

# Gas and Liquid Mass Flow Secondary Electronics



*Model 0251  
Single Channel  
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.

**▲ WARNING: Prior to installation ensure this instrument has the required approval ratings to meet local and national codes. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.**

- 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.
- Products described in this manual are in compliance with EN directive 2014/34/EU.
- All Brooks Instrument Flowmeters fall under fluid group 1.
- Products larger than 25mm or 1" (inch) are in compliance with PED category I, II or III.
- Products 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 (EMC directive 2014/30/EU).

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.

## Installation and Operation Manual

X-SE-0250-Series-eng

Part Number: 541B129AAG

October, 2017

0250 Series

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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](http://www.BrooksInstrument.com)

Yours sincerely,

Brooks Instrument

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<u>Paragraph Number</u>	<u>Page Number</u>
<b>Section 1 Introduction</b>	
1-1	Description ..... 1-1
1-1-1	Architecture ..... 1-1
1-1-2	Communication ..... 1-1
1-1-3	Process Controls ..... 1-1
1-1-4	Operator Controls and Indicators ..... 1-2
1-1-5	Diagnostic Capabilities ..... 1-2
1-2	Specifications (Reference Table 1-1) ..... 1-2
1-3	Signal Wiring (Reference Figures 1-1 and 1-2) ..... 1-4
1-4	Optional Equipment ..... 1-4
1-4-1	Mounting Kit Options ..... 1-4
1-4-2	Power Supply Options ..... 1-4
1-4-3	Input/Output Pin-Out Adapters ..... 1-4
<b>Section 2 Installation</b>	
2-1	General ..... 2-1
2-2	Receipt of Equipment ..... 2-1
2-3	Recommended Storage Practice ..... 2-1
2-4	Return Shipment ..... 2-2
2-5	Transit Precautions ..... 2-2
2-6	Removal from Storage ..... 2-2
2-7	Ventilation and Mounting Requirements ..... 2-2
2-8	Cleaning Instructions ..... 2-2
2-9	Cable Requirements ..... 2-3
2-10	Installation Instructions ..... 2-3
2-10-1	Panel Mount Installation Instructions ..... 2-3
2-10-2	Table Top Stand Assembly Instructions ..... 2-5
2-10-3	Retrofit to Model 0152/0154 Table Top Housing (Model 0254 only) ..... 2-7
2-10-4	19-in. Rack Assembly and Installation Instructions (Model 0254 only) ..... 2-8
<b>Section 3 Operation</b>	
3-1	Home Screen ..... 3-1
3-2	Operating Controls ..... 3-2
3-2-1	Primary Functions ..... 3-2
3-2-2	Key Functions ..... 3-3
3-3	Navigation ..... 3-4
3-3-1	Display or Instrument Configuration Screen Selection ..... 3-4
3-3-2	User Interface Screen Map ..... 3-5
3-4	Process Values (PV) and Setpoints (SP) ..... 3-7
3-4-1	PV-SP Measures and Status ..... 3-7
3-4-2	PV-SP Configuration ..... 3-8
3-4-3	Value Programming ..... 3-9
3-5	Global Settings ..... 3-12
3-5-1	Global Information ..... 3-12
3-5-2	Global System Power ..... 3-13
3-5-3	Global Control Services ..... 3-14
3-5-4	Global Communication ..... 3-15
3-6	Instrument Configuration and Control ..... 3-15
3-6-1	Rate (Setpoint) Control ..... 3-15

0250 Series

<u>Paragraph Number</u>	<u>Page Number</u>
3-6-2	PV Configuration ..... 3-17
3-6-3	Batch Control ..... 3-18
3-6-4	Blend Control (Model 0254 only) ..... 3-19
3-6-4-1	Blend Control Setup ..... 3-20
3-6-4-2	Start Blend ..... 3-21
3-6-4-3	Terminate Blend In-Process ..... 3-22
3-6-5	SP VOR (Valve Override) Function ..... 3-22
3-6-6	Totalization ..... 3-23
3-6-7	Emergency Off ..... 3-24
<b>Appendix A Engineering Units</b>	
	Available Engineering Units ..... A-1
<b>Appendix B Blending Examples</b>	
	Examples 1 through 6 ..... B-1
<b>Appendix C Serial Communications Protocol</b>	
C-1	Overview ..... C-1
C-2	Communication Settings ..... C-1
C-2-1	RS232 Port Settings ..... C-1
C-2-2	Hyperterminal Set-Up ..... C-2
C-3	Serial Command Organization ..... C-3
C-3-1	Command Structures ..... C-3
C-3-2	Command Addressing ..... C-6
C-4	Command Operation ..... C-7
C-4-1	General Commands ..... C-7
C-4-1-1	Command Synchronize ..... C-7
C-4-1-2	Menu Command ..... C-7
C-4-1-3	View Programmed Channel Port Values ..... C-8
C-4-1-4	Identify Command ..... C-8
C-4-1-5	Message Serial Character Pacing Controls ..... C-9
C-4-1-6	Serial Message Error Control ..... C-10
C-4-2	Channel Input Port Commands ..... C-11
C-4-2-1	Measure Channel Values Command ..... C-11
C-4-2-2	Send Channel Input Port Programmed Values ..... C-12
C-4-2-3	Program Channel Input Port Values ..... C-13
C-4-2-4	Clear Accumulated Values ..... C-13
C-4-3	Channel Output Port Control Commands ..... C-13
C-4-3-1	Channel Control Output Port Values ..... C-13
C-4-3-2	Batch and Blend Control Commands ..... C-14
C-4-4	Global Settings Services ..... C-16
C-4-4-1	Global Setting Values ..... C-16
C-4-4-2	Set Global Settings Values ..... C-16
C-4-5	Communication Message Basics ..... C-16
C-4-5-1	Message Structure ..... C-17
C-4-5-2	Message Format ..... C-17

<u>Paragraph Number</u>		<u>Page Number</u>
C-5	Serial Value Programming .....	C-18
C-5-1	Read a Programmed Value .....	C-18
C-5-2	Program a New Value .....	C-19
C-5-3	Channel Input Port Values .....	C-20
C-5-4	Channel Output Port Values .....	C-22
C-5-5	Global Setting Values .....	C-23
<b>Appendix D CE Essential Instructions</b>		
	Essential Instructions .....	D-1
<b>Warranty, Local Sales/Service Contact Information</b> .....		Back Cover

**Figures**

<u>Figure Number</u>		<u>Page Number</u>
1-1	Model 0251 Signal Wiring .....	1-5
1-2	Model 0254 Signal Wiring .....	1-5
2-1	Panel Mount Cut-Out Dimensions .....	2-4
2-2	Table Top Stand Mount Installation .....	2-6
2-3	Power Supply Bracket and Bezel .....	2-9
2-4	Rack Installation .....	2-9
3-1	Home Screen .....	3-1
3-2	Model 0251 - User Interface Screen Map .....	3-5
3-3	Model 0254 - User Interface Screen Map .....	3-6

**Tables**

<u>Table Number</u>		<u>Page Number</u>
1-1	Specifications - 0250 Series .....	1-3
3-1	Display Home Screen Fields .....	3-1

0250 Series

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## 1-1 Description

The Brooks Model 0250 Series is a versatile full-featured measurement and control process instrument, available with single or 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 single & 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, desktop & rack mount (0254 only).

### 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.

Channel(s) 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.

Communication is initiated by command (solicited), alarms (unsolicited) & real time scheduled reporting using its internal date-time clock.

### 1-1-3 Process Controls

Totalizer, batch, and proportional blending (0254 only) are readily achieved using the front panel key controls or serial commands.

## 0250 Series

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### 1-1-4 Operator Controls and Indicators

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The instrument has no power switch to be accidentally turned off. 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 0250 Series 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

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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 (Reference Table 1-1)

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#### **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.**

Table 1-1 Specifications - 0250 Series

**Performance**

<b>Display</b>	0251: 8 line x 20 character back-lit LCD display. 0254: 8 line x 40 character back-lit LCD display.
<b>Controls</b>	Keypad: 8-Key metal dome tactile push buttons with selectable audio beep for setpoint (rate, batch, blend), VOR, emergency stop, full operation and programming.
<b>Date Retention</b>	Non-volatile ram/rom, 100 year retention.
<b>Power Input</b>	Voltage: 12-24 Vdc required, -15 Vdc permitted. Current: 400 mA max. current draw per channel. Instrument power draw: 0.8 Watts. Optional power module: 100-240 Vac, 47-63Hz.
<b>Power Output</b>	+15 V/2.0 A, -15 V/1.0 A or 12-24 Vdc/2.0 A.
<b>Signal Input</b>	0(1)-5 Volts, 0(2)-10 Volts, 0(4)-20 mA.
<b>Signal Output</b>	0(1)-5 Volts, 0(2)-10 Volts, 0(4)-20 mA.
<b>Communications</b>	Full communications capability for remote readout, setpoint, control, programming and data acquisition via RS232.
<b>Enclosure</b>	ABS cyclac resin.
<b>Mounting Options</b>	Panel mount kit, table top kit, rack mount kit, rack mount kit with 19" sub-rack. (Rack mount available for 0254 only)
<b>Dimensions</b>	See product dimensions on pages 4 - 6.
<b>Temperature/Humidity</b>	Operating: 32-122°F (0-50°C), 0-95% non-condensing. Ship/Storage: (-)40-185°F (-)40-85°C, 0-95% non-condensing.
<b>Certifications</b>	CE Mark EMC Directive 2014/30/EU EN:61326-1:2013 Low Voltage Directive 2014/35/EU EN:61010-1-2010 Machinery Directive 2006/42/EC EN/ISO:13849-1:2009, EN:60204-1:2009 RoHS Directive 2011/65/EU FCC Part 15 Class A, part 68 UL-USA & Canada 0254: UL 61010 Electrical Safety for General Purpose Indoor Use.

## 0250 Series

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### 1-3 Signal Wiring (Reference Figures 1-1 and 1-2)

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### 1-4 Optional Equipment

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#### 1-4-1 Mounting Kit Options

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The 0250 Series can be mounted using the following kits:

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 (Model 0254 only).

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.

#### 1-4-2 Power Supply Options

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The 0250 Series 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

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The Model 0251 has one 15-pin female D-channel connector.

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.

