provoquer des blessures.

Directive européenne « équipements sous pression » (PED)

Tous les équipements sous pression dont la pression interne est supérieure à 0,5 bar (pression relative) et dont la taille dépasse 25 mm ou un pouce entrent dans le cadre de la directive PED.

- La section « Spécifications » de ce manuel contient les instructions relatives à la directive PED.
- Les appareils de mesure de ce manuel sont conformes à la directive EN 97/23/EC.
- Tous les débitmètres Brooks Instrument fonctionnent avec des fluides de groupe 1.
- Les appareils de mesure d'une taille supérieure à 25 mm ou un pouce entrent dans la catégorie PED I, II ou III.
- Les appareils de mesure d'une taille inférieure ou égale à 25 mm ou un pouce relèvent des « bonnes pratiques d'ingénierie » (SEP).

Compatibilité électromagnétique européenne (CEM)

L'équipement Brooks Instrument (électrique / électronique) portant le marquage CE répond à la réglementation en matière de compatibilité électromagnétique (directive CEM 2004/108/EC (89/336/CEE)).
Il faut cependant prêter une grande attention au choix du câble d'interconnexion à utiliser avec l'équipement marqué CE.
Qualité du câble d'interconnexion, des presse-étoupes et connecteurs :
Brooks Instrument fournit un ou des câbles de qualité supérieure qui répondent aux spécifications exigées pour la certification CE.
Si vous utilisez votre propre câble d'interconnexion, ce câble doit être protégé par un blindage intégral.
Les connecteurs rectangulaires ou circulaires utilisés doivent avoir un blindage métallique. S'il y a lieu, des presse-étoupes métalliques doivent faire office de serre-écran de câble.
L'écran du câble doit être raccordé à l'enveloppe métallique ou au presse-étoupe et blindé aux deux extrémités sur 360 degrés.
Le blindage doit s'achever sur une prise de terre.
Les connecteurs de carte standards sont non métalliques. Les câbles utilisés doivent être protégés par un blindage intégral pour se conformer à la certification CE.
Le blindage doit s'achever sur une prise de terre.
En ce qui concerne la configuration des broches, veuillez vous reporter au manuel d'utilisation joint.

ESD (décharge électrostatique)

ATTENTION : cet instrument contient des composants électroniques sensibles à l'électricité statique. Des procédures de manipulation adéquates doivent être respectées pendant le retrait, l'installation ou la manipulation des cartes de circuits imprimés ou des dispositifs internes.
Procédure de manipulation :
1. L'alimentation électrique de l'appareil doit être coupée.
2. Le personnel doit être mis à la terre, au moyen d'une bande de poignet ou d'un autre moyen sûr et adéquat, avant l'installation, le retrait ou le réglage de toutes les cartes de circuits imprimés ou autres dispositifs internes.
3. Les cartes de circuits imprimés doivent être transportées dans un récipient conducteur. Les cartes ne doivent enlevées de cette enveloppe protectrice qu'au dernier moment, juste avant l'installation. Les cartes retirées doivent être immédiatement placées dans un récipient de protection pour le transport, le stockage ou le retour à l'usine.

Observations
Brooks Instrument n'est pas le seul à proposer des produits comportant des composants sensibles aux décharges électrostatiques. La plupart des produits électroniques modernes contiennent des composants qui utilisent des technologies à oxydes métalliques (NMOS, SMOS, etc.). L'expérience démontre que d'infimes quantités d'électricité statique suffisent à endommager ou détruire ces appareils. Les composants endommagés, même s'ils semblent fonctionner correctement, tombent rapidement en panne.

German

Wichtige Anweisungen
Bitte zuerst lesen!

Brooks Instrument entwickelt, produziert und testet seine Produkte derart, dass sie viele nationale und internationale Standards erfüllen. Nur bei korrektem Einbau sowie richtiger Bedienung und Wartung dieser Produkte ist ein Betrieb unter Einhaltung der Standardvorgaben sichergestellt. Die folgenden Anweisungen müssen eingehalten werden und in Ihr Sicherheitsprogramm integriert werden, wenn Sie Brooks Produkte installieren, bedienen und warten.

- Um die entsprechende Leistung zu gewährleisten, setzen Sie qualifiziertes Personal für die Installation, den Betrieb, die Aktualisierung, Programmierung und Wartung des Produkts ein.
- Lesen Sie alle Anweisungen, bevor Sie das Produkt installieren, in Betrieb nehmen und warten. Falls es sich bei diesem Handbuch nicht um das richtige Handbuch handelt, schauen Sie bitte auf der Rückseite nach den Kontaktdaten Ihres Vertriebsbüros vor Ort. Bewahren Sie dieses Handbuch auf, falls Sie später etwas nachschauen möchten.

WARNUNG: Dieses Gerät nicht außerhalb der in Bedienungsanleitung und Handbuch angegebenen Grenzen betreiben. Wird diese Warnung nicht beachtet, kann dies zu schweren Personenschäden bzw. Schäden des Gerätes führen.

- Falls Sie Anweisungen nicht verstehen, wenden Sie sich zur Klärung an Ihren Brooks Instrument Vertreter.
- Befolgen Sie alle Warnhinweise und Anweisungen, die auf dem Produkt markiert sind oder zusammen mit diesem geliefert werden.
- Installieren Sie Ihr Gerät, wie in den Installationsanweisungen des entsprechenden Handbuchs angegeben und gemäß der gültigen regionalen und nationalen Gesetze. Schließen Sie alle Produkte an eine geeignete Strom- und Druckluftversorgung an.
- Bedienung: (1) Langsam den Zufluss zum System starten. Die Ventile langsam öffnen, um einen sprunghaften Anstieg der Durchflussmenge zu verhindern. (2) Bereich der Anschlüsse (Zufluss und Ausfluss) des Durchflussmessers auf Undichtigkeiten überprüfen. Wenn das System dicht ist, auf Betriebsdruck hochfahren.
- Sicherstellen, dass der Leitungsdruck vor Wartungsarbeiten heruntergefahren wird. Wenn Ersatzteile benötigt werden, stellen Sie sicher, dass qualifizierte Personen Ersatzteile verwenden, die von Brooks Instrument vorgegeben sind. Nicht genehmigte Teile und Verfahren können die Leistungsfähigkeit des Produkts beeinträchtigen und den sicheren Betrieb Ihres Prozesses gefährden. Ähnlich aussehende Austauschteile können zu Bränden, elektrischen Gefahren oder nicht sachgerechtem Betrieb führen.
- Stellen Sie sicher, dass alle Türen der Anlage geschlossen sind und dass alle Schutzabdeckungen angebracht sind, um Stromschläge und Personenschäden zu vermeiden, es sei denn die Wartungsaufgaben werden von qualifizierten Personen durchgeführt.

WARNUNG: Werden die Ein- und Auslassventile neben Durchflussmessgeräten aus irgendwelchen Gründen geschlossen, so müssen die Geräte komplett entleert werden.
Durchflussmessgeraete muessen vor dem Schliessen von Ein- und Auslassventilen komplett entleert werden, anderenfalls kann es zu einer thermischen Ausdehnung der Flüssigkeit und damit zum Bruch des Gerätes kommen; Personenschäden können die Folge sein.

Europäische Druckgeräterichtlinie (PED)

Alle Druckgeräte mit einem internen Druck von mehr als 0,5 bar (g) und einer Größe von mehr als 1in (1 in = 25,4 mm) unterliegen der Druckgeräterichtlinie.

- Das Kapitel zu den technischen Daten in dieser Anleitung enthält wichtige Sicherheits- und Betriebsanweisungen in Bezug auf die Druckgeräterichtlinie.
- Messgeräte, die in diesem Handbuch beschrieben sind, erfüllen die europäische Richtlinie 97/23/EG.
- Alle Durchflussmesser von Brooks Instrument fallen unter die Fluidgruppe 1.
- Messgeräte, die größer als 25 mm oder 1“ (inch) sind, erfüllen die Kategorien I, II oder III der Druckgeräterichtlinie (PED).
- Messgeräte mit einer Größe von 25 mm oder 1“ (inch) oder kleiner sind Sound Engineering Practice (SEP).

Europäische Verordnung zur elektromagnetischen Verträglichkeit (EMV)

Geräte von Brooks Instrument (elektrischer und elektronischer Art) mit CE-Zeichen haben den Test auf Einhaltung der Verordnung zur elektromagnetischen Verträglichkeit (EMV Richtlinie 2004/108/EC (89/336/EWG)) erfolgreich bestanden.
Dennoch muss bei der Wahl des Signalkabels für das Gerät mit CE-Zeichen auf folgende Dinge geachtet werden.
Qualität von Signalkabel, Kabeldurchführung und Anschlüsse:
Brooks Instrument liefert qualitativ hochwertige Kabel, die den Anforderungen für eine CE-Zertifizierung entsprechen.
Sollten Sie eigene Kabel einsetzen, so sollte das Kabel überall mit einer 100%-Abschirmung versehen sein.
D- oder Rundstecker sollten eine Metallabschirmung aufweisen. Wenn möglich, müssen Kabeldurchführungen aus Metall mit Kabelschirmgeflechts-Klemmen verwendet werden.
Der Kabelschirm sollte an die Metallhülle oder -durchführung angeschlossen werden und an beiden Enden rundherum (360 °) abgeschirmt werden.
Die Abschirmung sollte geerdet werden.
Randstecker auf Platinen sind standardmäßig nicht aus Metall. Die verwendeten Kabel müssen mit einer 100 % Abschirmung versehen werden, um die CE-Vorgaben zu erfüllen.
Die Abschirmung sollte geerdet werden.
Klemmenbelegung: Siehe beigefügtes Handbuch.

ESD (Elektrostatische Entladung)

ACHTUNG: Dieses Gerät enthält elektronische Komponenten, die durch elektrostatische Entladungen beschädigt werden können. Ordnungsgemäße Verfahrensanweisungen müssen während des Ausbaus, der Installation oder anderer Handhabung der eingebauten Platinen oder Geräte eingehalten werden.
Verfahrensanweisung:

1. Trennen Sie das Gerät von der Stromversorgung.
2. Das Personal ist vor dem Einbau, Ausbau oder der Einstellung von Platinen oder anderen internen Komponenten durch ein entsprechendes Armband mit dem Erdpotential zu verbinden.
3. Platinen sind in speziellen Behältern mit Schutz gegen elektrostatische Spannungen zu transportieren oder zu lagern. Platinen dürfen erst kurz vor dem Einbau aus der Schutzhülle entfernt werden. Ausgebaute Platinen müssen umgehend in Schutzbehälter zum Transport, zur Lagerung oder Rücksendung an das Werk gelegt werden.

Anmerkung
Dieses Gerät ist wie viele andere elektronische Geräte auch mit Komponenten bestückt, die anfällig für elektrostatische Entladung sind. Die meisten modernen, elektronischen Geräte enthalten Komponenten, die die Metalloxidtechnologie (NMOS, SMOS etc.) verwenden. Die Erfahrung hat gezeigt, dass schon geringe Mengen elektrostatischer Energie ausreichen, um diese Geräte zu beschädigen oder zu zerstören. Beschädigte Teile fallen früh aus, obwohl sie funktionsfähig zu sein scheinen.

Greek

Βασικές οδηγίες
Διαβάστε πριν συνεχίσετε!

Η Brooks Instrument σχεδιάζει, παράγει και δοκιμάζει τα προϊόντα της σε συμμόρφωση με πλήθος εθνικών και διεθνών προτύπων. Η σωστή εγκατάσταση, χρήση και συντήρησή τους αποτελεί απαραίτητη προϋπόθεση της λειτουργίας εντός των κανονικών ορίων. Οι παρακάτω οδηγίες πρέπει να τηρούνται και πρέπει να ενσωματωθούν στο πρόγραμμα ασφάλειας της εργασίας σας κατά την εγκατάσταση, χρήση και συντήρηση προϊόντων της Brooks Instrument.

- Για σωστό αποτέλεσμα η εγκατάσταση, λειτουργία, ενημέρωση, προγραμματισμός και συντήρηση πρέπει να γίνεται από ειδικευμένο προσωπικό.
- Διαβάστε όλες τις οδηγίες πριν εγκαταστήσετε, λειτουργήσετε και συντηρήσετε το προϊόν. Εάν το παρόν εγχειρίδιο δεν είναι το σωστό εγχειρίδιο, συμβουλευθείτε το πίσω εξώφυλλο για τα στοιχεία επικοινωνίας του τοπικού αντιπροσώπου. Φυλάξτε το εγχειρίδιο αυτό για μελλοντική αναφορά.