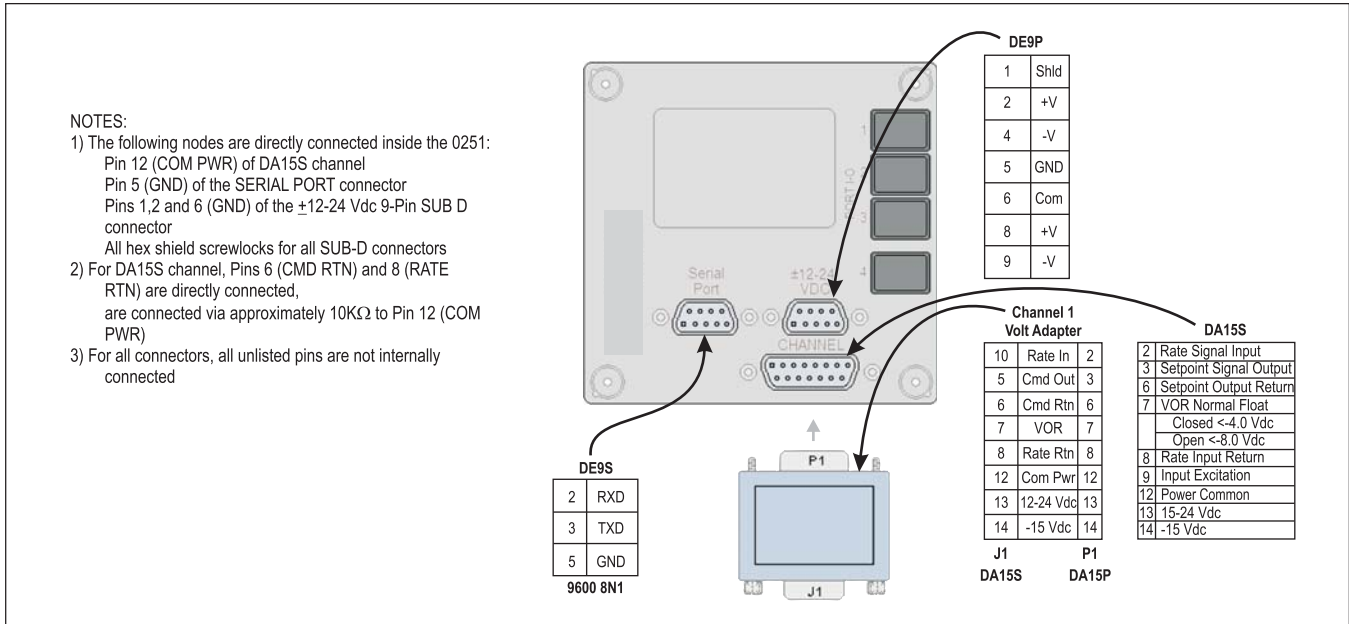


Figure 1-1 Model 0251 Signal Wiring

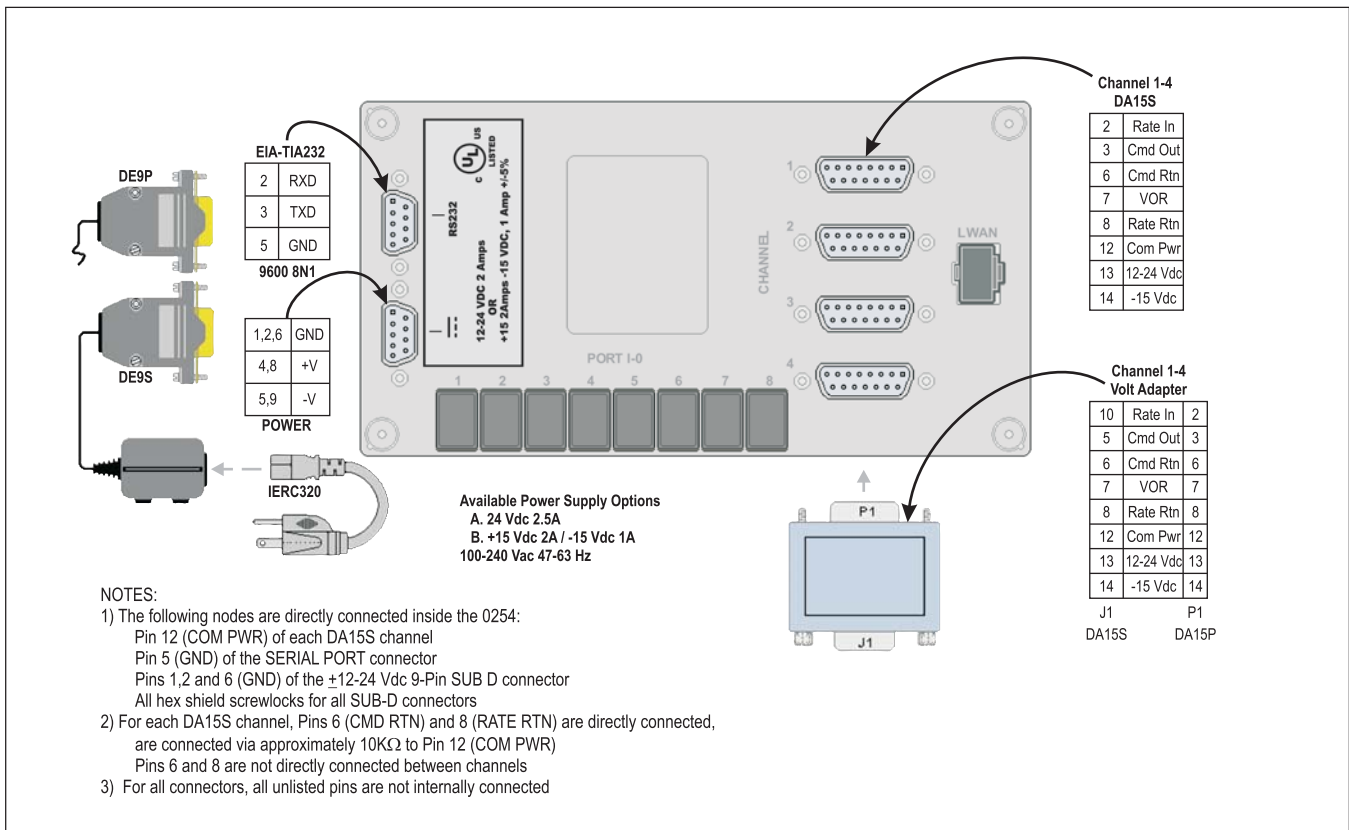


Figure 1-2 Model 0254 Signal Wiring

0250 Series

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## 2-1 General

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This section provides installation instructions for the 0250 Series Gas and Liquid Mass Flow Secondary Electronics device.

## 2-2 Receipt of Equipment

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When the equipment 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 the nearest Brooks Instrument location listed on the Global Service Network page on our website:  
[BrooksInstrument.com/GlobalSupportCenters](http://BrooksInstrument.com/GlobalSupportCenters)

## 2-3 Recommended Storage Practice

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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".

**0250 Series**

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**2-4 Return Shipment**

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Prior to returning any instrument to the factory for any reason, visit our website for instructions on how to obtain a Return Materials Authorization Number (RMA #) and complete a Decontamination Statement to accompany it: [BrooksInstrument.com/Service](http://BrooksInstrument.com/Service). All instruments returned to Brooks also require a Material Safety Data Sheet (MSDS) for the fluid(s) used in the instrument. Failure to provide this information will delay processing of the instrument.

**2-5 Transit Precautions**

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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**

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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**

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Because of their low power consumption, the 0250 Series devices do not have ventilation requirements. However, the ambient temperature surrounding the 0251 Series devices should not exceed 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**

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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 national 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 .
2. Pass the 0250 Series device 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.**

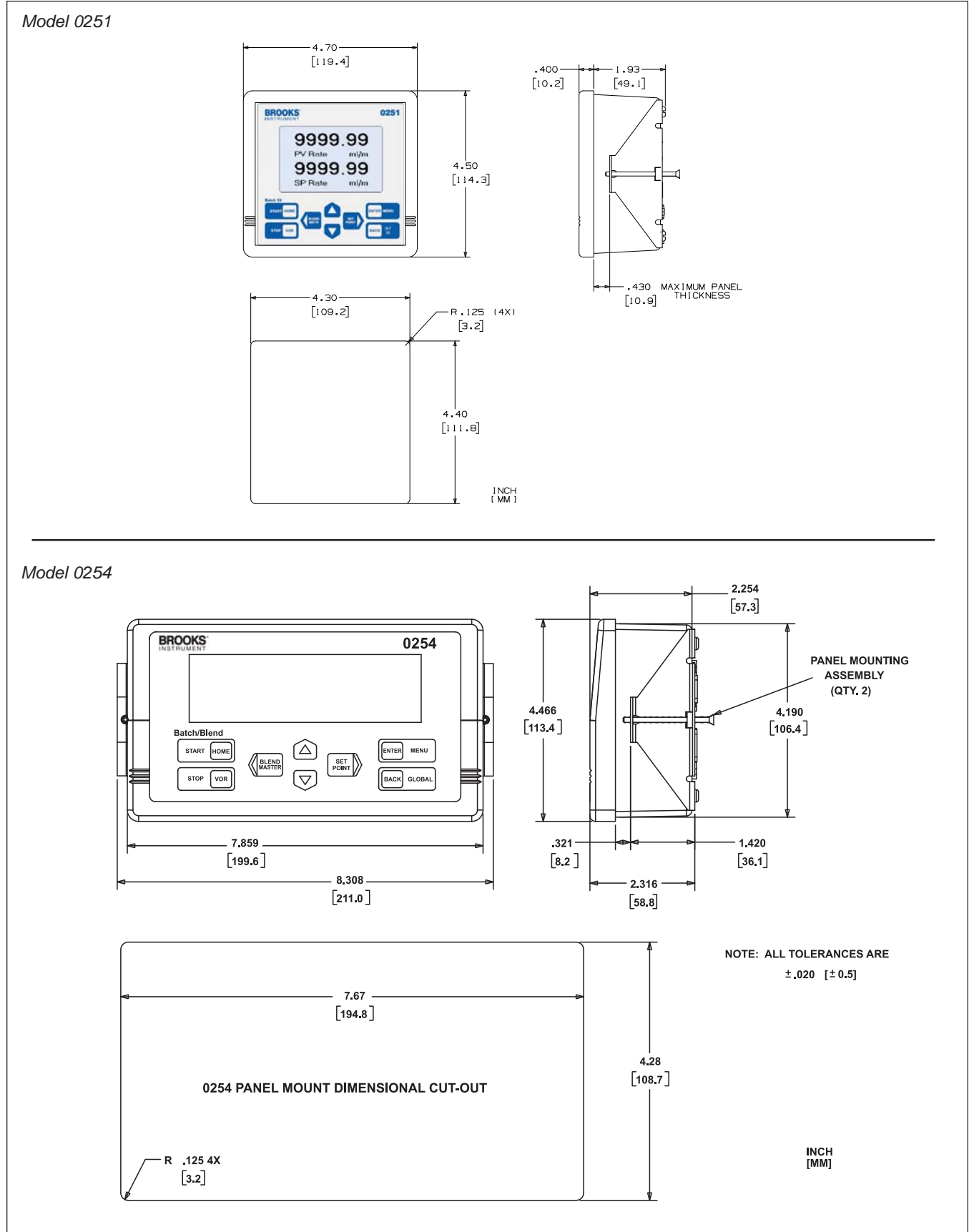
4. Secure the second bracket to the other side of the enclosure.
5. Tighten the panel mounting screws in the middle of both brackets to secure the enclosure to the panel.

#### 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 RS232 and Channel connectors, as appropriate for the application.

0250 Series



2-4 Figure 2-1 Panel Mount Cut-Out Dimensions

### 2-10-2 Table Top Stand Assembly Instructions

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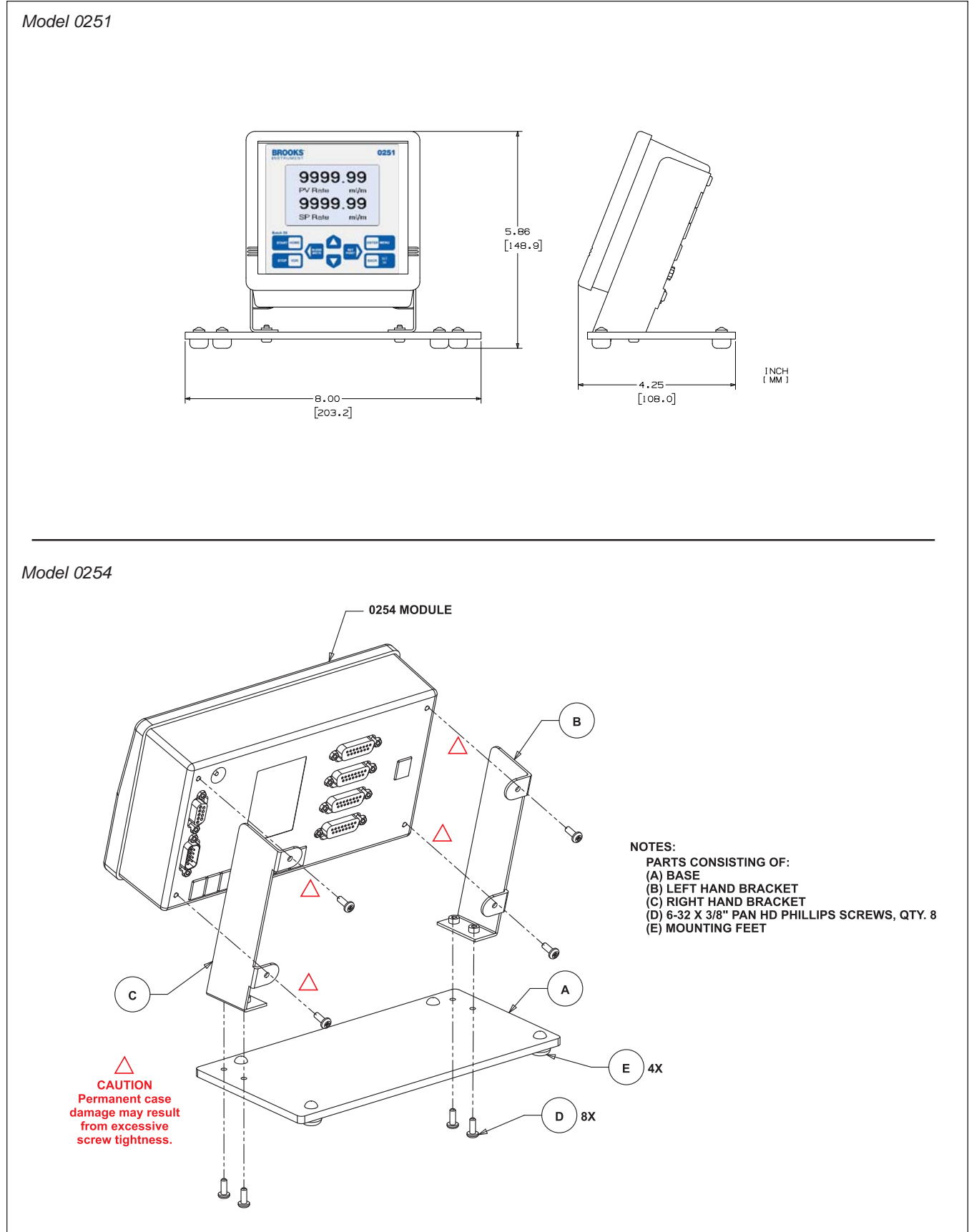
1. Attach the four rubber mounting feet to the base, as shown in Figure 2-2.
2. Use four of the provided screws to attach the two brackets to the base.
3. Slide the 0250 Series device enclosure into the brackets.
4. Use four screws to secure the enclosure to the brackets.

 **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 RS232 and Channel connectors, as appropriate for the application.

0250 Series



2-6 Figure 2-2 Table Top Stand Mount Installation

### 2-10-3 Retrofit to Model 0152/0154 Table Top Housing (Model 0254 only)

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 , under the rear channel rail of the box. For an illustration of the rail engagement, refer to Figure 2-4.
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 RS232 and Channel connectors, as appropriate 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.

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0250 Series

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**2-10-4 19-in. Rack Assembly and Installation Instructions (Model 0254 only)**

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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 , 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 RS232 and Channel connectors, as appropriate 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 shows a completed rack installation.

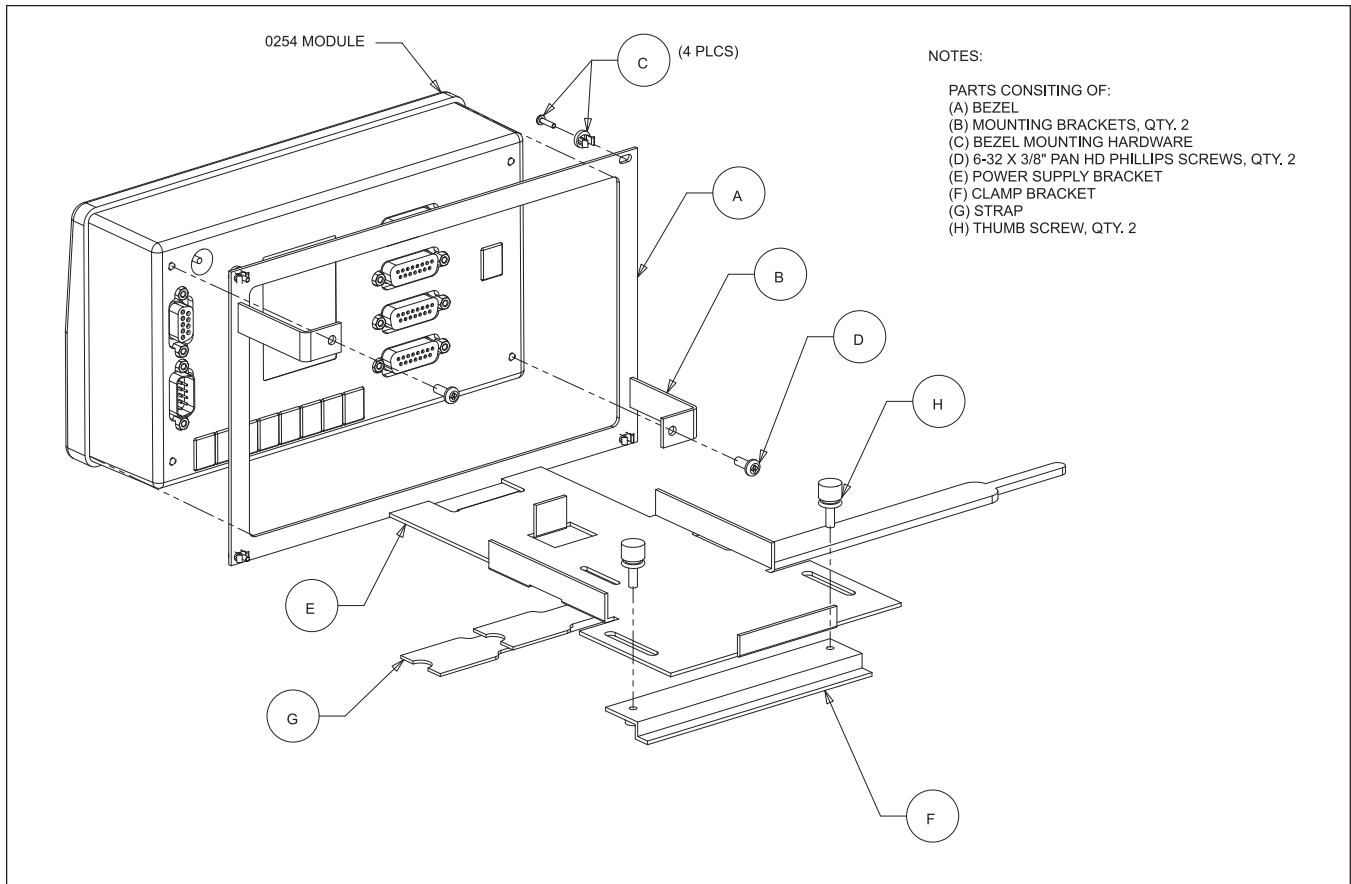


Figure 2-3 Power Supply Bracket and Bezel

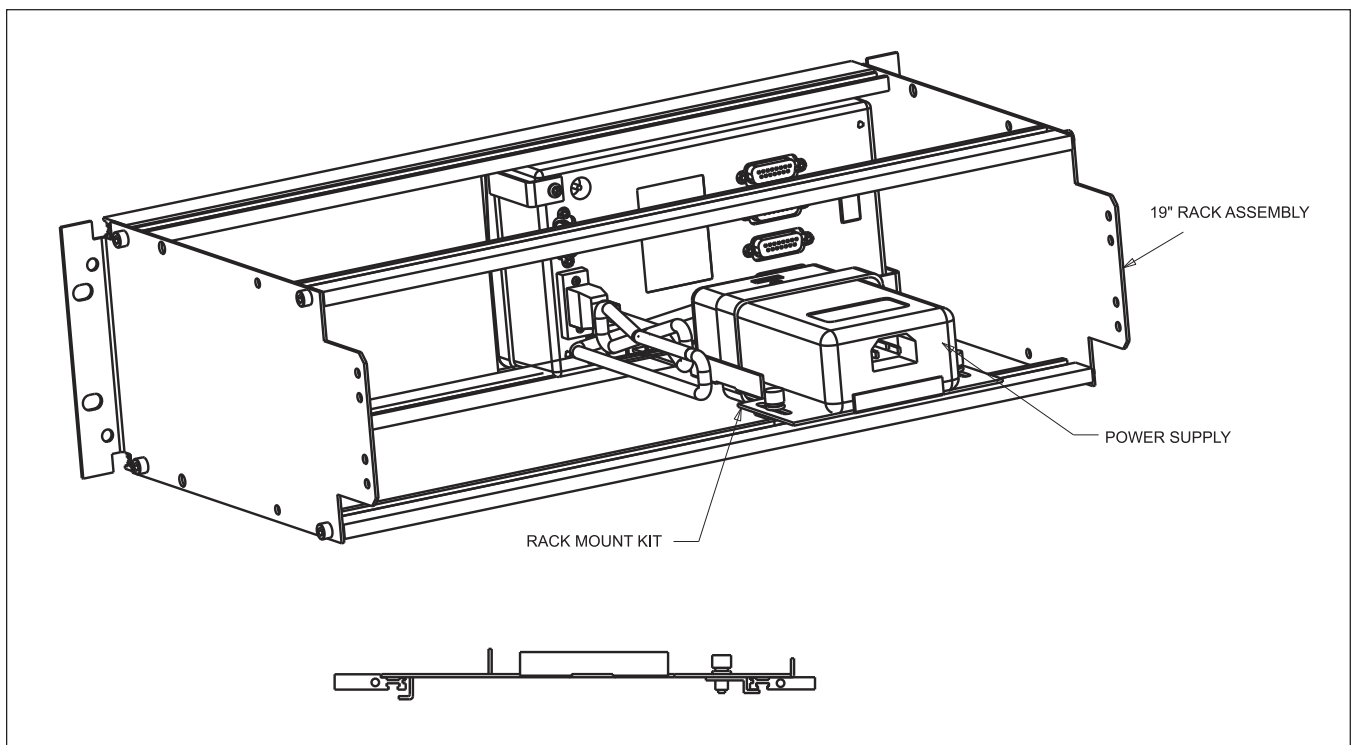


Figure 2-4 Rack Installation

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3-1 Home Screen

The 0250 Series 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 below describes the main elements of the home screen.