⚠ **ΠΡΟΕΙΔΟΠΟΙΗΣΗ: Μη λειτουργείτε τη συσκευή αυτή καθ' υπέρβαση των ορίων που αναγράφονται στο Εγχειρίδιο Οδηγιών και Λειτουργίας. Η μη συμμόρφωση με την προειδοποίηση αυτή μπορεί να οδηγήσει σε σοβαρό προσωπικό τραυματισμό ή/και ζημιά στον εξοπλισμό.**

- Σε περίπτωση μη κατανόησης κάποιας από τις οδηγίες ζητήστε διευκρινίσεις από τον τοπικό αντιπρόσωπο της Brooks Instrument.
- Τηρείτε όλες τις προειδοποιήσεις, προφυλάξεις και οδηγίες που αναγράφονται ή συνοδεύουν το προϊόν.
- Εγκαταστήστε τη συσκευή όπως προβλέπεται στις οδηγίες εγκατάστασης του σωστού εγχειριδίου οδηγιών και στις κείμενες τοπικές και εθνικές διατάξεις. Συνδέστε τα προϊόντα στις εκάστοτε σωστές παροχές ρεύματος και πίεσης.
- Διαδικασία: (1) Αφήστε να ξεκινήσει αργά η ροή στο σύστημα. Ανοίξτε αργά τις βαλβίδες λειτουργίας για να αποφύγετε τις απότομες αυξομειώσεις ροής. (2) Ελέγξτε για διαρροές τις συνδέσεις εισόδου και εξόδου του ροόμετρου. Αν δεν υπάρχουν διαρροές, γεμίστε το σύστημα μέχρι η πίεση να φτάσει την κανονική πίεση εργασίας.
- Πριν από τη συντήρηση βεβαιωθείτε ότι γραμμή εργασίας έχει τεθεί εκτός πιέσεως. Σε περίπτωση αντικατάστασης ανταλλακτικών βεβαιωθείτε ότι το προσωπικό είναι ειδικευμένο και χρησιμοποιεί ανταλλακτικά που προβλέπει η Brooks Instrument. Μη εγκεκριμένα ανταλλακτικά και επεμβάσεις ενδέχεται να επηρεάσουν τις επιδόσεις του προϊόντος και να προκαλέσουν κίνδυνο για την ασφαλή λειτουργία. Αντικαταστάσεις με φαινομενικά όμοια ανταλλακτικά ενδέχεται να προκαλέσουν πυρκαγιά, κίνδυνο ηλεκτροπληξίας ή ανεπαρκή λειτουργία.
- Βεβαιωθείτε ότι όλα τα ανοίγματα του εξοπλισμού είναι κλειστά και τα προστατευτικά καλύμματα είναι στη θέση τους προκειμένου να αποφευχθεί ο κίνδυνος ηλεκτροπληξίας και προσωπικών τραυματισμών, εκτός εάν εκτελούνται εργασίες συντήρησης από ειδικευμένο προσωπικό.

⚠ **ΠΡΟΕΙΔΟΠΟΙΗΣΗ: Προκειμένου για συσκευές με ροή ρευστού, όταν για οποιονδήποτε λόγο πρόκειται να κλείσουν οι βαλβίδες εισαγωγής και εξαγωγής κοντά στις συσκευές, οι συσκευές πρέπει να αποστραγγιστούν εντελώς. Η μη συμμόρφωση μπορεί να προκαλέσει θερμική διαστολή του υγρού που περιέχουν, με αποτέλεσμα να ραγίσει η συσκευή και να προκληθούν προσωπικοί τραυματισμοί.**

Ευρωπαϊκή Οδηγία για τον εξοπλισμό υπό πίεση (PED)

Κάθε εξοπλισμός υπό πίεση με εσωτερική πίεση άνω του 0,5 bar (g) και μεγέθους μεγαλύτερου των 25 mm ή της 1 ίντσας εμπίπτει στις διατάξεις της ευρωπαϊκής Οδηγίας για τον εξοπλισμό υπό πίεση (PED).

- Το κεφάλαιο Προδιαγραφές του παρόντος εγχειριδίου περιλαμβάνει οδηγίες σχετικά με την Οδηγία PED.
- Οι μετρητές που περιγράφονται στο παρόν εγχειρίδιο συμμορφώνονται με την ευρωπαϊκή Οδηγία 97/23/ΕΚ.
- Όλα τα ροόμετρα της Brooks Instrument ανήκουν στην ομάδα ρευστών 1.
- Μετρητές μεγαλύτεροι από 25 mm ή 1 ίντσα συμμορφώνονται με τις κατηγορίες I, II και III της Οδηγίας PED.
- Μετρητές μεγέθους 25 mm ή 1 ίντσας ή και μικρότεροι κατασκευάζονται σύμφωνα με τους κανόνες της τέχνης (SEP).

Ευρωπαϊκή Οδηγία για την ηλεκτρομαγνητική συμβατότητα (EMC)

Ο (ηλεκτρικός/ηλεκτρονικός) εξοπλισμός της Brooks Instrument που φέρει το σήμα CE έχει υποστεί επιτυχώς τις δοκιμές που προβλέπουν οι διατάξεις της Οδηγίας για την ηλεκτρομαγνητική συμβατότητα (Οδηγία 2004/108/EC (89/336/ΕΟΚ για την EMC)).
Πάντως χρειάζεται ιδιαίτερη προσοχή στην επιλογή του καλωδίου σήματος για τον εξοπλισμό που φέρει το σήμα CE.
Ποιότητα των καλωδίων σήματος, στυπιοθλιπτών και βυσμάτων καλωδίων:
Η Brooks Instrument προσφέρει υψηλής ποιότητας καλώδια τα οποία πληρούν τις προδιαγραφές CE.
Σε περίπτωση παροχής δικού σας καλωδίου σήματος, χρησιμοποιείτε καλώδιο με πλήρη θωράκιση 100% σε όλα τα σημεία.
Βύσματα τύπου «D» ή κυκλικά πρέπει να έχουν μεταλλική θωράκιση. Να χρησιμοποιηθούν κατά προτίμηση μεταλλικοί στυπιοθλίπτες καλωδίων για τη στερέωση της θωράκισης.
Να συνδεθεί η θωράκιση του καλωδίου στο μεταλλικό κέλυφος ή στυπιοθλίπτη και να θωρακιστεί και στα δύο άκρα κατά 360 μοίρες. Η θωράκιση πρέπει να τερματίζει σε γείωση εδάφους.
Τα βύσματα άκρου της πλακέτας είναι εκ κατασκευής μη μεταλλικά. Τα χρησιμοποιούμενα καλώδια πρέπει να έχουν 100% θωράκιση για συμμόρφωση με την πιστοποίηση CE. Η θωράκιση πρέπει να τερματίζει σε γείωση εδάφους.
Για τη διάταξη των ακίδων: Συμβουλευθείτε το συνημμένο εγχειρίδιο οδηγιών.

Ηλεκτροστατική εκκένωση (ESD)

⚠ **ΠΡΟΦΥΛΑΞΗ: Η συσκευή αυτή περιέχει ηλεκτρονικά εξαρτήματα τα οποία μπορούν να υποστούν εύκολα βλάβες από τον στατικό ηλεκτρισμό. Πρέπει να ακολουθούνται οι ορθές διαδικασίες χειρισμού κατά την αφαίρεση, τοποθέτηση ή άλλο χειρισμό των εσωτερικών πλακετών και διατάξεων.**

Διαδικασία χειρισμού:

1. Θέστε τη συσκευή εκτός τάσεως.
2. Φροντίστε για τη γείωση του προσωπικού με περικάρπιο ή άλλο ασφαλές και κατάλληλο μέσο πριν τοποθετήσετε, αφαιρέσετε ή ρυθμίσετε κάρτες τυπωμένων κυκλωμάτων ή άλλη εσωτερική διάταξη.
3. Οι κάρτες τυπωμένων κυκλωμάτων πρέπει να μεταφέρονται σε συσκευασία από αγώγιμο υλικό. Οι κάρτες δεν πρέπει να αφαιρεθούν από το προστατευτικό περίβλημα παρά μόνο αμέσως πριν από την τοποθέτηση. Οι κάρτες που αφαιρέθηκαν πρέπει να τοποθετηθούν αμέσως σε προστατευτική συσκευασία για μεταφορά, αποθήκευση ή επιστροφή στο εργοστάσιο.

Παρατηρήσεις:
Η ύπαρξη εξαρτημάτων ευαίσθητων στα φαινόμενα ESD (ηλεκτροστατικής εκκένωσης) δεν είναι μοναδικό χαρακτηριστικό της συσκευής αυτής. Οι περισσότερες σύγχρονες ηλεκτρονικές συσκευές περιέχουν εξαρτήματα τεχνολογίας μεταλλικών οξειδίων (NMOS, SMOS κά.). Η πείρα έχει αποδείξει ότι μια μικρή ποσότητα στατικού ηλεκτρισμού αρκεί για να προκαλέσει βλάβες ή να καταστρέψει τις συσκευές αυτές. Εξαρτήματα που υπέστησαν βλάβη, ακόμη και αν μοιάζουν να λειτουργούν σωστά, κινδυνεύουν από πρώιμη αστοχία.

Hungarian

Alapvető utasítások
Először olvassa el ezeket!

A Brooks Instrument olyan módon tervezi, gyártja és teszteli termékeit, hogy azok megfeleljenek számos belföldi és nemzetközi szabványnak. Ezeket a berendezéseket megfelelően kell telepíteni, üzemeltetni és karbantartani ahhoz, hogy mindenképpen a normál működési tartományuknak megfelelően üzemelhessenek. Az alábbi utasításokat be kell tartani, és be kell építeni a munkavédelmi programba a Brooks Instrument termékeinek telepítése, üzemeltetése és karbantartása során.
A megfelelő teljesítmény garantálása érdekében kizárólag szakképzett személyzet végezze a termék telepítését, üzemeltetését, frissítését, programozását és karbantartását.
Valamennyi utasítást el kell olvasni a termék telepítése, üzemeltetése és szervizelése előtt. Amennyiben ez a kézikönyv nem a megfelelő kiadvány, a hátsó borítón keresse meg a helyi forgalmazót, és további tájékoztatásért lépjen kapcsolatba vele. Őrizze meg ezt a kézikönyvet későbbi tájékoztatásként.

⚠ **FIGYELEM: Ne működtesse a berendezést az üzemeltetési utasításban megadott üzemi tartományokon túl. Ennek megsértése súlyos személyi sérüléshez vagy a berendezés meghibásodásához vezethet.**

- Amennyiben a gépkönyv utasításai nem egyértelműek, lépjen kapcsolatba Brooks Instrument képviselőjével, hogy tisztázzák a problémát.
- Tartsa be a berendezésen feltüntetett vagy azzal együtt szállított összes figyelmeztetést, felhívást és utasítás.
- A megfelelő telepítési utasításban megadott utasítások valamint a hatályos helyi és nemzeti előírások szerint telepítse a berendezést. A termékeket kizárólag a megfelelő elektromos és nyomásellátó forrásra kösse.
- Menete: (1) Lassan helyezze nyomás alá a rendszert. Lassanként nyissa ki az üzemi szelepeket az áramlásingadozás elkerülése érdekében. (2) Ellenőrizze, nincs-e szivárgás az áramlásmérő be-, és kimeneti bekötéseinél. Ha nincs szivárgás, töltse fel a rendszert az üzemi nyomásra.
- Szervizelés előtt mindenképpen ellenőrizze, hogy az üzemi vezeték nincs-e nyomás alatt. Amennyiben cserealkatrészekre van szükség, mindenképpen szakképzett személynek kell kezelnie a Brooks Instrument által meghatározott cserealkatrészeket. A nem engedélyezett alkatrészek és tevékenységek befolyásolhatják a termék teljesítményét, illetve veszélyeztethetik a biztonságos üzemeltetést. A pusztán hasonló alkatrészekkel történő helyettesítés tüzet, áramütésveszélyt vagy elégtelen működést eredményezhet.
- A berendezés összes ajtaja mindenképpen legyen zárva, a védőburkolatok pedig legyenek a helyükön az áramütés és a személyi sérülések elkerülése érdekében, kivéve, ha szakképzett szakember végez rajta karbantartási munkákat.