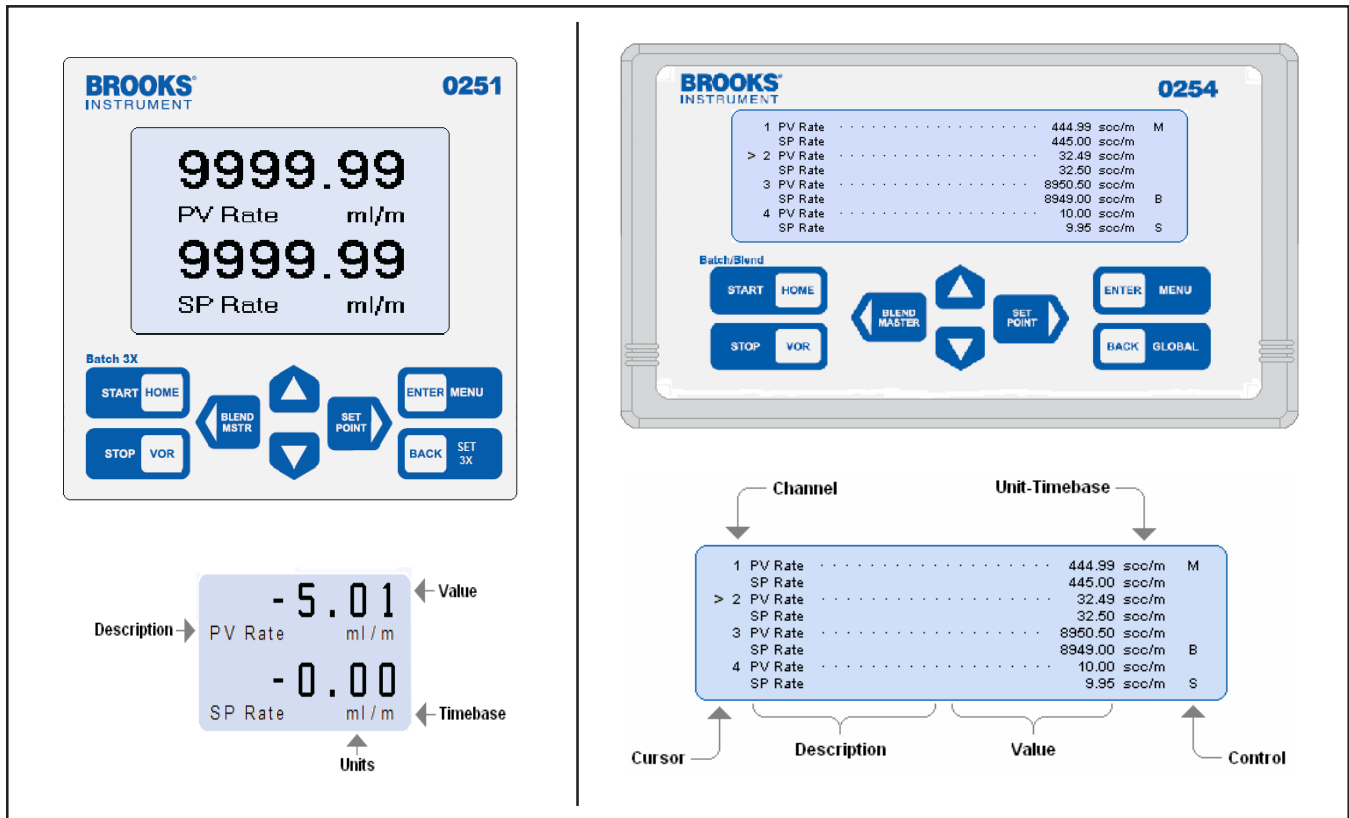


Figure 3-1 Home Screen

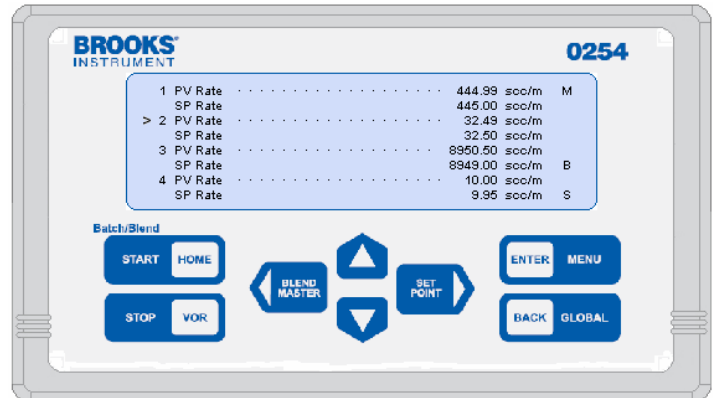
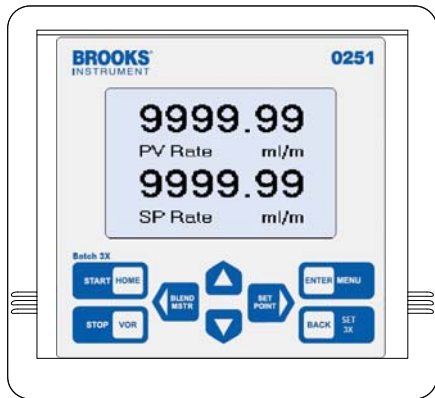
Table 3-1 Display Home Screen Fields

Cursor	Points to channel even when channel is Off.
Channel	Numbers 1-4. (Model 0254 only)
Description	Process value text.
Value	Numeric process value.
Unit / Time-base	Combined measure units and rate time-base.
Control	Process control state indicators.

## 0250 Series



## 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.
	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 Program Screen	Zero PV Total when cursor points to PV Total. Move blinking program selection to next left choice.
	All Screens: Selected Item	Move cursor right.
	Home Screen	HOT navigates to change channel setpoint value.

## 0250 Series

**3-3 Navigation**

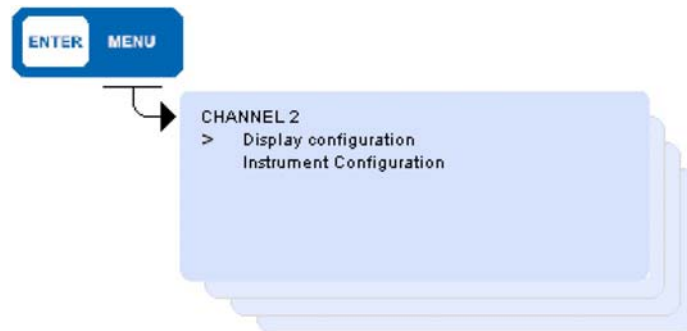
This subsection provides an overview of the various values that are available to set up the various program values, which determine how the instrument is desired to perform. It also describes the performance operating states.

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 Figures 3-2 and 3-3 show the screen mapping from the home page to the channel values.

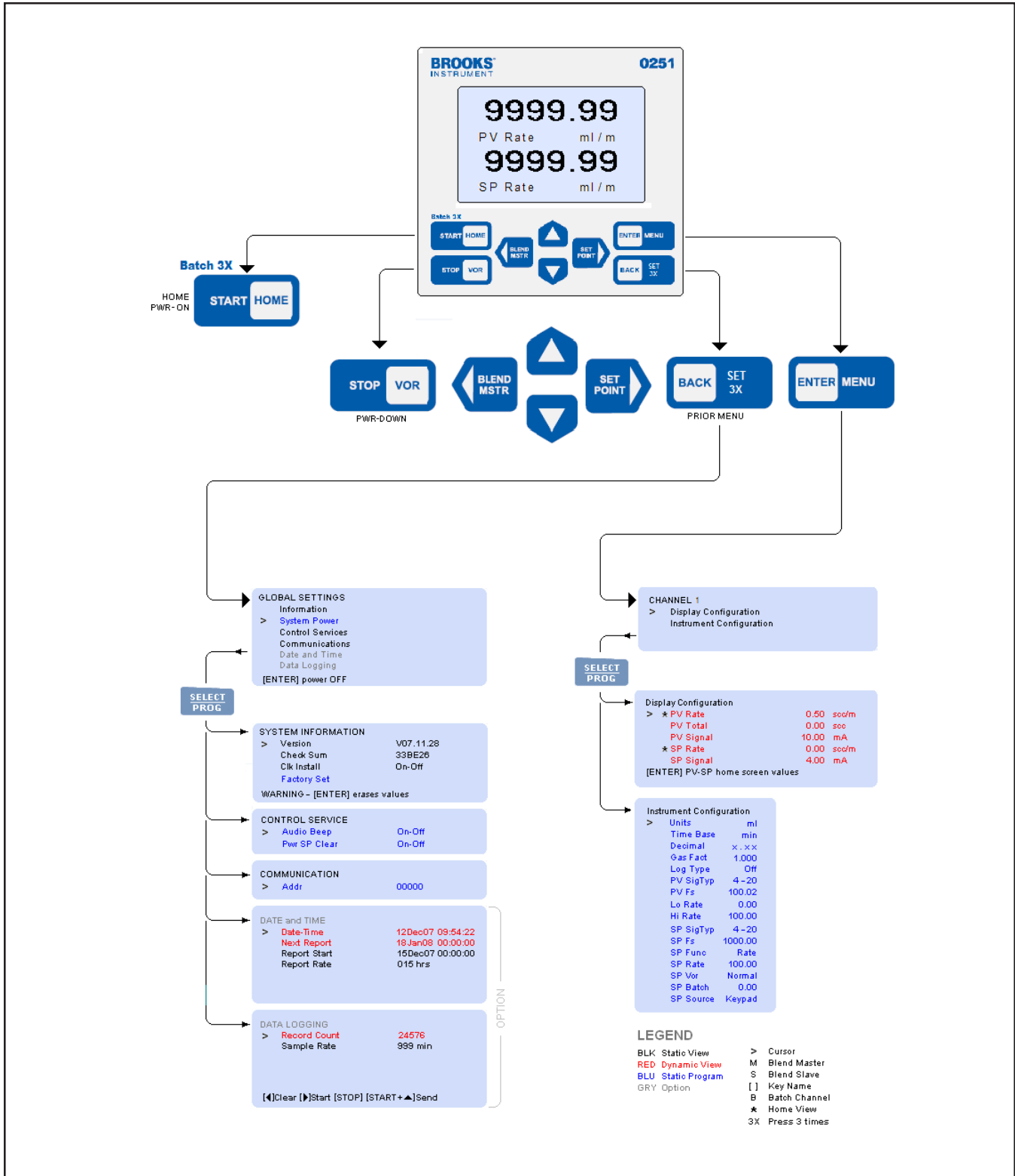
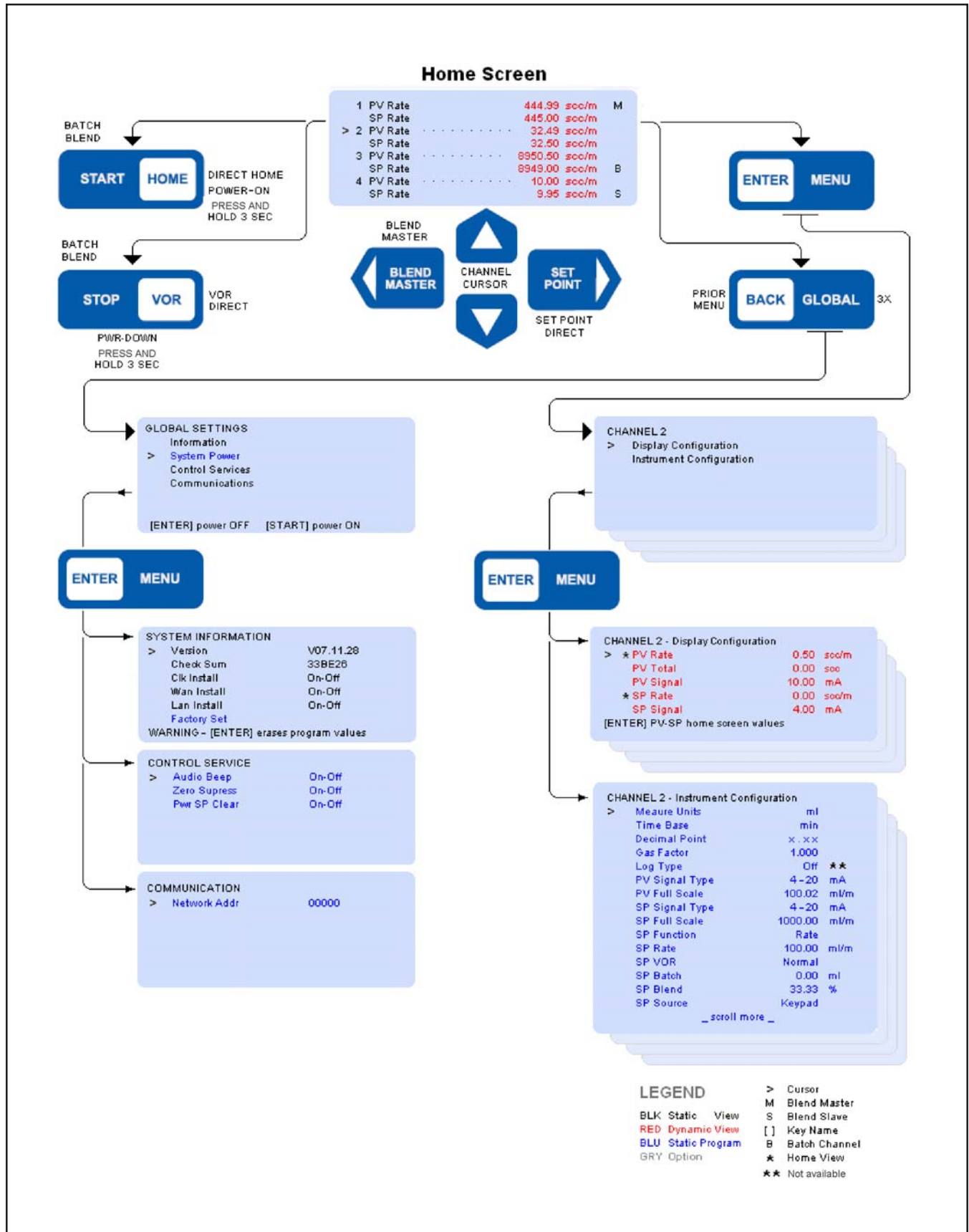


Figure 3-2 Model 0251 - User Interface Screen Map

0250 Series



3-6 Figure 3-3 Model 0254 - 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.

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0250 Series

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**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 ◀ key or 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.

## 0250 Series

**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.
------	---

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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 (0254 only)	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.

## 0250 Series

## 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 Cik 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 be 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.

0250 Series

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 Configuration 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.

0250 Series

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

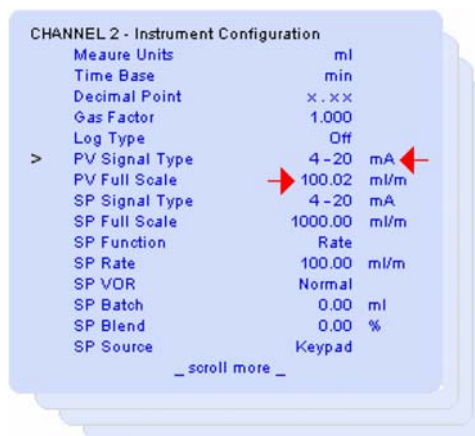
When the channel SP Rate is set to zero, the process is off.  
To set setpoint to zero, use the Setpoint hot key or the Instrument Configuration screen.

### 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:

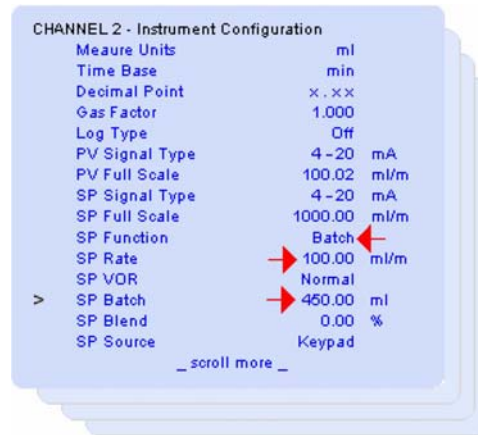
1. Position the cursor pointing towards the appropriate channel on the Home screen.
2. Press the ENTER/MENU key.
3. Select Instrument Configuration by pressing the ENTER/MENU key.
4. Once in the Instrument Configuration screen, scroll down to the PV Signal Type and PV Full Scale options and select the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



0250 Series

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.



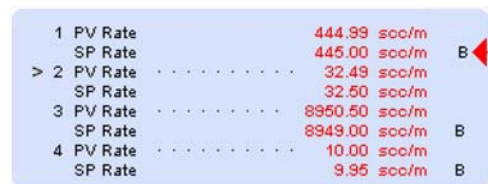
**Setup**

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 (Model 0254 only)

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.



0250 Series

**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.

1	PV Rate	444.99 scc/m	M
	SP Rate	445.00 scc/m	
> 2	PV Rate	32.49 scc/m	
	SP Rate	32.50 scc/m	S
3	PV Rate	8950.50 scc/m	
	SP Rate	8949.00 scc/m	
4	PV Rate	10.00 scc/m	
	SP Rate	9.95 scc/m	S

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.

## 0250 Series

**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.

0250 Series



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

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

Note: “. ^3” means cubic “. ^3”

0250 Series

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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 selections 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

$$\text{Blending ratio is} = 50\%$$

**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: 50 kg/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

$$\text{Blending ratio is} = 50\%$$

0250 Series

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## C-1 Overview

This section describes in detail the various aspects of providing the 0250 Series 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 0250 Series 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 0250 Series 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 RS232 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

0250 Series

C-2-2 Hyperterminal Set-Up

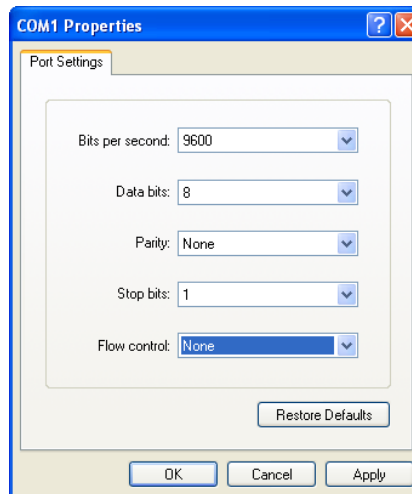
Within the windows operating system a software application is available, called Hyperterminal, which can be used to setup a serial connection to the 0254 Read Out. This software application is available in the following shortcut menu "Start->All Programs->Accessories->Communications->Hyperterminal".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



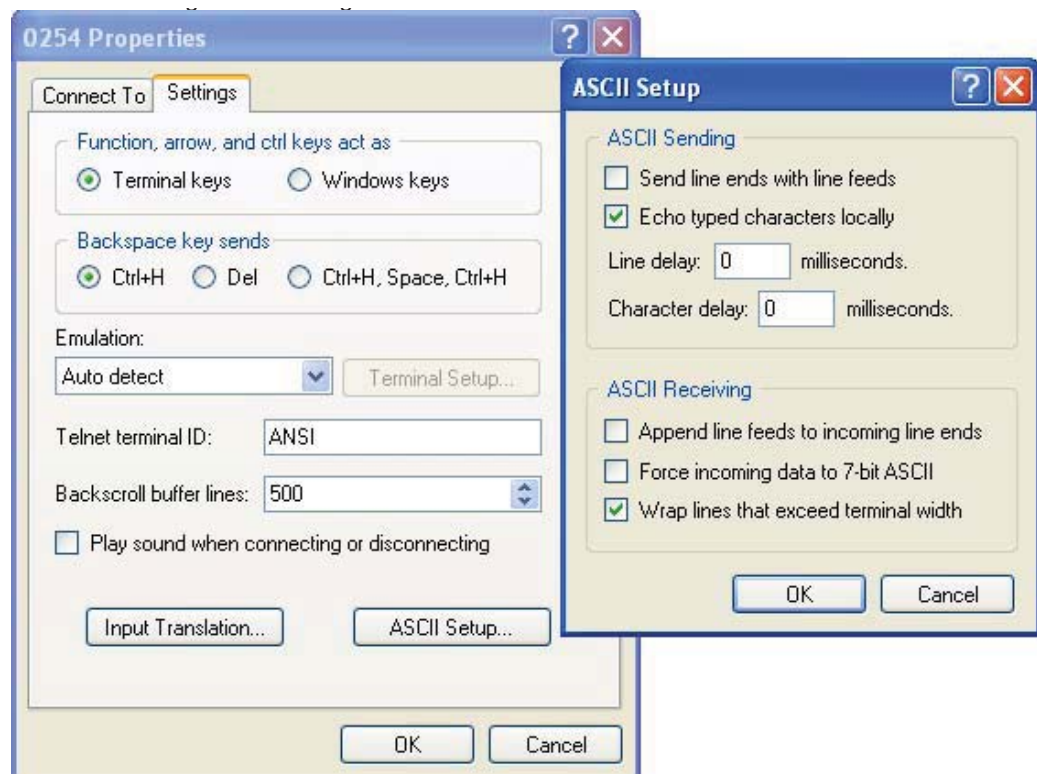
Enter a name for the connection and click the 'OK' button. In the next screen enter the right COM port number, see below.



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

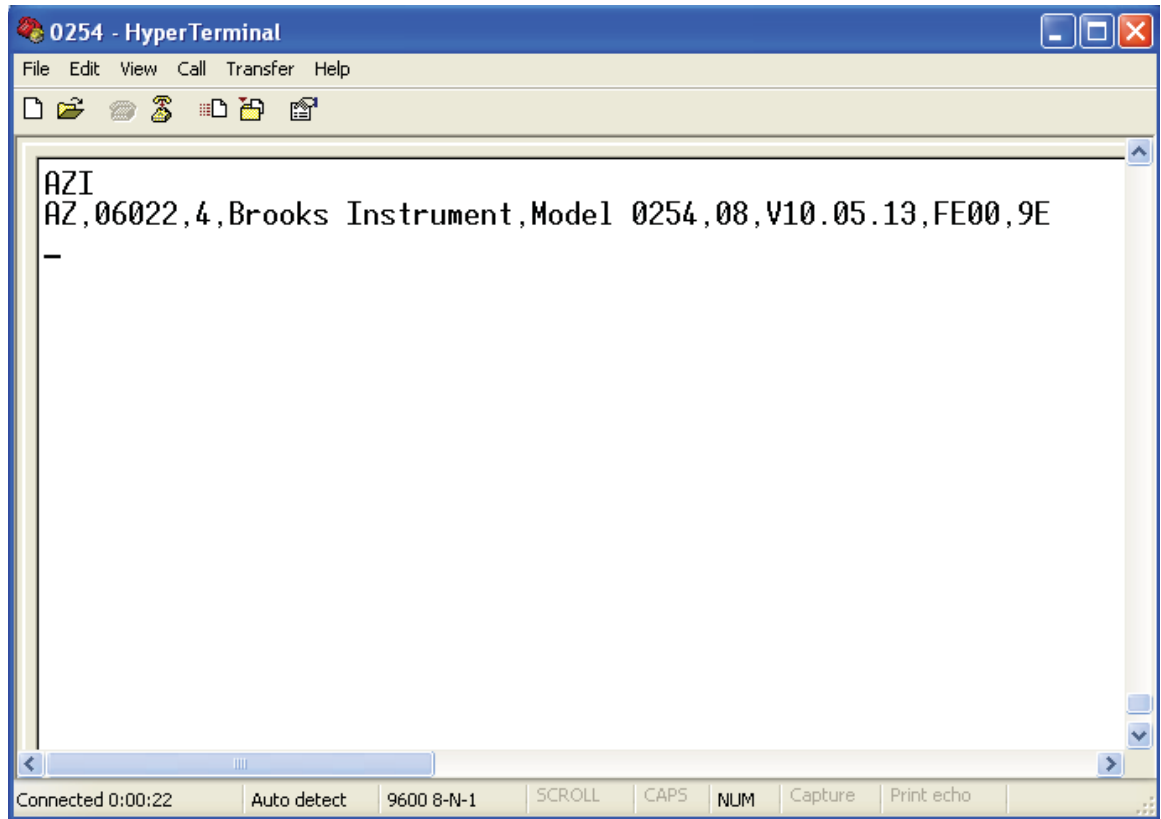


Open the 'File->Properties' pull down menu and click the ASCII Setup' button and configure the settings as shown below.



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..