⚠ **FIGYELEM: Folyadékot áramoltató berendezések esetében, ha bármilyen okból el kell zárni a berendezés melletti ki-, és belépő szelepeket, a berendezést teljesen le kell üríteni. Ennek elmulasztása a folyadék hőtágulását okozhatja, ami károsíthatja a berendezést, és személyi sérüléshez vezethet.**

Nyomástartó berendezésekre vonatkozó európai irányelv (PED)

Minden 0,5 bar-nál (g) magasabb belső nyomású és 25 mm-nél vagy 1 hüvelyknél nagyobb nyomástartó berendezés a nyomástartó berendezésekre vonatkozó európai irányelv (PED) hatálya alá tartozik.

- A gépkönyv „Műszaki adatok” fejezete tartalmaz a PED irányelvre vonatkozó utasításokat.
- A gépkönyvben megadott mérőeszközök megfelelnek a 97/23/EK EU irányelvnek.
- Minden Brooks átfolyásmérő az 1-es folyadékcsoportba tartozik.
- A 25 mm-nél vagy 1 hüvelyknél nagyobb mérőeszközök megfelelnek a PED I, II, vagy III kategóriának.
- A 25 mm-es illetve 1 hüvelykes vagy kisebb mérőeszközök az elfogadott mérnöki gyakorlatot (SEP) követik.

Elektromágneses kompatibilitásra vonatkozó európai irányelv (EMC)

A Brooks Instrument CE jelölést kiérdemelt (elektromos/elektronikus) berendezései sikeresen teljesítették az elektromágneses kompatibilitási követelményeket (2004/108/EC (89/336/EGK sz. EMC irányelv)) vizsgáló teszteket.
Ugyanakkor különös figyelmet kell fordítani a CE jelölésű berendezésekhez felhasznált jelkábelek kiválasztására.
A jelkábelek, kábelösszekötők, csatlakozók minősége:
A Brooks Insturment magas minőségű kábeleket kínál, melyek megfelelnek a CE minősítés követelményeinek.
Amennyiben saját jelkábelt alkalmaznak, olyat kell választani, amely 100%-os árnyékolással, teljes mértékben szűrt.
A „D” vagy „kör alakú” csatlakozóknak fémárnyékolóval árnyékoltnak kell lennie. Szükség esetén fém kábelösszekötőket kell alkalmazni a kábelszűrő rögzítésére.
A kábelszűrőt a fém házhoz vagy hüvelyhez kell csatlakoztatni és mindkét felén 360°-ban le kell árnyékolni. Az árnyékolásnak földelésben kell végződnie.
A kártyákhoz tartozó csatlakozók szabványosan nem fémesek. Az alkalmazott kábeleknek 100%-és árnyékolással szűrteknek kell lenniük, hogy megfeleljenek a CE minősítésnek.
Az árnyékolásnak földelésben kell végződnie.
Érintkező konfiguráció: Lásd a mellékelt kezelési utasítást.

Elektrosztatikus kisülés (ESD)

⚠ **VIGYÁZAT: A készülék olyan alkatrészeket tartalmaz, melyek hajlamosak a sztatikus elektromosság okozta károsodásra. Be kell tartani a megfelelő eljárásokat a belső áramköri kártyák és eszközök eltávolítása, behelyezése vagy egyéb kezelése során.**
Kezelési eljárás:

1. A berendezést áramtalanítani kell.
2. A személyt földelni kell csuklópánttal vagy egyéb biztonságos és a célra alkalmas eszközzel, mielőtt áramköri kártyát vagy egyéb belső eszközt telepítene, venne ki, vagy állítana be.
3. A nyomtatott áramköri kártyákat vezetőképes csomagolásban kell szállítani. A kártyák kizárólag közvetlenül a behelyezés előtt vehetők ki a védőburkolatból. A kiszerelt kártyát haladéktalanul el kell helyezni a mozgatásra, raktározásra vagy a gyári visszaszállításra szolgáló védőcsomagolásba.

Megjegyzések:
Nem egyedi jelenség, hogy a készülékben elektrosztatikus kisülésre (ESD) érzékeny alkatrészek találhatók. A legtöbb korszerű elektronikus eszközben fémoxid technológiás alkatrészek (NMOS, SMOS stb.) találhatók. A tapasztalatok azt igazolják, hogy még kis mértékű sztatikus elektromosság is károsíthatja, vagy tönkreteheti ezeket az eszközöket. A károsodott alkatrészek, még ha látszólag megfelelően működnek is, kezdődő hibára utalnak.

Italian

Istruzioni fondamentali
Leggerle subito!

La Brooks Instrument progetta, fabbrica e collauda i propri prodotti in maniera tale che siano conformi ai vari standard nazionali ed internazionali. Tali apparecchiature devono essere installate, messe in esercizio e tenute in manutenzione in maniera adeguata affinché operino in conformità alle loro normali specifiche di funzionamento. Le seguenti istruzioni devono essere rispettate ed inserite nel programma di tutela sul lavoro durante l'installazione, il funzionamento e la manutenzione dei prodotti Brooks Instrument.

- Per garantire un adeguato rendimento l'installazione, il funzionamento, l'aggiornamento, la programmazione e la manutenzione del prodotto devono essere eseguiti esclusivamente da personale specializzato.
- Leggere tutte le istruzioni prima dell'installazione, utilizzo e manutenzione del prodotto. Se questo manuale non è quello relativo al Vostro prodotto, cercare sul retro della copertina il distributore locale e contattarlo per ulteriori informazioni. Conservare il presente manuale per future consultazioni.

⚠ **ATTENZIONE: Non utilizzare questo strumento in condizioni che eccedono le specifiche riportate nel Manuale d'Uso. L'inosservanza può causare gravi lesioni alle persone e/o danni all'apparecchiatura.**

- Qualora le istruzioni del manuale non siano chiare, contattare un rappresentante della Brooks Instrument per chiarire il problema.
- Rispettare tutti gli avvisi, le istruzioni e gli avvertimenti riportati sull'apparecchiatura o forniti insieme ad essa.
- Installare l'apparecchiatura in base alle istruzioni riportate nel Manuale d'Uso e alle prescrizioni locali e nazionali in vigore. Collegare i prodotti esclusivamente ad un'adeguata sorgente di pressione ed alimentazione elettrica.
- Procedimento: (1) mettere lentamente sotto pressione il sistema. Aprire lentamente le valvole di servizio per evitare l'oscillazione del flusso. (2) Controllare che non ci siano perdite nei punti di connessione in entrata e in uscita del misuratore di flusso. Se non ci sono perdite, caricare il sistema alla pressione d'esercizio.
- Prima di effettuare manutenzione controllare che la linea di processo non sia sotto pressione. Se avete bisogno di pezzi di ricambio, il personale specializzato deve usare i pezzi di ricambio definiti dalla Brooks Instrument. Attività e pezzi di ricambio non autorizzati possono influire sul rendimento del prodotto e comprometterne il funzionamento in sicurezza. La sostituzione con pezzi di ricambio non originali può causare incendi, pericolo di scosse elettriche o funzionamento improprio.
- Tutti gli sportelli dell'impianto devono essere chiusi, le cappe di protezione devono essere al loro posto per evitare scosse elettriche e lesioni personali, tranne quando il personale specializzato esegue lavori di manutenzione.

⚠ **ATTENZIONE: In caso di apparecchiature in cui scorre un liquido, se per qualsiasi motivo bisogna chiudere le valvole d'entrata e d'uscita accanto all'apparecchiatura, allora si deve svuotare completamente l'apparecchiatura. L'inosservanza può causare la dilatazione termica del liquido che può danneggiare l'apparecchiatura e provocare lesioni alle persone.**

Direttiva europea relativa alle apparecchiature a pressione (PED)

Ogni apparecchiatura a pressione con pressione interna maggiore di 0,5 bar (g) e più grande di 25 mm o di 1 pollice ricade nell'ambito della Direttiva Europea relativa alle apparecchiature a pressione (PED).

- Il capitolo „Dati tecnici" del manuale contiene le disposizioni relative alla direttiva PED.
- Gli strumenti di misura descritti nel presente manuale sono conformi alla Direttiva UE 97/23/CE.
- Ogni flussimetro Brooks appartiene al gruppo di fluidi 1.
- Gli strumenti di misura maggiori di 25 mm o di 1 pollice sono conformi alla categoria I, II o III della PED.
- Gli strumenti di misurazione minori di 25 mm o di 1 pollice rientrano nella categoria SEP (Sound Engineering Practice).

Direttiva europea relativa alla compatibilità elettromagnetica (EMC)

Le apparecchiature (elettriche/elettroniche) Brooks Instrument dispongono del marchio CE ed hanno superato positivamente i test per i requisiti di compatibilità elettromagnetica (Direttiva EMC 2004/108/EC (89/336/CEE)).
In ogni caso bisogna prestare particolare attenzione alla scelta dei cavi di segnale utilizzati per le apparecchiature con marchio CE.

Qualità dei cavi di segnale, dei pressacavi e dei connettori:

La Brooks Instrument offre cavi d'alta qualità conformi ai requisiti della certificazione CE.
Qualora vengano utilizzati cavi di segnale propri, devono essere scelti con schermatura al 100% e interamente filtrati.
I connettori „D" o „rotondi" devono essere schermati con schermatura metallica. In caso di necessità bisogna utilizzare pressacavi metallici di collegamento per fissare la schermatura del cavo.
La schermatura del cavo deve far contatto col guscio metallico o col pressacavo; il cavo deve essere schermato su entrambi i lati a 360°. La schermatura deve essere effettuata con messa a terra.
I connettori Card Edge normalmente non sono di metallo. I cavi utilizzati devono essere filtrati con schermatura al 100% per essere conformi alla marcatura CE.
La schermatura deve essere effettuata con messa a terra.
Configurazione pin: Vedi Manuale d'uso allegato.

Scarica elettrostatica (ESD)

⚠ **ATTENZIONE: Il dispositivo contiene componenti elettronici che possono essere danneggiati da elettricità statica. Bisogna rispettare le adeguate procedure durante la rimozione, l'installazione o altra manovra delle schede del circuito elettrico interno.**

Procedura di manovra:

1. Togliere alimentazione elettrica all'apparecchiatura.
2. La persona deve essere collegata a terra con una cerniera o con altri strumenti di sicurezza e adeguati allo scopo prima di installare, togliere o impostare la scheda del circuito elettrico o altri dispositivi interni.
3. Le schede del circuito stampato devono essere spedite in contenitori conduttivi. Le schede devono essere tolte dal rivestimento protettivo esclusivamente prima dell'installazione. Le schede confezionate devono essere collocate immediatamente nell'imballaggio protettivo per la movimentazione, l'immagazzinamento o resa alla fabbrica.

Note:

È un fenomeno comune che nei dispositivi di questo tipo si trovino componenti sensibili alla scarica elettrostatica (ESD). Nella maggior parte degli strumenti elettronici moderni si trovano componenti tecnologici metallo-ossido (NMOS, SMOS, ecc.). Le esperienze dimostrano che l'elettrostaticità anche in piccola misura può danneggiare o rovinare gli strumenti. I componenti danneggiati, anche se all'apparenza funzionano correttamente, potrebbero manifestare il difetto rapidamente.

Latvian

Svarīga instrukcija
Pirms turpināt izlasiet!

„Brooks Instrument" projektē, ražo un pārbauda savus ražojumus atbilstoši daudziem nacionālajiem un starptautiskajiem standartiem. Lai nodrošinātu šo izstrādājumu turpmāku darbību atbilstoši noteiktajiem parametriem, tie ir pareizi jāuzstāda, jālieto un jāapkopj. Uzstādot, lietojot „Brooks Instrument" izstrādājumus un veicot to apkopi, ir jāievēro šie norādījumi un jāiekļauj tie jūsu drošības programmā.