0250 Series





## 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.

## 0250 Series

## 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      YYYYYY      .xx  K      <cr>
  |       |           |    |       |
  |       |           |    |       | + - message delimiter
  |       |           |    |       | +- command argument
  |       |           |    |       | +- port sub-address
  |       |           |    |       | +- unit address
+- message prelimiter

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

AZ [yyyyyy.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><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
```

## 0250 Series

## 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&lt;cr&gt;

Non-network xx=port number (1-8)

AZ [yyyyy.xx] V&lt;cr&gt;

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&lt;cr&gt;

Non-network

AZ [yyyyy] I&lt;cr&gt;

Network

## RESPONSE

AZ,00000,4,BROOKS,0254,08,01.01.13,FE00,&lt;sum&gt;&lt;cr&gt;&lt;lf&gt;

## 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

,&lt;sum&gt;

Negated mod256 sum

&lt;cr&gt;&lt;lf&gt;

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 [yyyyyy] 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 [yyyyyy] S<cr>     Network
```

RESPONSE - none

---

0250 Series

---

**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 [yyyyyy]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 [yyyyyy]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,xxxxxxxx.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

0250 Series

---

**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.

## 0250 Series

## 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

## 0250 Series

## 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 [yyyyyy.09]V<cr>     Network
  AZ [yyyyyy.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 unpolled (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,xxxxxxxx.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
```

## 0250 Series

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><lf>

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><lf>

**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><lf>
```

A correct received response indicates that no error was detected. It is recommended that host software validate the responding message checksum, 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><lf>

0250 Series

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



Character string identifying the physical measurement type

4	Measure Units			fixed indexed strings
		0 ml		
		1 mls		
		2 mln		
		3 l		
		4 ls		
		5 ln		
		6 cm <sup>^3</sup>		
		7 cm <sup>^3s</sup>		
		8 cm <sup>^3n</sup>		
		9 m <sup>^3</sup>		
		10 m <sup>^3s</sup>		
		11 m <sup>^3n</sup>		
		12 g		
		13 lb		
		14 kg		
		15 ft <sup>^3</sup>		
		16 ft <sup>^3s</sup>		
		17 ft <sup>^3n</sup>		
		18 scc		
		19 sl		
		20 bar		
		21 mbar		
		22 psi		
		23 kPa		
		24 Torr		
		25 atm		
		26 Volt		

Index	Value Title	Value	Range	Notes
		27 mA		
		28 oC		
		29 oK		
		30 oR		
		31 oF		
		32 g/cc		
		33 sg		
		34 %		
		35 lb/in <sup>^3</sup>		
		36 lb/ft <sup>^3</sup>		
		37 lb/gal		
		38 kg/m <sup>^3</sup>		
		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

## 0250 Series

## 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 ascii char min
		1 0-20mA		
		2 4-20mA		
		3 0-10V		
		4 2-10V		
		5 0-5V		
		6 1-5V		
	Link Input Port	0-99		1 or 2 ascii char optional
1	Rate (Manual) output set-point SP Rate	xxxxxx	0 to ±999.999	1-7 ascii char var dp
2	Select output control service SP Function	1 Rate 2 Batch 3 Blend		1 ascii char
9	Analog De-Interpolate representing the engineering units of the greatest signal allowed SP Full Scale	xxxxxx	0 to ±999.999	1-7 ascii char var dp
29	Valve Override valve state selection SP VOR	0 Normal 1 Closed 2 Open	0-2	1 ascii char tri-state vo < -4V vo > +8V
44	Batch Delivery Set-Point SP Batch	xxxxxx	0 to ±999.999	1-7 ascii char var dp
45	Blend Mixing Set-Point SP Blend	xxxxxx	0 to ±999.999	1-7 ascii char var dp (automatic % units)
46	Set-Point Programming Source SP Source	0 Keypad 1 Serial	0-1	1 ascii char 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
32	Zero Suppression - ON suppresses leading value zero values Zero Supress	0 Off 1 On	0-1	1 ascii char
33	Power Set-Points Clear - ON causes all channel set-points to become zero Pwr SP Clear	0 Off 1 On	0-1	1 ascii char
39	Audio Annunciate Control - ON enables annunciate key activation and alarms Audio Beep	0 Off 1 On	0-1	1 ascii char

0250 Series

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**Bulgarian**

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- 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.

**▲ ПРЕДУПРЕЖДЕНИЕ: Преди инсталацията се убедете, че този инструмент притежава необходимите одобрения за съответствие на местните и националните кодове. Неспазването на това предупреждение може да доведе до сериозни травми и/или повреда на оборудването.**

- 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 поддръжане.

**▲ 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 да спуска 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" (inch), 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 продукти съответстват на европейската директива 2014/34/EU.
- Всички разходомери на Brooks Instrument се отнасят към флуиди от група 1.
- Продуктите по-големи от 25 mm или 1" (inch) съответстват на I, II или III категория според PED.
- Продуктите с размери 25 mm или 1" (inch), 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 2014/30/EU).

Особено внимание трябва да се обърща обаче на избирането на сигналните кабели, използвани с оборудването, носещо знака CE.

**Качество на сигналните кабели, кабелните салници и съединители:**

Brooks Instrument 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 технологията 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.

## 0250 Series

## 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: Neprovazujte 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.
- **VAROVÁNÍ: Před instalací proveďte, zda má tento přístroj požadované schválené parametry splňující místní a národní předpisy. Nedodržení tohoto varování může způsobit vážnou újmu na zdraví osob a/nebo poškození zařízení.**
- 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.

- Produkty popsané v této příručce jsou v souladu se směrnicí EN 2014/34/EU.
- Všechny průtokoměry společnosti Brooks Instrument spadají do rámce Kapaliny, skupina I.
- Produkty větší než 25 mm nebo 1" (palec) jsou v souladu se směrnicí PED, kategorií I, II nebo III
- Produkty 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. 2014/30/EU).

Výběru signálních kabelů pro použití se zařízením označeným CE je nutné věnovat zvláštní pozornost.

**Kvalita signálních kabelů, kabelových průchodků 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.

Připojky vedoucí ke kartám podle norem jsou nekovové. Pro splnění požadavků předpisů CE musí být použité kabely kompletně stíněny.

Stínění by mělo být uzemněno.

Konfigurace kontaktů je uvedena v příloženém 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 zemním náramkem, nebo jiným vyhovujícím způsobem.
3. Desky plošných spojů je nutné přepravovat v elektricky vodivém obalu. Plošné spoje vyjímajte 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 součástí, 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 reparerer 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 forståelige, kontakt venligst Deres Brooks repræsentant for at afklare problemet som er opstået.

- Overhold alle regler, som er markeret eller leveret sammen med udstyret.

**▲ ADVARSEL! Før ibrugtagning/installation skal det kontrolleres, at det ihåndenværende instrument opfylder de lokale og nationale sikkerhedskrav. Hvis denne advarsel ignoreres, kan det resultere i alvorlig personskade og/eller skader på instrumentet.**

- 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 instrumenter der er tilpasset direktiv 2014/34/EU.
- Alle Brooks gennemstrømningsmålere tilhører væskegruppe nr. 1.
- Alle instrumenter som er større end 25 mm eller en tomme beskrives i direktivet PED's kategorier I, II eller III.
- Alle instrumenter 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 om elektromagnetiske kompatibilitets forskrifter (EMC direktiv 2014/30/EU).

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..

## 0250 Series

## 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.

**▲ WAARSCHUWING: Zorg ervoor dat dit instrument de vereiste goedkeurings-classificatie heeft om te voldoen aan de lokale en nationale standaarden, voordat u het gaat installeren. Het niet naleven van deze waarschuwing kan ernstig letsel en/of schade aan de apparatuur tot gevolg hebben.**

- 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 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 (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 producten die in deze handleiding worden beschreven, voldoen aan de Europese richtlijn 2014/34/EU.
- Alle stromingsmeters van Brooks Instrument vallen in groep 1.
- Producten met een diameter van meer dan 25 mm voldoen aan de categorieën I, II of III van de PED-richtlijn.
- Producten 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 (richtlijn EMC 2014/30/EU).

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 afgeschermd 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 aardpotentiala 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 aardpotentiala 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 metaaloxidede technologie (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!

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- 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 see kasutusjuhend ei vasta teie tootele, pöörduge kohaliku edasimüüja poole, kelle kontaktandmed leiab kasutusjuhendi tagakaanelt. Hoidke see kasutusjuhend edaspidiseks alles.  
▲ **HOIATUS. Ärge kasutage seda instrumenti väljaspool kasutusjuhendis spetsifitseeritud piirväärtusi. Hoiatuse eiramine võib kaasa tuua raske kehavigastuse ja/või kahjustada seadet.**
- Kui te saa mõne juhise mõttest aru, pöörduge selgituste saamiseks kohaliku Brooks Instrumenti edasimüüja poole.
- Järgige kõiki hoiatusi, tähelepanule manitsusi ja juhiseid, mis on tootele peale kantud või tootega kaasa antud.  
▲ **HOIATUS. Enne paigaldamist veenduge, et see instrument vastaks kohalike ja riiklike määrustega kehtestatud nimiaandmetele. Hoiatuse eiramine võib kaasa tuua raske kehavigastuse ja/või kahjustada seadet.**
- 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 voolukulumõõtori sisend- või väljundühenduste ümber ei oleks lekkeid. Kui lekkeid ei ole, laske süsteemil saavutada töösurve.
- Enne seadme hooldamist veenduge, et kogu süsteem oleks surve alt vabastatud. Varuosasid tohib vahetada ainult kvalifitseeritud personal, kasutades selleks Brooks Instrumenti 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 vigastuseohtu vältimiseks peavad seadme luugid olema alati suletud ja kaitsekatted oma kohal, v.a 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 raskeid 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.
- Selle kasutusjuhendi spetsifikatsiooniosa sisaldab surveseadmete direktiiviga seonduvat juhiseid.
  - Kasutusjuhendis kirjeldatud tooted vastavad EL direktiivi 2014/34/EÜ nõuetele.
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### Euroopa elektromagnetilise ühilduvuse direktiiv (EMÜ)

Brooks Instrumenti (elektrilised/elektroonilised) seadmed, millele on omistatud CE-tähis, on edukalt läbinud asjakohased katsed ja vastavad elektromagnetilise ühilduvuse nõuetele (EMÜ direktiiv 2014/30/EÜ).

Kuid signaalkaabli valimisel on vaja pöörata suurt tähelepanu CE-tähisega seadmetele.

**Signaalkaabli, läbiviigutühendite 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. Võimaluse korral tuleb kasutada metallist läbiviike, mis tagavad kaabli varjestuse ühenduse.

Kaabli varjestus ühendatakse metallkesta või läbiviigutühendiga 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 tundlike 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. Trükkplaatide transporditakse voolujuhtivas konteineris. Võtke trükkplaat kaitsvast konteinerist välja vahetult enne selle paigaldamist. Seadme eemaldatud trükkplaadid tuleb viivitamatult asetada kaitsvasse konteinerisse, kas siis edasiseks transportimiseks, hoiustamiseks või tehasesse tagasisaatmiseks.

#### Kommentaariid

See seade ei ole ainus, mis sisaldab staatilise elektri suhtes tundlike 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 ilmuma juba varakult.

## 0250 Series

## Finnish

## Olulised juhised

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#### **Kommentaariid**

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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.

**▲ AVERTISSEMENT: Avant toute installation, vérifier que cet instrument est conforme aux normes locales et nationales. Le non-respect de cet avertissement peut entraîner des blessures graves et/ou endommager l'équipement.**

- 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 2014/34/EU.
- 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 2014/30/EU).

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.