- Lai nodrošinātu pienācīgu izstrādājuma sniegumu, izstrādājuma uzstādīšanu, lietošanu, atjaunināšanu, programmēšanu un apkopi uzticiet veikt tikai kvalificētam personālam.
- Pirms izstrādājuma uzstādīšanas, lietošanas un apkalpošanas izlasiet visus norādījumus. Ja šī instrukciju rokasgrāmata nav pareizā, izstrādājumam atbilstošā rokasgrāmata, lūdzu skat. aizmugurējo vāku, kur ir sniegta vietējā tirdzniecības biroja kontaktinformācija.
  ⚠ **BRĪDINĀJUMS! Nelietot instrumentu ārpus Instrukciju un lietošanas rokasgrāmatā norādītajiem parametriem. Šī brīdinājuma neievērošanas rezultātā var rasties traumas un / vai aprīkojuma bojājumi.**
- Ja jūs nesaprotat kādu no instrukcijām, sazinieties ar „Brooks Instrument" pārstāvi un lūdziet izskaidrot to.
- Ievērojiet visus brīdinājumus, piesardzības mērus un instrukcijas, kas norādīti uz izstrādājuma vai piegādāti kopā ar to.
- Uzstādiet aprīkojumu tā, kā tas norādīts attiecīgajā instrukciju rokasgrāmatā iekļautajā uzstādīšanas instrukcijā un atbilstoši piemērojamajām vietējām un nacionālajām normām. Pievienojiet visus izstrādājumus pareiziem elektriskajiem un spiediena avotiem.
- Lietošana: (1) Lēnām uzsāciet plūsmu sistēmā. Lai izvairītos no straujiem plūsmas kāpumiem, lēnām atveriet procesa vārstus. (2) Pārbaudiet, vai nav noplūdes ap plūsmas mērītāja ieplūdes un izplūdes savienojumiem. Ja noplūdes nav, uzstādiet sistēmā darba spiedienu.
- Pārliecinieties par to, lai pirms instrumenta tehniskās apkopes būtu likvidēts procesa līnijas spiediens. Ja ir nepieciešams veikt kādu daļu nomaiņu, nodrošiniet, lai tiktu izmantotas „Brooks Instrument" norādītās daļas un daļu nomaiņu veiktu kvalificēts personāls. Neatļautu daļu un procedūru izmantošana var ietekmēs ražojuma sniegumu un samazināt procesa drošību. Līdzīgu, bet ne identisku daļu nomaiņas lietošana var izraisīt ugunsgrēka, elektrisko traucējumu riskus un nepareizu izstrādājuma darbību.
- Nodrošiniet, lai būtu aizvērtas visas durvis un būtu pareizi uzstādīti visi aizsargpārsegumi, tādējādi novēršot elektrošoka un traumu risku. Izņēmums ir gadījumi, kad kvalificēts personāls veic ražojuma apkopi.
  ⚠ **BRĪDINĀJUMS! Ja šķidrās plūsmas ierīču tuvumā esošos ieplūdes un izplūdes vārstus kāda iemesla dēļ ir jāaizver, no ierīcēm ir jāizlaiž viss šķidrums. Pretējā gadījumā šķidrums var termiski izplesties, pārraut ierīci un radīt traumas.**

Eiropas spiedieniekārtu direktīva (PED)

Uz visām spiedieniekārtām, kuru iekšējais spriegums pārsniedz 0,5 bar (g) un ir lielākas par 25 mm jeb 1" (collu), attiecas Eiropas spiedieniekārtu direktīva (PED).

- Šīs rokasgrāmatas tehnisko parametru nodaļā ir sniegtas a PED Direktīvu saistītās instrukcijas.
- Šajā rokasgrāmatā aprakstītie mērītāji atbilst EN Direktīvas 97/23/EK prasībām.
- Visi „Brooks Instrument" plūsmas mērītāji ietilpst 1. šķidrumu grupā.
- Uz 25 mm jeb 1" (collu) maziem un mazākiem mērītājiem attiecas labas inženierijas prakse (SEP).
- 25 mm jeb 1" (collu) mazi vai mazāki mērītāji atbilst PED kategorijai I, II vai III.

Eiropas elektromagnētiskās savietojamības direktīva (EMS)

„Brooks Instrument" (elektriskās / elektroniskās) iekārtas ar CE zīmi ir izturējušas pārbaudi un atzītas par atbilstošām Eiropas elektromagnētiskās savietojamības direktīvas (EMS) prasībām.

Tomēr, izvēloties signālkabeli, kas tiks lietots kopā ar CE marķējuma iekārtu, ir jāievēro īpaša uzmanība.

Signālkabeļa, kabeļa blīvslēgu un savienotāju kvalitāte:

„Brooks Instrument" piegādā augstas kvalitātes kabeļus, kas atbilst CE sertifikācijas tehniskajiem parametriem.
Ja jūs lietojat pats savu signālkabeli, tam ir jābūt pilnībā, 100% ekranizētam.
„D" un „apaļā" tipa savienotājiem ir jābūt aprīkotiem ar metāla ekranizējumu. Ja nepieciešams, ir jāizmanto metāla blīvslēgi ar kabeļa ekranizējuma skavojumu.
Kabeļa ekranizējumam ir jābūt savienotam ar metāla apvalku un abās pusēs aizsargātam 360 grādu diapazonā.
Ekranizējumam ir jābeidzas pie iezemējuma.
„Card Edge" savienotāji standarta izpildījumā ir nemetāla. Kabeļiem ir jābūt pārklātiem ar 100% ekranizējumu, lai tie atbilstu CE sertifikācijas prasībām.
Ekranizējumam ir jābeidzas pie iezemējuma.

Attiecībā uz tapu konfigurāciju: skat. pievienoto instrukciju rokasgrāmatu.

ESD (elektrostatiskā izlāde)

⚠ **IEVĒROT PIESARDZĪBU! Šis instruments satur elektriskos komponentus, kas ir jutīgi pret statisko elektrību. Izņemot un uzstādot iekšējās ķēdes plates un ierīces vai kā citādi darbojoties ar tām, ir jāievēro noteikta darba kārtība.**

Darba kārtība:

1. Iekārta jāatslēdz no barošanas.
2. Pirms jebkādas drukātas shēmas kartes vai citas iekšējās ierīces uzstādīšanas, izņemšanas vai regulēšanas personālam, kas veiks šos darbus, ir jābūt iezemētam, piem., izmantojot aproces vai citus drošus, piemērotus līdzekļus.
3. Drukātās shēmas kartes ir jātransportē vadošā iepakojumā. Plāksnes no aizsargkorpusa drīkst izņemt tikai tieši pirms uzstādīšanas. Transportējot, uzglabājot vai atgriežot rūpnīcā no izņemtās plāksnes ir nekavējoties jāievieto aizsargiepakojumā.

Komentāri

Instruments nav unikāls tajā aspektā, ka tas satur pret ESD (elektrostatisko izlādi) jutīgus komponentus. Vairums mūsdienu elektroiekārtu satur komponentus, kuru ražošanā izmantota metāla oksīdu tehnoloģijas (NMOS, SMOS u.c.). Pieredze rāda, ka pat neliels daudzums statiskās elektrības var nodarīt bojājumus šādām ierīcēm vai pilnībā sabojāt tās. Bojātie komponenti pat tad, ja tie šķietami darbojas pareizi, ir pakļauti ātrākai atteicei.

Lithuanian

Pagrindinės instrukcijos
Perskaitykite prieš tęsdami!

„Brooks Instrument“ projektuoja, gamina ir išbando savo gaminius, kad jie atitiktų įvairius nacionalinius ir tarptautinius standartus. Šie gaminiai turi būti tinkamai montuojami, eksploatuojami ir prižiūrimi, kad ir toliau veiktų pagal jiems būdingus techninius parametrus. Toliau pateiktų nurodymų reikia laikytis ir įtraukti juos į saugos programą montuojant, eksploatuojant ir prižiūrint „Brooks Instrument“ produktus.

- Siekiant užtikrinti tinkamą veikimą, montuoti, eksploatuoti, naujinti, programuoti ir prižiūrėti gaminį turi tik kvalifikuoti darbuotojai.
- Perskaitykite visus nurodymus prieš montuodami, eksploatuodami ir prižiūrėdami gaminį. Jei gavote netinkamą instrukciją, galiniame jos viršelyje žiūrėkite vietinės prekybos atstovybės kontaktinę informaciją. Išsaugokite šią instrukciją pasižiūrėjimui ateityje.

⚠ **ĮSPĖJIMAS: nenaudokite šio prietaiso viršydami instrukcijoje ir eksploatacijos vadove nurodytus techninius duomenis. Nesilaikydami šio įspėjimo galite sunkiai susižeisti ir (arba) sugadinti įrangą.**

- Jei nesuprantate kokių nors nurodymų, kreipkitės į „Brooks Instrument“ atstovą, kad paaiškintų.
- Paisykite visų įspėjimo, perspėjimų ir nurodymų, pažymėtų ant gaminio arba pateiktų su juo.
- Įrangą montuokite taip, kaip nurodyta atitinkamos instrukcijos montavimo nurodymuose arba taikomuose vietiniuose ar nacionaliniuose kodeksuose. Visus gaminius junkite prie tinkamų elektros ir slėgio šaltinių.
- Eksploatacija: (1) lėtai įjunkite srautą į sistemą. Lėtai atidarykite proceso vožtuvus, kad išvengtumėte srauto antplūdžių. (2) Patikrinkite, ar nėra nuotėkių aplink srauto matuoklio įleidimo ir išleidimo jungtis. Jei nuotėkių nėra, sukurkite sistemoje darbinį slėgį.
- Prieš atlikdami priežiūros darbus būtinai pašalinkite slėgį proceso linijoje. Jei reikia pakeisti dalis, užtikrinkite, kad kvalifikuoti darbuotojai naudotų „Brooks Instrument“ nurodytas pakaitines dalis. Netinkamos dalys ir procedūros gali pakenkti gaminio veikimui ir kelti pavojų saugiai jūsų proceso eksploatacijai. Tik panašiai atrodantys pakaitalai gali sąlygoti gaisrą, elektros pavojus ar netinkamą veikimą.
- Užtikrinkite, kad visos įrangos durelės būtų uždarytos, o apsauginiai dangčiai uždėti, kad išvengtumėte elektros smūgio ir sužeidimų, išskyrus kai kvalifikuoti darbuotojai atlieka priežiūros darbus.

⚠ **ĮSPĖJIMAS: naudojant skysto srauto įrenginius, jei dėl kokios nors priežasties prireikia uždaryti šalia įrenginio esančius įleidimo ir išleidimo vožtuvus, iš įrenginio reikia išleisti visą skystį. To nepadarius galimas šiluminis skysčio plėtimasis, galintis sugadinti įrenginį ir sužeisti žmonės.**

Europos slėginės įrangos direktyva (PED)

Visa slėginė įranga, kurios vidinis slėgis didesnis nei 0,5 bar (g), o dydis didesnis nei 25 mm arba 1 colis, yra reglamentuojama slėginės įrangos direktyvos (PED).

- Šios instrukcijos dalyje „Techniniai duomenys“ pateikiami nurodymai, susiję su PED direktyva.
- Šioje instrukcijoje aprašyti matuokliai atitinka Europos Sąjungos direktyvą 97/23/EB.
- Visi „Brooks Instrument“ srauto matuokliai priklauso 1 skysčių grupei.
- Didesni nei 25 mm arba 1 colis matuokliai atitinka PED I, II arba III kategoriją.
- 25 mm arba 1 colio ar mažesni matuokliai atitinka tinkamą inžinerijos praktiką (SEP).

Europoje taikomi elektromagnetinio suderinamumo (EMC) reikalavimai

CE ženklu pažymėta „Brooks Instrument“ (elektrinė / elektroninė) įranga buvo sėkmingai išbandyta pagal elektromagnetinio suderinamumo reikalavimus (EMC direktyvą 2004/108/EC (89/336/EEB)).
Bet reikia ypatingo dėmesio renkantis signalizavimo kabelį, kuris bus naudojamas su CE ženklu pažymėta įranga.
Signalizavimo kabelio, kabelių riebokšlių ir jungčių kokybė:
„Brooks Instrument“ tiekia kokybiškus kabelius, kurie atitinka CE sertifikavimo specifikacijas.
Jei naudojate savo signalizavimo kabelį, jis turi būti visiškai ir visas ekranuotas 100 % ekranu.
Naudojamos „D“ arba „apskrito“ tipo jungtys turi būti ekranuotos metaliniu ekranu. Jei taikoma, reikia naudoti metalinius kabelių riebokšlius, užtikrinančius kabelio ekrano suspaudimą.
Kabelio ekraną reikia jungti prie metalinio apvalkalo ar riebokšlio ir ekranuoti abiejuose galuose 360 laipsnių.
Ekranas turi baigtis įžeminimu.
Standartinės kraštinės jungtys yra ne metalinės. Naudojami kabeliai turi būti ekranuoti 100 % ekranu, kad atitiktų CE sertifikavimą. Ekranas turi baigtis įžeminimu.
Keturių kontaktų konfigūracija: žr. pridėtą instrukciją.