0250 Series

German

<b>Wichtige Anweisungen Bitte zuerst lesen!</b>
<p>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.</p> <ul style="list-style-type: none"> <li>Um die entsprechende Leistung zu gewährleisten, setzen Sie qualifiziertes Personal für die Installation, den Betrieb, die Aktualisierung, Programmierung und Wartung des Produkts ein.</li> <li>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.</li> </ul> <p><b>▲ 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.</b></p> <ul style="list-style-type: none"> <li>Falls Sie Anweisungen nicht verstehen, wenden Sie sich zur Klärung an Ihren Brooks Instrument Vertreter.</li> <li>Befolgen Sie alle Warnhinweise und Anweisungen, die auf dem Produkt markiert sind oder zusammen mit diesem geliefert werden.</li> </ul> <p><b>▲ ACHTUNG: Vor der Installation sicherstellen, dass dieses Instrument den nationalen und lokalen Vorschriften entspricht. Die Nichtbeachtung kann zu schweren Verletzungen und/oder Schäden am Gerät führen.</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul> <p><b>▲ WARNUNG: Werden die Ein- und Auslassventile neben Durchflussmessgeräten aus irgendwelchen Gründen geschlossen, so müssen die Geräte komplett entleert werden. Durchflussmessgeräete 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.</b></p>

<b>Europäische Druckgeräterichtlinie (PED)</b>
<p>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.</p> <ul style="list-style-type: none"> <li>Das Kapitel zu den technischen Daten in dieser Anleitung enthält wichtige Sicherheits- und Betriebsanweisungen in Bezug auf die Druckgeräterichtlinie.</li> <li>Produkte die in diesem Handbuch beschrieben sind, erfüllen die europäische Richtlinie 2014/34/EU.</li> <li>Alle Durchflussmesser von Brooks Instrument fallen unter die Fluidgruppe 1.</li> <li>Produkte die größer als 25 mm oder 1" (inch) sind, erfüllen die Kategorien I, II oder III der Druckgeräterichtlinie (PED).</li> <li>Produkte mit einer Größe von 25 mm oder 1" (inch) oder kleiner sind Sound Engineering Practice (SEP).</li> </ul>

<b>Europäische Verordnung zur elektromagnetischen Verträglichkeit (EMV)</b>
<p>Geräte von Brooks Instrument (elektrischer und elektronischer Art) mit CE-Zeichen haben den Test auf Einhaltung der Verordnung zur elektromagnetischen Verträglichkeit (EMV Richtlinie 2014/30/EU) erfolgreich bestanden.</p> <p>Dennoch muss bei der Wahl des Signalkabels für das Gerät mit CE-Zeichen auf folgende Dinge geachtet werden.</p> <p><b>Qualität von Signalkabel, Kabeldurchführung und Anschlüsse:</b></p> <p>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.</p> <p>D- oder Rundstecker sollten eine Metallabschirmung aufweisen. Wenn möglich, müssen Kabeldurchführungen aus Metall mit Kabelschirmgeflechts-Klemmen verwendet werden.</p> <p>Der Kabelschirm sollte an die Metallhülle oder -durchführung angeschlossen werden und an beiden Enden rundherum (360°) abgeschirmt werden.</p> <p>Die Abschirmung sollte geerdet werden.</p> <p>Randstecker auf Platinen sind standardmäßig nicht aus Metall. Die verwendeten Kabel müssen mit einer 100 % Abschirmung versehen werden, um die CE-Vorgaben zu erfüllen.</p> <p>Die Abschirmung sollte geerdet werden.</p> <p>Klemmenbelegung: Siehe beigefügtes Handbuch.</p>

<b>ESD (Elektrostatische Entladung)</b>
<p><b>▲ 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.</b></p> <p><b>Verfahrensanweisung:</b></p> <ol style="list-style-type: none"> <li>Trennen Sie das Gerät von der Stromversorgung.</li> <li>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.</li> <li>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 Schutzhälter zum Transport, zur Lagerung oder Rücksendung an das Werk gelegt werden.</li> </ol> <p><b>Anmerkung</b></p> <p>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.</p>

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.

**▲ ΠΡΟΕΙΔΟΠΟΙΗΣΗ: Πριν από την εγκατάσταση βεβαιωθείτε ότι αυτό το εργαλείο διαθέτει τις απαιτούμενες εγκεκριμένες προδιαγραφές ώστε να συμμορφώνεται με τους τοπικούς και εθνικούς κανονισμούς. Η αποτυχία τήρησης της παρούσας προειδοποίησης μπορεί να οδηγήσει σε σοβαρό τραυματισμό και/ή ζημιά στον εξοπλισμό**

- 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 πίεσεως. 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.
- Τα προϊόντα που περιγράφονται στο παρόν εγχειρίδιο συμμορφώνονται με την ευρωπαϊκή Οδηγία 2014/34/EU.
- Όλα τα ροόμετρα της Brooks Instrument ανήκουν στην ομάδα ρευστών 1.
- Προϊόντα μεγαλύτερα από 25 mm ή 1 ίντσα συμμορφώνονται με τις κατηγορίες I, II και III της Οδηγίας PED.
- Προϊόντα μεγέθους 25 mm ή 1 ίντσας ή και μικρότερα κατασκευάζονται σύμφωνα με ορθές τεχνικές πρακτικές (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 2014/30/EU 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 στυπιοθλιπτες καλωδίων για τη στερέωση της θωράκισης.

Να συνδεθεί η θωράκιση του καλωδίου στο μεταλλικό κέλυφος ή στυπιοθλιπτή 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 περιβλήμα 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 κ.ά.). 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.



## 0250 Series

## Hungarian

### Alapvető utasítások Először olvassa el ezeket!

A Brooks Instrument olyan módon tervezi, gyártja és teszti 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 garatálása 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 kézikönyv 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 utasítást.

**▲ FIGYELEM: Üzembe helyezés előtt győződjön meg arról, hogy a műszer rendelkezik-e a helyi és nemzeti szabványoknak megfelelő jóváhagyásokkal. Ennek elmulasztása súlyos személyi sérülést és / vagy az eszköz károsodását okozhatja!**

- 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 áramlasingadozás elkerülése érdekében. (2) Ellenőrizze, nincs-e szivárgás az áramlásmérő be-, és kimeneti bekötéseinél. Ha nincs szivárgás, töltsen 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 használati utasítás „Műszaki adatok” fejezete tartalmaz a PED irányelvre vonatkozó utasításokat.
- A használati utasításban megadott termékek megfelelnek a 2014/34/EU EU irányelvnek.
- Minden Brooks átfolyásmérő az 1-es folyadékcsoporthoz tartozik.
- A 25 mm-nél vagy 1 hüvelyknél nagyobb termékek megfelelnek a PED I, II, vagy III kategóriának.
- A 25 mm-es illetve 1 hüvelykes vagy kisebb termékek 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 (2014/30/EU sz. EMC irányelv) vizsgáló teszteket.

Ugyanakkor különös figyelmet kell fordítani a CE jelölésű berendezésekhez felhasznált jelképek kiválasztására.

**▲ Jelképek, kábelösszekötők, csatlakozók minősége:**

A Brooks Instrument magas minőségű kábeleket kínál, melyek megfelelnek a CE minősítés követelményeinek.

Amennyiben saját jelkábelt alkalmaznak, olyat kell választani, amely 100%-os árnyékolással, teljes mértékben szűr.

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 kártyához tartozó csatlakozók szabványosan nem fémek. Az alkalmazott kábeleknek 100%-os 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 statikus 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 kiszertelt kártyát haladéktalanul el kell helyezni a mozgásra, 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 statikus elektromosság is károsíthatja, vagy tönkretelheti 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.

**⚠ ATTENZIONE: prima di installare questo strumento, assicurarsi che sia in regola rispetto alle normative di sicurezza locali e nazionali. La non osservanza di questo avvertimento può procurare seri danni a persone e/o danneggiare sia lo strumento che le cose circostanti.**

- 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.
- I prodotti di misura descritti nel presente manuale sono conformi alla Direttiva UE 2014/34/EU.
- Ogni flussimetro Brooks appartiene al gruppo di fluidi 1.
- I prodotti di misura maggiori di 25 mm o di 1 pollice sono conformi alla categoria I, II o III della PED.
- I prodotti 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 2014/30/EU).

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.

## 0250 Series

## Latvian

## Svarīga instrukcija

### Pirms turpināt izlasiet!

„Brooks Instrument” projektē, ražo un pārbauda savus izstrādājumus atbilstoši daudziem nacionālajiem un starptautiskajiem standartiem. Lai nodrošinātu šo izstrādājumu turpmāku darbību atbilstoši noteiktajiem parametriem, tie ir pareizi jāuzstāda, jālieto un jāapkopi. 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 aprikojuma 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.
  - ▲ **BRĪDINĀJUMS. Pirms uzstādīšanas pārliecinieties, ka šim instrumentam ir nepieciešamie apstiprinājuma novērtējumi, lai atbilstu vietējiem un valsts kodeksiem. Šī brīdinājuma neizlasīšanas rezultātā var rasties nopietni personas savainojumi un/vai aprikojuma bojājumi.**
- Uzstādiēt aprikojumu tā, kā tas norādīts attiecīgajā instrukciju rokasgrāmatā iekļautajā uzstādīšanas instrukcijā un atbilstoši piemērojamajām atbilstošām nacionālajām normām. Pievienojiet visus izstrādājumus pareizi 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 ietilpdes un izplūdes savienojumiem. Ja noplūdes nav, uzstādiēt 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 ietekmēt izstrādājuma 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 trauma risku. Izņēmums ir gadījumi, kad kvalificēts personāls veic ražojuma apkopi.
  - ▲ **BRĪDINĀJUMS! Ja šķidrās plūsmas ierīču tuvumā esošos ietilpdes un izplūdes vārstus kāda iemesla dēļ ir jāaizver, no ierīcēm ir jāizslēdz 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 nodalījā ir sniegtas a PED Direktīvu saistītās instrukcijas.
- Šajā rokasgrāmatā aprakstītie izstrādājumi atbilst EN Direktīvas 2014/34/EU prasībām.
- Visi „Brooks Instrument” plūsmas mērītāji ietilpst 1. šķidrumu grupā.
- Uz 25 mm jeb 1" (collu) maziem un mazākiem izstrādājumiem attiecas labas inženierijas prakse (SEP).
- 25 mm jeb 1" (collu) mazi vai mazāki izstrādājumi 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 (EMS 2014/30/EU)

Tomēr, izvēloties signālkabeļi, 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 signālkabeļi, tam ir jābūt pilnībā, 100% ekranizētam.

„D” un „apaļā” tipa savienotājiem ir jābūt aprīkoti ar metāla ekranizējumu. Ja nepieciešams, ir jāizmanto metāla blīvslēgi ar kabeļa ekranizējuma skavojumam.

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:

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

### Komentāri

Instruments nav unikāls tajā aspektā, ka tas satur pret ESD (elektrostatisko izlādi) jutīgus komponentus. Vairākums 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“ gaminius.

- Siekiant užtikrinti tinkamą veikimą, montuoti, eksploatuoti, naujinti, programuoti ir prižiūrėti gaminį turi tik kvalifikuoti darbuotojai.
- Perskaitykite visus nurodymus prieš montuodami, eksploatuodami ir prižiūredami gaminį. Jei gavote netinkamą instrukciją, galiniame jos viršelyje ieškokite vietinės prekybos atstovybės kontaktinės informacijos. Neišmeskite šios instrukcijos, jos gali prireikti 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 įspėjimų, perspėjimų ir nurodymų, pažymėtų ant gaminio arba pateiktų su juo.

**⚠️ ĮSPĖJIMAS: prieš montuodami įsitinkinkite, kad ši įrangą atitinka vietinius ir nacionalinius teisės aktus. Nepaisant šio įspėjimo gali būti sužeisti žmonės ir (arba) pažeista įrangą.**

- Įrangą montuokite taip, kaip nurodyta atitinkamos instrukcijos montavimo nurodymuose arba taikomuose vietiniuose ar nacionaliniuose teisės aktuose. Visus gaminius junkite prie tinkamų elektros ir slėgio šaltinių.
- Naudojimas: (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 būtina pašalinti slėgį proceso linijoje. Jei reikia pakeisti dalis, užtikrinkite, kad kvalifikuoti darbuotojai naudotų „Brooks Instrument“ nurodytas pakaitines dalis. Naudojant netinkamas dalis ir netinkamai atliekant procedūras, gali pablogėti gaminio veikimas ir gali kilti pavojus naudojimo proceso saugai. Naudojant tik panašiai atrodančius pakaitalus gali kilti gaisro ar elektros smūgio pavojus arba gaminys gali veikti netinkamai.
- Užtikrinkite, kad visos įrangos durlės 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 žmones.**

### Europos slėginės įrangos direktyva (PED)

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

- Šios instrukcijos dalyje „Techniniai duomenys“ pateikiami nurodymai, susiję su PED direktyva.
- Šioje instrukcijoje aprašyti gaminiai atitinka Europos Sąjungos direktyvą 2014/34/EU.
- Visi „Brooks Instrument“ srauto matuokliai priklauso 1 skysčių grupei.
- Didesni nei 25 mm arba 1 col. gaminiai atitinka PED I, II arba III kategoriją.
- 25 mm arba 1 col. ar mažesni gaminiai atitinka tinkamą inžinerijos praktiką (SEP).