ESD (elektrostatinis išlydis)

⚠ **PERSPĖJIMAS: šiame prietaise yra elektroninių komponentų, kuriuos gali sugadinti statinė elektra. Išimant ar įdedant vidines spausdintines plokštes ar įrenginius, arba atliekant su jomis kitus darbus, reikia laikytis tinkamų darbo procedūrų.**
Darbo procedūra:

1. Atjunkite įrenginio maitinimą.
2. Darbuotojai turi pasirūpinti įžeminimu naudodami riešo juostelę ar kitas saugias tinkamas priemones prieš įdėdami, išimdami ar reguliuodami bet kokią spausdintinės plokštės kortelę ar kitą vidinį komponentą.
3. Spausdintinės plokštės korteles reikia transportuoti laidžiame konteineryje. Neleidžiama išimti plokštės iš apsauginio dėklo, nebent prieš pat įdėjimą. Išimtas plokštes reikia nedelsiant įdėti į apsauginį konteinerį transportavimui ar saugojimui arba grąžinti į gamyklą.

Pastabos
Šis instrumentas nėra unikalus dėl jame esančių ESD (elektrostatiniam išlydžiui) jautrių komponentų. Daugelyje šiuolaikinių elektroninių gaminių yra komponentų, kuriuose naudojama metalo oksidų technologija (NMOS, SMOS ir pan.). Patirtis rodo, kad net ir mažas statinės elektros kiekis gali pakenkti tokiems gaminiams ar juos sugadinti. Sugadinti komponentai, net jei atrodo, kad jie veikia tinkamai, anksti nustoja veikti.

Polish

Zalecenia wstępne
Prosimy przeczytać przed rozpoczęciem użytkowania!

Brooks Instrument projektuje, wytwarza i testuje swoje produkty tak, aby spełniały wymagania licznych norm krajowych i międzynarodowych. Te produkty muszą być poprawnie instalowane, obsługiwane oraz konserwowane, aby zapewnić ich prawidłowe działanie zgodnie ze specyfikacją techniczną. Podczas instalowania, obsługiwania i konserwowania produktów firmy Brooks Instrument należy przestrzegać następujących zaleceń:

- Aby zapewnić właściwe działanie sprzętu, instalacja, obsługa, aktualizacje, programowanie i konserwacja powinny być wykonywane przez przeszkolony personel.
- Przed instalacją, obsługą i czynnościami serwisowymi należy zapoznać się ze wszystkimi zaleceniami producenta. Aby uzyskać instrukcję obsługi odpowiednią dla danego sprzętu należy skontaktować się z lokalnym przedstawicielem handlowym producenta. Instrukcję obsługi należy zachować do późniejszego użycia.

⚠ **OSTRZEŻENIE: Nie wolno przekraczać podanych w instrukcji zakresów działania urządzenia. Nieprzestrzeganie tego zalecenia może doprowadzić do poważnego zagrożenia życia lub zdrowia personelu i / lub uszkodzenia sprzętu.**

- Jeżeli jakieś zalecenia w instrukcji obsługi urządzenia są niezrozumiałe, prosimy o skontaktowanie się z przedstawicielem firmy Brooks Instrument, aby wyjaśnić problem.
- Należy postępować biorąc pod uwagę wszystkie ostrzeżenia, uwagi i zalecenia umieszczone na produkcie lub dołączone do niego.
- Instalację urządzenia należy przeprowadzić zgodnie z zaleceniami zawartymi w instrukcji instalacji oraz z obowiązującymi lokalnymi i narodowymi oznaczeniami. Wszystkie urządzenia można podłączać wyłącznie do odpowiednich źródeł energii elektrycznej oraz ciśnienia.
- Pierwsze czynności obsługowe: (1) Należy powoli włączyć przepływ w instalacji. Następnie powoli otworzyć zawory robocze tak, aby uniknąć wahań przepływu. (2) Należy teraz sprawdzić, czy nie występują nieszczelności przy podłączeniach wejściowym i wyjściowym miernika przepływu. Jeżeli nie ma żadnych nieszczelności, można zwiększyć ciśnienie w instalacji do wartości ciśnienia roboczego.
- Przed przystąpieniem do czynności serwisowych należy upewnić się, że ciśnienie robocze jest odłączone. Jeżeli konieczna jest wymiana części zamiennych, należy zawsze stosować części zamienne specyfikowane przez firmę Brooks Instrument a czynności ich wymiany powinien w każdym przypadku dokonywać przeszkolony personel. Stosowanie nieautoryzowanych części i procedur serwisowych może niekorzystnie wpłynąć na działanie produktu oraz zagrozić bezpieczeństwu instalacji. Korzystanie z podobnie wyglądających zamienników może doprowadzić do pożaru, porażenia prądem lub nieprawidłowego działania urządzenia.
- Należy upewnić się, że wszystkie otwory urządzenia są zamknięte a osłony umocowane na swoich miejscach, aby zapobiec obrażeniom ciała lub porażeniu prądem personelu. Zalecenie to nie dotyczy przeszkolonego pracownika wykonującego prace serwisowe lub konserwacyjne.

⚠ **OSTRZEŻENIE: W przypadku mierników przepływu cieczy, jeżeli znajdujące się na nich zawory wejściowe i wyjściowe mają być z jakiegoś powodu zamknięte, to urządzenie musi zostać całkowicie opróżnione z ciekłego medium. Niedopełnienie tego zalecenia może doprowadzić do termicznego zwiększenia objętości cieczy, co z kolei może spowodować uszkodzenie urządzenia i obrażenia personelu.**

Europejska dyrektywa dotycząca urządzeń ciśnieniowych (PED)

Wszystkie urządzenia ciśnieniowe pracujące przy ciśnieniu wewnętrznym względnym większym niż 0.5 bara i wielkości powyżej 25 mm lub 1 cala podlegają dyrektywie europejskiej dotyczącej urządzeń ciśnieniowych (PED).

- Rozdział „Specyfikacja techniczna" niniejszej instrukcji zawiera zalecenia dotyczące dyrektywy PED.
- Mierniki opisane w tej instrukcji są zgodne z dyrektywą EN 97/23/EC.
- Wszystkie mierniki przepływu firmy Brooks Instrument należą do 1-szej grupy cieczy.
- Urządzenia pomiarowe o wielkości powyżej 25 mm lub 1 cala należą do kategorii I, II lub III dyrektywy PED.
- Urządzenia pomiarowe o wielkości 25 mm lub 1 cala lub mniejsze podlegają zaleceniom „Uznanej Praktyki Inżynierskiej" (SEP).

Europejska dyrektywa dotycząca kompatybilności elektromagnetycznej (EMC)

Urządzenia elektryczne / elektroniczne firmy Brooks Instrument posiadające oznaczenie CE, przeszły pozytywnie testy pod kątem spełniania przez nich wymogów kompatybilności elektromagnetycznej (Dyrektywa EMC 2004/108/EC (89/336/EEC)).
Jednakże szczególną uwagę należy poświęcić przy doborze przewodów sygnałowych, które mają być stosowane z urządzeniami ze znakiem CE.
Jakość przewodu sygnałowego, dławic oraz złączy przewodu:
Firma Brooks Instrument dostarcza wysokiej jakości przewody, które spełniają wymagania zawarte w specyfikacji dla certyfikatu CE.
Jeżeli stosuje się własne przewody sygnałowe, to powinny one być w całości w pełni ekranowane.
Złącza typu „D" lub okrągłe powinny zawierać metalowy ekran. Jeśli to możliwe, należy stosować metalowe dławice przewodu zapewniające mocowanie jego ekranu.
Ekran przewodu powinien być połączony z metalową osłoną lub dławicą zapewniając całkowite, dookólne ekranowanie na obu końcach przewodu. Ekran przewodu powinien być uziemiony.
Złącza krawędziowe są standardowo niemetaliczne. Stosowane przewody muszą być w pełni ekranowane zgodnie z certyfikatem CE.
Ekran przewodu powinien być uziemiony.
Konfiguracja styków jest podana w niniejszej instrukcji obsługi.

Wyładowania elektrostatyczne (ESD)

⚠ **UWAGA: Urządzenie zawiera części elektroniczne podatne na uszkodzenia spowodowane ładunkami elektrostatycznymi. Przy obchodzeniu się z wewnętrznymi podzespołami i częściami elektronicznymi należy przestrzegać następujących zasad postępowania:**

1. Należy odłączyć zasilanie od urządzenia.
2. Osoba wykonująca czynności musi zostać uziemiona za pomocą opaski na przegubie dłoni lub w inny, bezpieczny sposób, zanim przystąpi do instalacji, wyjęcia lub regulacji obwodów drukowanych lub innych wewnętrznych podzespołów elektronicznych urządzenia.
3. Obwody drukowane należy transportować w przewodzącym pojemniku. Płytki drukowane należy wyjmować z opakowania ochronnego bezpośrednio przed ich montażem. Wymontowane płytki należy niezwłocznie umieścić w opakowaniu ochronnym służącym do transportowania, składowania lub odsyłania do producenta.

Uwagi:
Fakt, że urządzenie zawiera części nieodporne na wyładowania elektrostatyczne (ESD) jest rzeczą normalną. Większość nowoczesnych urządzeń elektronicznych zawiera komponenty wykonane w technologii tlenków metali (NMOS, SMOS itp.). Jak pokazuje praktyka, nawet niewielkie wyładowanie elektrostatyczne może uszkodzić lub zniszczyć takie urządzenie. Uszkodzone części, nawet jeżeli na pozór działają poprawnie, szybko doprowadzają do nieprawidłowej pracy urządzenia.

Portuguese

Instruções Básicas
Antes de proceder, leia-as!

A Brooks Instrument projecta, fabrica e testa os seus produtos de forma a que os mesmos satisfaçam numerosas normas nacionais e internacionais. Os equipamentos devem ser instalados, explorados e mantidos de maneira adequada, e devem funcionar de acordo com a sua gama de utilização. Durante a instalação, exploração e manutenção dos equipamentos da Brooks Instrument, as instruções seguintes devem ser observadas e integradas no programa de protecção e segurança no trabalho.

- Para assegurar o desempenho adequado a instalação, exploração, actualização, e manutenção do equipamento deve ser realizada, exclusivamente, por pessoal qualificado.
- Antes de instalar, explorar e executar operações de manutenção do equipamento devem ser lidas todas as instruções. No caso do presente manual não ser apropriado procure na capa traseira o distribuidor mais próximo e contacte-o para obter informações adicionais. Guarde este manual para referência futura.

⚠ **ATENÇÃO: não faça funcionar o equipamento fora da gama de trabalho indicada nas instruções de exploração. Da violação desta advertência podem resultar graves lesões pessoais ou avarias no equipamento.**

- Se as instruções deste manual não forem claras, contacte o representante Brooks Instrument para esclarecer as suas dúvidas.
- Observe todas as advertências, apelos e instruções indicadas no equipamento e/ou fornecidas junto com o mesmo.
- Instale o equipamento observando todas as instruções indicadas no manual e as prescrições vigentes nos regulamentos locais e nacionais. Ligue o equipamento exclusivamente às fontes de energia eléctrica e pneumática adequadas.
- Procedimento: (1) Pressurize lentamente o sistema. Abra lentamente as válvulas para evitar variações bruscas de caudal. (2) Verifique se há fugas nas ligações de entrada e saída do medidor de caudal. Se não houver fugas, carregue o sistema à pressão de trabalho.
- Antes de efectuar qualquer operação de manutenção verifique sempre que o equipamentos não está sob pressão. Em caso de ser preciso substituir peças estas devem ser as recomendadas pela Brooks Instrument e o trabalho feito por técnicos qualificados. Peças e actuações não conformes poderão influenciar o desempenho do equipamento, ou pôr em risco a sua segurança. A substituição de peças por outras não originais, meramente semelhantes poderá resultar em fogo, choques eléctricos ou funcionamento inadequado.
- Mantenha fechadas todas as portas do equipamento, e verifique que as coberturas de protecção estão nos seus lugares para evitar choques eléctricos e danos pessoais, salvo se for um técnico qualificado e estiver a executar trabalhos de manutenção.

⚠ **ATENÇÃO: Tratando-se de equipamentos em que podem fluir líquidos, se por qualquer razão tiver que fechar as válvulas de entrada e saída contíguas ao equipamento, o mesmo deverá ser prévio, e completamente esvaziado. Da omissão deste procedimento poderão resultar, devido à dilatação térmica do líquido, a destruição do equipamento e eventuais danos pessoais.**

Directiva Europeia para equipamentos sob pressão (PED)

Os equipamentos sob pressão interior superior a 0,5 bar (g) e com calibre superior e 25 mm (1 polegada) caem sob a vigência da directiva europeia de equipamentos sob pressão (PED).

- O capítulo "Dados técnicos" do manual contem instruções relativas à Directiva PED.
- Os caudalímetros objecto deste manual satisfazem a directiva 97/23/CE da UE.
- Os caudalímetros Brooks pertencem ao grupo de fluidos 1.
- Os caudalímetros com calibre superior a 25 mm (1 polegada) pertencem às categorias PED I, II, ou III.
- Os caudalímetros de 25 mm (1 polegada) ou menores observam as “Boas regras de engenharia” (SEP).

Directiva Europeia referente á Compatibilidade electromagnética (EMC)

Os equipamentos (eléctricos/electrónicos) da Brooks Instrument que têm a marcação CE passaram os testes comprovantes dos requisitos de compatibilidade electromagnética (Directiva EMC número 2004/108/EC (89/336/CEE)).
Ao utilizá-los compete-lhe, todavia, a escolha dos cabos de sinal adequados para os equipamentos com marcação CE.

Qualidade dos cabos de sinal, bucins e conectores:

A Brooks Instrument oferece cabos de alta qualidade que cumprem todos os requisitos da marcação CE.
Em caso de utilizar os seus próprios cabos de sinal, tem que garantir uma blindagem a 100%.
Os conectores do tipo “D” ou "circular" têm que ser blindados por uma bainha metálica. Em caso de necessitar de utilizar bucins estes têm que permitir a crimpagem da malha/blindagem do cabo.
A blindagem do cabo deve ser ligada ao corpo metálico ou bocal e ambas as suas metades devem estar blindadas em 360°. A blindagem deve terminar numa ligação à terra.
Os conectores ligados a cartões serão em geral não-metálicos. Os cabos utilizados devem ter fita de blindagem a 100% para satisfazer a marcação CE.
A blindagem, deverá terminar numa ligação à terra.
Atribuição de pinos: Veja as instruções de operação anexas.

Descarga Electrostática (ESD)

⚠ **CUIDADO: O equipamento contém peças que são susceptíveis a danos causados pela electricidade estática. Durante a remoção, colocação ou outras manipulações dos cartões de circuitos electrónicos deverão observar-se os procedimentos adequados.**

Procedimento de manuseio:

1. Desligar o equipamento da rede.
2. O utilizador, antes de qualquer intervenção, remoção de circuitos ou ajustes em cartões de circuitos ou em outros dispositivos internos, tem que ligar-se à terra por meio duma bracelete de pulso ou outro dispositivo adequado.
3. Os circuitos impressos deverão ser transportados em embalagem condutiva. Os cartões só deverão ser retirados da embalagem protectora imediatamente antes da sua inserção. O cartão retirado deverá ser recolocado imediatamente na embalagem protectora que servirá para o seu transporte, armazenagem, ou retorno a fábrica.

Observações:

O equipamento não é único enquanto portador de peças sensíveis à descargas electrostáticas (ESD). Na maioria dos dispositivos electrónicos Brooks encontram-se peças de tecnologia de óxidos metálicos (NMOS, SMOS, etc.). A experiência mostra que até pequenas quantidades de electricidade estática são capazes de danificar ou destruir esses dispositivos. Os componentes danificados, embora funcionem aparentemente bem inicialmente, acabam por falhar permaturamente.

Romanian

Indicaţii de referinţă
Citiţi-le întâi pe acestea!

Brooks Instrument îşi proiectează, produce şi testează produsele într-un mod ce respectă un mare număr de standarde autohtone şi internaţionale. Aceste instalaţii trebuie amplasate, exploatate şi întreţinute corespunzător, pentru ca în toate situaţiile, domeniul lor de lucru să corespundă operării normale. În ceea ce priveşte instalarea, operarea şi întreţinerea produselor Brooks Instrument, indicaţiile de mai jos trebuie respectate şi trebuie introduse în programul de protecţia muncii.

- Pentru garantarea prestaţiei corecte, instalarea, operarea, actualizarea, programarea şi întreţinerea produsului poate fi realizată doar de către personal calificat.
- Instrucţiunile de instalare ale produsului trebuie citite integral, înainte de punerea în serviciu şi exploatarea sa. În măsura în care ediţia acestui manual nu este cea adecvată, identificaţi pe ultima copertă coordonatele distribuitorului local şi pentru lămuriri suplimentare adresaţi-vă acestuia. Păstraţi acest manual pentru referinţe ulterioare.

⚠ ATENŢIE: Nu utilizaţi instalaţia în afara intervalului de funcţionare indicat în instrucţiunile de operare. Nerespectarea acestui lucru se poate solda cu răniri grave de persoane sau defectarea instalaţiei.

- În măsura în care indicaţiile cărţii maşinii nu sunt suficient de lămuritoare, luaţi legătura cu reprezentantul Brooks Instrument pentru clarificarea problemei.
- Păstraţi toate avertismentele, avizele şi instrucţiunile livrate odată cu instalaţia sau inscripţionate pe aceasta.
- Efectuaţi instalarea echipamentului în conformitate cu indicaţiile de instalare corespunzătoare, respectiv cu respectarea prevederilor naţionale. Echipamentul se conectează exclusiv la surse de energie electrică şi de presiune corespunzătoare.
- Succesiune: (1) Presurizaţi lent instalaţia. Deschideţi încetul cu încetul supapa de funcţionare pentru evitarea fluctuaţiilor de flux. (2) Controlaţi dacă nu sunt prelingeri la intrarea sau ieşirea debitmetrului de branşare. Dacă nu sunt scurgeri, presurizaţi instalaţia la presiunea de lucru.
- Înaintea exploatării/ întreţinerii, verificaţi neapărat dacă conducta uzinală nu este sub presiune. În măsura în care este nevoie de piese de schimb, este neapărat necesar ca manevrarea pieselor de schimb să fie făcută de personal cu calificare profesională agreat de Brooks Instrument. Utilizarea altor piese de schimb decât cele originale şi licenţiate poate avea efecte asupra performanţelor instalaţiei şi asupra siguranţei sale în exploatare. Utilizarea de piese asemănătoare de substituire poate avea ca rezultat pericol de incendiu şi electrocutare.
- În toate cazurile toate uşile instalaţiei trebuie să fie închise, cuştile de protecţie să fie puse la locurile lor, pentru evitarea electrocutării şi rănirii de persoane, exceptând situaţiile când un specialist efectuează lucrări de întreţinere.

⚠ ATENŢIE: În cazul instalaţiilor cu flux de fluide, dacă din orice motiv este necesară închiderea valvelor de intrare şi ieşire, limitrofe instalaţiei, instalaţia trebuie complet golită. Neglijarea acestui lucru poate avea ca efect dilatarea termică a fluidului, care poate defecta instalaţia şi poate produce răniri de persoane.

Directiva europeană pentru instalaţiile sub presiune (PED)

Toate instalaţiile şi sistemele presurizate ce se află sub presiuni interne ce depăşesc 0,5 mbar (g) şi au mai mult de 25 mm sau 1 ţol, cad sub incidenţa normei europene corespunzătoare (PED).

- La capitolul "Date tehnice" din cartea maşinii se găsesc indicaţiile corespunzătoare directivei PED.
- Mijloacele de măsurare menţionate în cartea maşinii corespund directivei 97/23/EK EU.
- Toate debitmetrele Brooks corespund clasei 1 de fluide.
- Mijloacele de măsurare mai mari de 25 mm sau 1 ţol corespund categoriei PED I, II sau III.
- Mijloacele de măsurare mai mici de 25 mm sau 1 ţol se conformează practicii inginereşti acceptate (SEP).

Directiva europeană privitoare la compatibilitatea electromagnetică (EMC).

Instalaţiile (electrice /electronice) ce poartă marca Brooks Instrument CE îndeplinesc cu succes cerinţele testelor de verificare ale compatibilităţii electromagnetice (Cf. directivelor europene EMC cu nr. 2004/108/EC (89/336/EGK)).
În acelaşi timp trebuie acordată o atenţie deosebită la alegerea cablurilor de semnalizare utilizate pentru instalaţiile ce poartă marcajul CE.

Calitatea cablurilor de semnalizare, a legăturilor prin cablu şi a conectoarelor:

Brooks Instrument oferă cabluri de calitate ridicată, care corespund cerinţelor calitative ale CE.
În măsura în care folosiţi cabluri proprii, trebuie alese acelea care sunt 100% ecranate şi prevăzute cu filtre.
Conectoarele „D" sau cele „circulare" trebuie sa dispună de ecrane metalice. În caz de nevoie trebuie folosite conectoare metalice pentru montarea filtrelor de cablu.
Filtrul de cablu trebuie conectat la carcasa metalică sau manşon şi în ambele cazuri trebuie asigurată ecranarea la 360°. Ecranarea trebuie terminată cu o legare la pământ.
Conform standardului, conectoarele aparţinând plăcilor electronice nu sunt metalice. Cablurile folosite trebuie să fie 100% ecranate şi prevăzute cu filtre pentru a corespunde clasificării CE.
Ecranarea trebuie terminată cu o legare la pământ.
Configuraţie de contact: Vezi instrucţiunile de operare ataşate.

Descărcare electrostatică (ESD)

⚠ ATENŢIE: Instalaţia include piese care sunt predispuse la defectare sub influenţa electricităţii statice. Trebuie respectate metodele corespunzătoare de extragere, instalare sau alte manipulări ale circuitelor electronice.

Procedură de manipulare:

1. Instalaţia trebuie scoasă de sub tensiune.
2. Înaintea de inserarea, scoaterea sau reglarea vreunei cartele electronice, sau a altui dispozitiv intern, persoana trebuie să se lege la pământ cu banda pentru articulaţia mâinii sau alte dispozitive de siguranţă disponibile pentru acest scop.
3. Cartelele cu cablaje electronice imprimate trebuie transportate în ambalaje anti-electrostatice (conductoare). Cartelele se pot scoate din ambalaj, doar nemijlocit înaintea amplasării lor. Cartela demontată trebuie pusă neîntârziat în ambalajul de protecţie în vederea transportării, a depozitării sau returnării la producător.

Observaţii:

În echipamente se găsesc adesea componente sensibile la descărcare electrostatică (ESD). Majoritatea echipamentelor moderne includ componente electronice realizate în tehnologie metal-oxid semiconductor (NMOS, SMOS, etc.) Experienţa a dovedit că acestea pot fi afectate sau deteriorate chiar de energii electrostatice de slabă intensitate. Componentele defectate, cu toate că în aparenţă sunt funcţionale, duc în timp la defecţiuni incipiente.

Slovak

Základné príkazy
Prečítať pred inštaláciou!

Brooks Instrument svoje výrobky projektuje, vyrába a testuje takým spôsobom, aby tieto vyhoveli domácim aj medzinárodným normám. Tieto zariadenia je potrebné predpísaným spôsobom inštalovať, prevádzkovať a udržiavať, na zabezpečenie ich spoľahlivej a normálnej prevádzky v celom pracovnom rozsahu. Nižšie uvedené príkazy je potrebné dodržiavať a začleniť do programu bezpečnostných predpisov v priebehu inštalácie, prevádzky a údržby výrobkov Brooks Instruments.

- V záujme zabezpečenia vyhovujúceho výkonu inštaláciu, prevádzku, programovanie, aktualizáciu a údržbu zariadení má vykonávať výlučne odborne kvalifikovaný personál.
- Pred inštaláciou, prevádzkou a servisu zariadení je potrebné prečítať všetky príkazy. Ak táto príručka nie je správna, tak na zadnej strane treba nájsť miestneho distribútora, kontaktovať ho pre ďalšie informácie. Pre neskoršie informácie uschovajte príručku.

⚠ UPOZORNENIE: Neprevádzkovať zariadenie v rozsahu mimo rozsahu uvedenom v prevádzkovej príručke. Porušenie tohto oznámenia môže mať za následok ťažkú ujmu na zdraví a vedie k poškodeniu zariadenia.

- Ak príkazy v návode nie sú jednoznačné, kontaktujte zástupcu Brooks Instrument na objasnenie problémov.
- Dodržujte všetky upozornenia, príkazy a usmernenia uvedené na zariadení, alebo s ním dodané.
- Zariadenia inštalujte podľa návodu uvedeného v príkaze na inštaláciu, v súlade s miestnymi a národnými predpismi. Zariadenie pripojte výlučne len na vyhovujúci elektrický a tlakový zdroj
- Postup: (1) Pomaly natlakujte systém. Prevádzkový ventil otvorte pomaly na zamedzenie kolísania prietoku. (2) Prekontrolujte tesnosť vstupného a výstupného zapojenia prietokomeru. Keď nie je presakovanie, spoje sú tesné, naplniť systém na prevádzkový tlak.
- Pred vykonávaním servisných prác kontrolovať, či systém nie je pod tlakom. V prípade, že je potrebná výmena súčiastky, výmenu dielov, určených Brooks Instrument musí vykonať kvalifikovaná osoba. Použitie nepovolených dielov a vykonávanie nepovolených aktivít ohrozujú bezpečnosť prevádzvky a majú negatívny vplyv na výkon zariadenia. Nahradenie súčiastok len podobnými komponentmi môže mať za následok požiar, úraz elektrickým prúdom alebo nedostatočnú funkciu zariadenia
- Všetky ochranné kryty, dvierka zariadenia majú byť zatvorené na zabezpečenie ochrany proti úrazu elektrickým prúdom a proti poraneniam obsluhy. Výnimku tvorí vykonávanie údržby kvalifikovaným odborníkom.

⚠ UPOZORNENIE: Pri zariadeniach s prietokom kvapalín, keď z akéhokoľvek dôvodu je nutné uzavrieť vstupné a výstupné ventily, zariadenie je potrebné úplne vyprázdniť. Zanedbanie vypúšťania má za následok poškodenie zariadenia s možnosťou zranenia obsluhy z dôvodu tepelnej rozťažnosti náplne.

Európska smernica vzťahujúca sa na tlakové zariadenia (PED)

- Všetky zariadenia s vyšším vnútorným pretlakom ako 0,5 bar (g), a väčšieho rozmeru ako 25 mm alebo 1 anglický palec, podliehajú pod Európsku smernicu vzťahujúcu sa na tlakové nádoby (PED).
- Kapitola "Technické údaje" návodu na obsluhu obsahuje príkazy vzťahujúce sa na smernicu PED.
- Meracie prostriedky uvedené v návode na obsluhu vyhovujú smernici 97/23/ES EÚ.
- Všetky prietokomery Brooks patria do 1. skupiny kvapalín.
- Meracie prístroje presahujúce rozmery 25 mm alebo 1 " spĺňajú I., II., alebo III. kategóriu PED.
- Meracie prístroje menšie alebo rovné ako 25 mm alebo 1 " zodpovedajú zaužívanej meracej praxi (SEP).

Európska smernica vzťahujúca sa na elektromagnetickú kompatibilitu (EMC)

Elektrické / elektronické zariadenia Brooks Instrument, ktoré si zaslúžili značku CE, úspešne splnili skúšobné testy požiadaviek elektromagnetickej kompatibility (smernica EMC č. 2004/108/EC (89/336/EHS)).
Pritom treba venovať zvláštnu starostlivosť na výber signálnych káblov zariadenia, s označením CE.

Kvalita signálnych káblov, káblových spojov a prípojov:

Brooks Instrument ponúka vysoko kvalitné káble, ktoré spĺňajú požiadavky kvalitatívneho zaradenia CE.
Ak použijete vlastné signálne káble, majú mať 100%-né tienenie, s plným filtrovaním.
Prípojky "kruhové" alebo tvaru "D" majú mať kovové tienenie. V prípade potreby treba použiť kovové káblové spojky k upevneniu káblového filtra.
Káblový filter treba pripojiť ku kovovému telesu alebo k puzdru, na oboch stranách zabezpečiť tienenie v kruhu 360 °. Tienenie má byť ukončené uzemnením.
Prípojky vedúce ku kartám podľa noriem sú nekovové. Použité káble, pre vyhovenie predpisom CE musia mať 100%-né filtrovanie tienením.
Tienenie má byť ukončené uzemnením.
Konfigurácia kontaktov: Viď priložený návod na obsluhu. .

Elektrostatický výboj (ESD)

⚠ UPOZORNENIE: Prístroj obsahuje súčiastky, ktoré môžu byť poškodené od elektrostatických nábojov. Pri montáži, odstraňovaní alebo inej údržby vnútorných obvodových kariet je potrebné dodržiavať príslušné postupy.

Postup ošetrovania:

1. Zariadenie odpojiť od napájania.
2. Osoba vykonávajúca údržbu má byť uzemnená uzemňujúcim náramkom, alebo iným, na túto prácu vyhovujúcim spôsobom pred vykonávaním inštalácie, demontáže a nastavenia obvodových kariet alebo iného vnútorného prostriedku.
3. Karty obvodov sa musia prepravovať v elektricky vodivom balení. Karty sa môžu vyberať z ochranného obalu výlučne len tesne pred montážou, zasunutím! Vybranú kartu okamžite treba umiestniť do ochranného obalu, určeného pre dopravu, skladovanie, alebo pre spätnú prepravu do výrobného závodu.

Poznámky:

Existencia prvkov, ktoré sú citlivé na elektrostatické výboje (ESD) v prístroji je častým javom. U väčšiny moderných elektronických prostriedkov sú použité prvky s technológiou oxidu kovov (NMOS, SMOS, atď.). Skúsenosti dokazujú, že aj nepatrné elektrostatické výboje poškodzujú, zničia tieto prostriedky. Poškodené súčiastky, aj keď zdanlivo pracujú bez chyby, odkazujú na vznikajúce poruchy.

Slovene

Osnovna navodila
Najprej preberite jih

Brooks Instrument tako konstruira, izdeluje in terstira svoje izdelke, da oni ustrezajo številnim domačim in mednarodnim standardom. Te naprave se morajo ustrezno instalirati, koristiti in vzdrževati, da vsekakor delajo ustrezno normalnom področju funkcioniranja. Naslednjih navodil se mora držati in potrebno je vgraditi v program varstva pri delu pri instaliranju, koriščenju in vzdržavanju izdelkov proizvajalca Brooks Instrument.

- Za jemstvo ustreznega učinka naj izključno strokovno osobje opravlja instaliranje, koriščenje, osveženje, programiranje in vzdrževanje izdelka.
- Potrebno je prebrati vsa navodila pred instaliranjem, koriščenjem in servisiranjem izdelka. V kolikor ta priročnik ni ustrezna publikacija, na zadnji strani poiščite lokalnega distributerja in za nadaljnje informacije stopite z njim v kontakt. Prihranite ta priročnik za poznejše informacije.

⚠ **OPOMBA: Ne koristite napravo izven področja iz navodila za uporabo. Prekršek tega lahko privede do osebnih poškodb ali okvare naprave.**

- V kolikor navodila priročnika niso enosmiselna, stopite v kontakt z zastopnikom društva Brooks Instrument, da razčistite problem.
- Držite se vseh opozoril, povabil, navodil, ki so navedena na napravi ali skupaj z njim izporočena.
- Napravo instalirajte shodno navodilom in relevantnim lokalnim in nacionalnim navodilom iz navodila za instalirenje.. Izdelek spojite izključno na ustrezni izvir elektrike in obskrbo tlaka.
- Proces: (1) Počasi položite sistem pod tlak. Počasi odpirajte pogonske ventile zaradi izogibanja nihanju pretoka. (2) Preverjajte, ima li curljanja pri povezu vstopa in izstopa merilca toka. Če ni curljanja, naplonite sistem na pogonski tlak.
- Pred servisom vsekakor preverjajte, ali je pogonski vod pod tlakom. Če je potreben rezervni del, svekakor strokovna oseba mora rokovati z rezervnimi deli odrejenimi od Brooks Instrument. Nedovoljeni rezervni deli in dejavnosti lahko vplivajo na učinek izdelka, oziroma ugrožavajo varnostni pogon. Sprememba samo z podobnimi rezervnimi deli lahko ima za posledico požar, nevarnost električnega šoka ali nedovoljno funkcioniranje.
- Vsa vrata naprave svekakor morajo biti zaprta, zaščitni ovitki morajo biti na svojem mestu zaradi izogibanja šoku in osebnim poškodbam, razen, če na njej strokovnjak opravlja dela vzdrževanja.

⚠ **OPOMBA: V primeru naprave za tok tekočine, če je iz katera koli razloga potrebno zapreti vstopne in izstopne ventile pri napravi, naprava se mora celotno izprazniti. Zamuda tega lahko provzroči toplotno proširjenje tekočine, kar poškoduje napravo in lahko povrzoči osebno poškodbo.**

Europske smernice za naprave ohranjanja pritiska (PED)

Vsaka naprava ohranjanja pritiska z notranjim pritiskom več od 0,5 bara (g) in večjim od 25 mm ali 1 palca sodi pod Europskim smernicam za ohranjanje pritiska (PED).

- Poglavje priročnika „Tehnični podatki" vsebuje navodila, ki se nanašajo na smernice PED.
- Merilni instrumenti navajani v priročniku ustrezajo smernicam EU številke 97/23/EK
- Vsaki merilec pretoka Brooks sodi v skupino tekočin številke 1.
- Merilni instrumenti večji od 25 mm ali 1 palca ustrezajo kategriji PED I, II, ali III.
- Merilni instrumenti manjši od 25 mm oziroma 1 palca ali manjši sledijo sprejeti inženjeski praksi (SEP).

Evropska smernica za Elektromagnetno kompatibilnost (EMC)

Naprave Brooks Instrument, ki so zaslužile CE označbo (električni/elektronski) so uspešno izpolnile testove zahteve o elektromangnetni kompatibilnosti (št. 2004/108/EC (89/336/EGK smernice EMC)) .
Obenem mora se posebno pozornost posvetiti na izbiro signalnega kabla, ki se uporabljajo za naprave z označbo CE.
Kakaovost signalnih kablov, povezav kablov, priključkov:
Brooks Insturment nuja kabele visoke kakovosti, ki ustrezajo zahtevam kvalificiranja CE.
V kolikor se uporbalja lastni signalni kabel, treba je izbrati, ki za 100 % senco v polni meri filtriran.
Priključki „D" „olika kroga" morajo biti zasenčeni kovonskom sencom. Če bo potrebno, uporabite kovinske povezave za pritrditev filtra kabla
Filtar kabla je treba priključiti na kovinsko ohišje ali plašt in na obe polovici je treba senčiti v 360°. Senčenje mora završiti v ozemljitvi.
Priključki, ki sodijo karitcam normalno nisu kovinskik. Koriščeni kabli moraju biti filtrirani s 100 % senco, da odgovarjajo CE kvalifikaciji.
Sencanje mora imat konec v ozemljitvi.
Konfiguracija stika: Vidi priloženo navodilo za uporabo.

Elektrostatično izpražnjenje (ESD)

⚠ **OPOZORILO: Naprava vsebuje take sestavne dele, ki so naklonjeni k poškodbi od statične elektrike. Treba se je držati ustreznih postopkov pri odstranjevanju, vlogu ali drugega rokovanja kartic in sredstev notranjih tokovnih krogov.**

Posotpek rokovanja:

1. napravo je treba izklopiti iz električnega toka.
2. Osebo je treba ozemljiti zapestnim paščekom ali z drugim varnostnim in za ta namen primernim sredstvom preden bi instalirala, jemala, ali nastavila kartico za tokovni krog ali drugo notranjo opremo.
3. Tiskane kartice tokovnega kroga je treba izporočiti v konduktivni embalaži. Karte so odstranjive izključno neposredno pred vlogom iz zaščitne embalaže ven. Izjemljeno kartico nemudoma staviti v zaščitno embalažo za gibanje, skladiščenje ali pošiljanje nazaj.

Opombe:
Nije poseben pojav, da se v napravi nahajajo občutljivi sestavni deli na elektrostatično pražnjenje (ESD). V večem delu modernih elektronskih sredstev nahajajo se sestavni deli na kovinsko oksidno tehnologijo (NMOS, SMOS itd..). Izkustva potrjujejo, da majhna statična elektrika more poškodovati ali uničiti ta sredstva. Oškodovani rezervni deli, če na videz dobro delajo, nakažejo začetno napako.

Spanish

Instrucciones básicas ¡Léalos primero!

El Brooks Instrument proyecta, fabrica y prueba sus productos de manera que éstos respondan a numerosas normas nacionales e internacionales. Dichas instalaciones deben ser emplazadas, operadas y mantenidas adecuadamente, para que puedan marchar de todas formas en conformidad con el alcance normal de funcionamiento. Las siguientes instrucciones deben cumplirse y incorporadas en su programa de seguridad cuando instalando, operando y mantenimiento los productos Brooks Instrument.

- Para asegurar el adecuado rendimiento, para instalar, operar, actualizar, programar y mantener tiene que realizarse exclusivamente por una persona calificada.
- Antes de la instalación, operación y servicio del producto leer todas las respectivas instrucciones. Si el presente manual no es la adecuada publicación, busque al distribuidor local que figura en la contraportada y póngase en contacto con él para obtener informaciones. Guarde el presente manual para tener informaciones también en el futuro.

⚠ **ATENCIÓN: No haga funcionar los equipos fuera del rango indicado en las instrucciones de funcionamiento. El incumplimiento de estas últimas puede conducir a graves daños personales o a la avería del equipo.**

- Si las instrucciones del manual no son evidentes, póngase en contacto con el representante de Brooks Instrument para aclarar el problema
- Observar todas las alertas, advertencias e instrucciones indicadas en el equipo o suministradas con el mismo.
- Instale su equipo en conformidad con las recomendaciones indicadas en las respectivas instrucciones de instalación y con las pautas de las normas vigentes locales e internacionales. Conectar el producto exclusivamente a la adecuada fuente eléctrica y presión.
- Proceso: (1) Colocar lentamente flujo en el sistema. Abrir lentamente las válvulas de proceso para evitar oscilación del flujo. (2) Verificar si hay fuga alrededor de las conexiones de entrada y salida del flujómetro, Si no hay, llenar el sistema con la presión de operación.
- Antes de efectuar el servicio, verificar si hay presión o no en la tubería de la red. Si se requiere realizar un recambio de piezas, solamente el personal calificado puede manipular las piezas de repuesto determinadas por Brooks Instrument Las piezas y operaciones no autorizadas pueden afectar el rendimiento del producto o arriesgar el funcionamiento seguro. El recambio realizado con piezas sólo similares pueden traer como consecuencias incendios, choques eléctricos o funcionamiento bajo.
- Todas las puertas de la instalación deben estar cerradas, las cubiertas de protección tienen que hallarse en el debido sitio con el fin de evitar los daños personales y los choques eléctricos, salvo cuando un especialista efectúa el mantenimiento.

⚠ **ADVERTENCIA: En caso de instalaciones que circulen líquido, si por cualquier razón se hubiera de cerrar las válvulas de entrada y salida situadas al lado del equipo, dichas instalaciones deberán ser completamente vaciadas. La omisión de esto último puede provocar la dilatación térmica del líquido, lo que puede dañar al equipo y conducir a daños personales.**

Directriz Europea de los Equipos de Presión (PED)

Todos los equipos de presión, con una presión interna que supere a 0,5 bar (g) con tamaño mayor a 25 mm o 1 pulgada entran el ámbito de la Directriz Europea de los Equipos de Presión (PED).

- El capítulo Datos Técnicos del manual incluye las instrucciones respecto a las directivas de PED
- Los instrumentos de medición indicados en el Manual responden a las EN directivas 97/23/EC.
- Todos los flujómetros Brooks pertenecen a la categoría 1 del grupo de fluidos.
- Los instrumentos de medición más grandes que 25 mm o 1 pulgada están en conformidad con las categorías I, II o III de PED
- Los instrumentos de medición más pequeños que 25 mm o 1 pulgada siguen la Práctica Aceptada de Ingeniería (SEP).

Directriz Europea respecto a la Compatibilidad Electromagnética (EMC)

Las instalaciones de Brooks Instrument (eléctricas/electrónicas) merecedores de la categoría CE cumplieron con éxito las pruebas que verifican las exigencias de la compatibilidad electromagnética (directiva de EMC No.89/336/EEC)
Al mismo tiempo se ha de prestar una especial atención en la selección de los cables de señal, utilizados con los equipos marcados con CE.
Calidad de los cables de señal, piezas de unión de cable y conectores:
El Brooks Instrument ofrece cables de alta calidad, que responden a los requerimientos de calificación CE.
Si se utiliza cable propio de la firma, se ha de elegir uno que sea completamente filtrado con blindaje de 100%.
Las piezas de unión de forma „D" o „circular" deben ser blindadas mediante blindaje metálica. Si es necesario, aplicar piezas de unión de metal para sujetar el filtro de cable.
Conectar el filtro de cable a la caja o manguito de metal blindándolo en ambas caras en 360°.
El blindaje debe terminar en tierra.
Los conectores que pertenecen a las tarjetas normalmente no son metalizados. Los cables utilizados deben ser filtrados con una blindaje de 100% para responder a la calificación CE.
El blindaje debe terminarse en tierra.
Configuración de contacto: Véase Instrucciones de operación adjuntas.

Descarga Electroestática (ESD)

⚠ **PRECAUCIÓN: El aparato incluye piezas electrónicas que son susceptibles a los daños provocados por la electricidad estática. Observar los adecuados procesos para remover, instalar o manipular las tareas y medios de circuitos eléctricos internos**

Proceso de operación:

1. Desconectar la fuente eléctrica de la unidad.
2. La persona debe ponerse a tierra mediante una palanca acodada o por otro medio seguro y apropiado para dicho fin antes de instalar, sacar o ajustar el circuito impreso eléctrico u otro medio interno.
3. El circuito impreso debe ser transportado en embalaje conductivo. Las tarjetas no pueden sacarse de la cubierta protectora exclusivamente directamente antes de la instalación. Las tarjetas desmontadas deben colocarse sin tardar en el embalaje protector utilizado para manipulación, almacenamiento o devolución a la fábrica.

Notas:
Esto equipo no es el único contenido de piezas susceptibles a la descarga electroestática (ESD). En la mayoría de los medios electrónicos modernos se encuentran piezas fabricadas por tecnología de óxido metálico. (NMOS, SMOS etc.). Las experiencias confirman que incluso una mínima electricidad estática puede dañar o destruir dichos medios. Las piezas averiadas, aunque funcionen aparentemente bien, indican una falla inicial.

Swedish

Väsentliga anvisningar.
Läs detta innan du fortsätter !

Brooks Instrument konstruerar, tillverkar och testar sina produkter med syfte att uppfylla alla nationella och internationella standarder. Dessa produkter måste installeras på rätt sätt, handhas och underhållas för att de skall fungera kontinuerligt enligt deras normala specifikation. De följande anvisningarna bör följas och integreras till Ert säkerhetsprogram varje gång när Brooks Instruments produkter installeras, handhas och underhålls.

- För att garantera angiven funktion, använd kvalificerad personal till att installera, handha, uppgradera, programmera och serva produkten.
- Läs alla instruktioner innan produkten installeras, startas upp och underhålls. Om du finner att denna instruktionshandbok inte är den rätta instruktionsboken, titta på i slutet av pärmen för information om hur man kan kontakta lokala representanter. Spara denna instruktions manual för senare behov.

⚠ **VARNING: Kör inte detta instrument utanför dess specifikationer som är angiven i Instruktionsboken. Undvikande att ta denna varning kan leda till allvarliga personliga skador och / eller skada utrustningen.**

- Om du inte förstår någon av dessa instruktioner, kontakta din representant för Brooks Instrument för klarläggande.
- Följ alla varningar och instruktioner som följer med leveransen av denna produkt.
- Installera din utrustning på sättet som anges i den gällande handbokens installationsanvisningar och enligt tillämpliga lokala och nationella föreskrifter. Koppla varje produkt till föreskriven ström- och tryckkällan.
- Igångsättning: (1) Koppla långsamt på flöde i systemet. Öppna processventiler sakta för att undvika för höga flöden. (2) Kontrollera läckor vid mätarens anslutningar för in- och utlopp. Om inget läckage förekommer, kör systemet upp till drifttrycket.
- Kontrollera att processledningens tryck är bortkopplat före service. I fall det behöves kompletteras med nya delar, se till att komponenter föreskrivna av Brooks Instrument används. Samt att kvalificerad personal utför arbetet. Ej rekommenderade komponenter och åtgärder kan påverka produktens prestanda och sätta din driftsäkerhet på spel. ”Felaktiga” ersättningar kan orsaka eld, elektriska skador samt felaktig funktion.
- Se till att anordningens kåpor och skyddslock ligger på sin plats med syfte att förebygga elektriska kontakt och personliga skador; det enda undantag gäller när underhållsarbete utförs av kvalificerad personal.

⚠ **VARNING: I fall av - flödesmätare / regulatorer för vätskor: Ifall ventiler före och efter skall stängas av, måste alla ledningar tömmas på all vätska. Att ej tömma ledningar alt koppla bort trycket kan göra så att vätskans värmeutvidgning kan spräcka / skada utrustningen och orsaka personliga skador.**

European Pressure Equipment Directive (PED) - (Rådets Direktiv 99/36/EG av den 29 april 1999[1] om transportabla tryckbärande anordningar)

Alla utrustning för tryck med ett tryck över 0.5 Bar(g) bar och större demensioner än 25 mm eller 1" (inch) faller under Tryck direktiv 99/36/EG av den 29 april 1999[1] om transportabla tryckbärande anordningar - PED.

- Den här Instruktionsbokens Sektion ” Specifikation” innehåller anvisningar gällande PED Direktivet.
- Mätare som beskrivs i denna Instruktionsbok är i överensstämmelse med EN Direktivet 97/23/EC.
- Brooks Instruments alla flödesmätare faller under flödesgrupp nr. I.
- Mätare som är större än 25 mm eller 1" (inch) överensstämmer med PED kategorier I, II eller III.
- Mätare på 25mm eller 1" (inch) eller mindre faller under Sound Engineering Practice (SEP) (God Teknisk Praxis).

European Electromagnetic Compatibility (EMC) - Elektromagnetisk kompatibilitet

Brooks Instrument (elektriska/elektroniska) CE-märkta anordningar har redan genomgått ett framgångsrikt prov enligt regleringar under Electromagnetic Compatibility (EMC directive 2004/108/EC (89/336/EEC)). Man måstre dock ägna särskild uppmärksamhet till valet av signalkabeln som skall används för CE-märkta anordningar.

Signalkablars, packboxars och kontakdons kvalitet:

Brooks Instrument levererar högkvalitativa kablar som överensstämmer med specifikation för CE-intygade produkter.
Om man använder sin egen signalkabel, då bör man använda en kabel som är fullständigt skärmad med en 100% avskärmning.
“D” eller “Cirkelformiga” kontakdon skall vara skärmade med metalliska avskärmningar. Om det är användbart, bör metallpackboxar som ger en bra fastspänning för kabelskärmar användas.
Kabelavsärmningen måste kopplas till den metalliska skärmande anordningen eller packboxen och skärmas vid båda ändar runt omkring. Avskärmningens avspänning måste jordas.
Card Edge Kontaktdon är icke metalliska. För att överensstämma med krav på CE-intyg, skall de kablarna som används vara skärmade med 100% skärmning.
Skärmningen måste jordas.
Vad gäller stiftkonfigurationen: Se den bifogade Instruktionshandboken.

ESD (Elektrostatiska urladdningar)

⚠ **OBS: Denna utrustning innehåller elektroniska komponenter som är lättpåverkade av skada orsakad av statisk elektricitet. Lämplig hanteringsprocedur måste följas när man tar bort, installerar eller på något annat sätt hanterar inre kretskort eller andra anordningar.**

1. Ström till enheten måste kopplas från.
2. Personalen måste jordas med hjälp av ett armband eller något annat säkert medel innan något kretskort eller andra inre anordningar installerras, tas bort eller justeras.
3. Kretskort måste transporteras i en speciell förpackning för elektronik. Kort skall ej tas bort från deras skydsskåpa innan man skall installera dem. De borttagna korten bör omedelbart läggas i speciell förpackning för transport, lagring eller återlämnande till fabriken.

Anmärkningar:

Dessa instrument är ej unika vad gäller dess ESD (Elektrostatiska urladdningar) - känsliga komponenter. De flesta samtida konstruktioner innehåller komponenter som utnyttjar metalloxid teknologi (NMOS, SMOS, o.s.v.). Erfarenhet har visat att även små mängder av statisk elektricitet kan skada eller förstöra dess komponenter. Skadade komponenter - även om de annars verkar fungera ordentligt – har ofta en kortare livslängd. .

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LIMITED WARRANTY

Seller warrants that the Goods manufactured by Seller will be free from defects in materials or workmanship under normal use and service and that the Software will execute the programming instructions provided by Seller until the expiration of the earlier of twelve (12) months from the date of initial installation or eighteen (18) months from the date of shipment by Seller. Products purchased by Seller from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer.
All replacements or repairs necessitated by inadequate preventive maintenance, or by normal wear and usage, or by fault of Buyer, or by unsuitable power sources or by attack or deterioration under unsuitable environmental conditions, or by abuse, accident, alteration, misuse, improper installation, modification, repair, storage or handling, or any other cause not the fault of Seller are not covered by this limited warranty, and shall be at Buyer's expense.
Goods repaired and parts replaced during the warranty period shall be in warranty for the remainder of the original warranty period or ninety (90) days, whichever is longer. This limited warranty is the only warranty made by Seller and can be amended only in a writing signed by an authorized representative of Seller.

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 and 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.

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

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