### Europoje taikomi elektromagnetinio suderinamumo (EMS) reikalavimai

CE ženklą pažymėta „Brooks Instrument“ (elektrinė / elektroninė) įrangą buvo sėkmingai išbandyta pagal elektromagnetinio suderinamumo reikalavimus (EMS direktyvą 2014/30/EU).

Tačiau ypač atidžiai reikia rinktis signalizavimo kabelį, kuris bus naudojamas su CE ženklą pažymėta įrangą.

#### Signalizavimo kabelio, kabelių riebokščių 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 riebokščių, užtikrinančius kabelio ekrano suspaudimą.

Kabelio ekraną reikia jungti prie metalinio apvalkalo ar riebokščių ir ekranuoti abiejuose galuose 360 laipsnių.

Ekranas turi užsibaigti žeminiu.

Standartinės kraštinės jungtys yra nemetalinės. Naudojami kabeliai turi būti ekranuoti 100 % ekranu, kad atitiktų CE sertifikavimą.

Ekranas turi užsibaigti žeminiu.

Keturių kontaktų konfigūracija: žr. pridėtą instrukciją.

### ESD (elektrostatinis išlydis)

**⚠️ PERSPĖJIMAS: šie prietaisai 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 žeminiu 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 kortelės reikia transportuoti laidžiamame konteineryje. Neleidžiama išimti plokštės iš apsauginio dėklo, nebent prieš pat įdėjimą. Išimtas plokštės reikia nedelsiant įdėti į apsauginį konteinerį, kuriame jos bus transportuojamos ar saugomos, arba grąžinti į gamyklą.

#### **Pastabos**

Šis instrumentas nėra unikalus dėl jame esančių ESD (elektrostatinio išlydžio) 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, greitai sugenda.

## 0250 Series

## Polish

**Niezbędne zalecenia****Prosimy przeczytać przed rozpoczęciem użytkowania!**

Brooks Instrument projektuje, wytwarza i testuje swoje produkty tak, aby spełniały wymagania licznych norm krajowych i międzynarodowych. Produkty te 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 przestrzegać wszystkich ostrzeżeń, uwag i zaleceń umieszczonych na produkcie lub do niego dołączonych

**▲ OSTRZEŻENIE: Przed rozpoczęciem instalacji należy sprawdzić, czy wymagana specyfikacja niniejszego urządzenia zgodna jest z miejscowymi i krajowymi normami. Zignorowanie tego ostrzeżenia może spowodować poważne obrażenia ciała i/lub uszkodzenie sprzętu.**

- Instalację urządzenia należy przeprowadzić zgodnie z zaleceniami zawartymi w instrukcji instalacji oraz z obowiązującymi lokalnymi i narodowymi oznaczeniami. Wszystkie urządzenia można podłączyć 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 unikać 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 obrażeniu 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 jakiegos 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 względnie 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.
- Produkty opisane w tej instrukcji są zgodne z dyrektywą EN 2014/34/EU.
- Wszystkie mierniki przepływu firmy Brooks Instrument należą do 1. grupy cieczy.
- Produkty o wielkości powyżej 25 mm lub 1 cala należą do kategorii I, II lub III dyrektywy PED.
- Produkty 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 2014/30/EU).

Jednakże szczególnie 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**  
**Ler antes de proceder!**

A Brooks Instrument projecta, fabrica e testa os seus produtos de forma a satisfazer numerosas normas nacionais e internacionais. Estes equipamentos devem ser instalados, utilizados e mantidos de forma adequada, e devem funcionar dentro da sua gama de utilização. As instruções seguintes devem ser, durante a instalação, uso e/ou manutenção dos equipamentos da Brooks Instrument, apreendidas e integradas no plano de protecção e segurança no trabalho.

- Para assegurar o desempenho adequado, a instalação, exploração, actualização e/ou manutenção do equipamento deve ser realizada, exclusivamente, por pessoal qualificado.
- Antes de instalar, utilizar e/ou executar operações de manutenção devem ser lidas todas as instruções do equipamento. 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 futura referência.

**⚠ ATENÇÃO: não sujeite o equipamento a condições fora das gamas de serviços indicadas. Ao não respeitar esta advertência poderá provocar avarias no equipamento e/ou danos pessoais.**

- Se as instruções deste manual não estiverem suficientemente claras, contacte o representante Brooks Instrument para esclarecer as suas dúvidas.
- Tenha sempre presente todas as advertências, apelos e instruções indicadas no equipamento e/ou fornecidas junto com o mesmo.

**⚠ AVISO: Antes de proceder à instalação, certifique-se de que este instrumento está em conformidade com as categorias de homologação exigidas pelas regulamentações locais e nacionais. O incumprimento pode resultar em lesões pessoais graves e/ou danos no equipamento.**

- A instalação do equipamento deverá ser efectuada cumprindo todas as instruções indicadas no manual assim como as normas e regulamentos locais e nacionais vigentes. Ligue o equipamento exclusivamente a fontes de energia eléctrica e/ou 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 detectar fugas, poderá colocar o sistema à pressão de trabalho.
- Antes de efectuar qualquer operação de manutenção verifique sempre a possibilidade do equipamento estar sob pressão. No caso de ser preciso substituir peças, estas devem ser as recomendadas pela Brooks Instrument e o trabalho de substituição deverá ser efectuado por técnicos qualificados. Procedimentos e peças não conformes poderão alterar o desempenho do equipamento, danificá-lo ou colocar em risco a sua segurança ou de outros. Substituir peças por outras não originais, meramente semelhantes, poderá originar choques eléctricos, fogo ou em funcionamento inadequado.
- Deverá manter o equipamento intacto e fechado, verificando se as coberturas de protecção estão nos seus lugares devidos, de forma a evitar choques eléctricos e/ou danos pessoais, excepto no caso de se tratar de um técnico qualificado e se estiver a executar trabalhos de manutenção.

**⚠ ATENÇÃO: Se por qualquer razão for necessário fechar as válvulas a montante e jusante do equipamento, tenha em atenção que o mesmo deverá ser previamente esvaziado do fluido que o atravessa. Esta obrigação surge do facto de existir a possibilidade de ocorrer dilatação térmica do líquido, no interior do aparelho, podendo provocar danos pessoais ou materiais graves.**

**Directiva Europeia para equipamentos sob pressão (PED)**

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

- O capítulo "Dados técnicos" do manual contém instruções relativas à Directiva PED.
- O produto objecto deste manual satisfaz a directiva 2014/34/EU da UE.
- Os caudalímetros Brooks pertencem ao grupo 1 de fluidos.
- Os produtos com calibre superior a 25 mm (1 polegada) pertencem às categorias PED I, II, ou III.
- Os produtos de 25 mm (1 polegada) ou menores seguem as "Boas regras de engenharia" (SEP).

**Directiva Europeia sobre Compatibilidade electromagnética (EMC)**

Os equipamentos (eléctricos/electrónicos) da Brooks Instrument que têm a marcação CE passaram os testes comprovativos dos requisitos de compatibilidade electromagnética (Directiva EMC número 2014/30/EU).

Todavia, ao utilizar os aparelhos compete-lhe a escolha dos cabos de sinal adequados para os equipamentos com marcação CE.

**Qualidade dos cabos de sinal, buçins e conectores:**

A Brooks Instrument fornece cabos de alta qualidade que cumprem todos os requisitos da marcação CE.

No caso de utilizar os seus próprios cabos de sinal, assegure uma blindagem a 100%.

Os conectores do tipo "D" ou "circular" têm que ser blindados por uma malha metálica. Se precisar de usar buçins, estes têm que permitir a crimpagem da malha/blindagem do cabo.

A blindagem do cabo deve ser ligada ao corpo metálico ou bocal e assegurando a blindagem 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)**

**⚠ ATENÇÃO: Alguns componentes deste equipamento são susceptíveis à acção da electricidade estática, podendo ficar danificados. Ao remover, colocar ou manipular placas de circuitos electrónicos deverá ter em atenção os seguintes procedimentos:**

1. Desligar o equipamento da rede.
2. O utilizador, antes de qualquer intervenção que envolva os cartões de circuitos ou outros dispositivos internos, terá que se ligar à terra por meio duma bracelete de pulso ou outro dispositivo adequado.
3. Os circuitos impressos deverão ser transportados numa 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:**

Tenha presente que este equipamento poderá não ser o único objecto capaz de ser portador de peças sensíveis a 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 inicialmente funcionem aparentemente bem, acabam por ter falhas prematuramente.

## 0250 Series

## Romanian

**Indicații de referință****Citiți-le întâi pe acestea!**

Brooks Instrument își proiectează, produce și testează produsele într-un mod ce respectă un mare număr de standarde autohtone și internaționale. Aceste instalații trebuie amplasate, exploatate și întreținute corespunzător, pentru ca în toate situațiile, domeniul lor de lucru să corespundă operării normale. În ceea ce privește instalarea, operarea și întreținerea produselor Brooks Instrument, indicațiile de mai jos trebuie respectate și trebuie introduse în programul de protecția muncii.

- Pentru garantarea prestației corecte, instalarea, operarea, actualizarea, programarea și întreținerea produsului poate fi realizată doar de către personal calificat.
- Instrucțiunile de instalare ale produsului trebuie citite integral, înainte de punerea în serviciu și exploatarea sa. În măsura în care ediția acestui manual nu este cea adecvată, identificați pe ultima copertă coordonatele distribuitorului local și pentru lămuriri suplimentare adresați-vă acestuia. Păstrați acest manual pentru referințe ulterioare.

**⚠ ATENȚIE: Nu utilizați instalația în afara intervalului de funcționare indicat în instrucțiunile de operare. Nerespectarea acestui lucru se poate solda cu răni grave de persoane sau defectarea instalației.**

- În măsura în care indicațiile cărții mașinii nu sunt suficient de lămuritoare, luați legătura cu reprezentantul Brooks Instrument pentru clarificarea problemei.
- Păstrați toate avertismentele, avizele și instrucțiunile livrate odată cu instalația sau inscripționate pe aceasta.

**⚠ AVERTISMENT: Înainte de instalare, asigurați-vă că valorile nominale ale acestui instrument respectă codurile naționale. Nerespectarea acestui avertisment poate avea drept rezultat răni personale grave și/sau defectarea echipamentelor.**

- Efectuați instalarea echipamentului în conformitate cu indicațiile de instalare corespunzătoare, respectiv cu respectarea prevederilor naționale. Echipamentul se conectează exclusiv la surse de energie electrică și de presiune corespunzătoare.
- Succesiv: (1) Presurizați lent instalația. Deschideți încetul cu încetul supapa de funcționare pentru evitarea fluctuațiilor de flux. (2) Controlați dacă nu sunt prelingeri la intrarea sau ieșirea debitmetrului de branșare. Dacă nu sunt scurgeri, presurizați instalația la presiunea de lucru.
- Înaintea exploatării/ întreținerii, verificați 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 și licențiate poate avea efecte asupra performanțelor instalației și asupra siguranței sale în exploatare. Utilizarea de piese asemănătoare de substituie poate avea ca rezultat pericol de incendiu și electrocutare.
- În toate cazurile toate ușile instalației trebuie să fie închise, cuștile de protecție să fie puse la locurile lor, pentru evitarea electrocutării și rănirii de persoane, exceptând situațiile când un specialist efectuează lucrări de întreținere.

**⚠ ATENȚIE: În cazul instalațiilor cu flux de fluide, dacă din orice motiv este necesară închiderea valvelor de intrare și ieșire, limitrofe instalației, instalația trebuie complet golită. Neglijarea acestui lucru poate avea ca efect dilatarea termică a fluidului, care poate defecta instalația și poate produce răni de persoane.**

**Directiva europeană pentru instalațiile sub presiune (PED)**

Toate instalațiile și sistemele presurizate ce se află sub presiuni interne ce depășesc 0,5 mbar (g) și au mai mult de 25 mm sau 1 țol, cad sub incidența noimei europene corespunzătoare (PED).

- La capitolul "Date tehnice" din cartea mașinii se găsesc indicațiile corespunzătoare directivei PED.
- Produsele menționate în cartea mașinii corespund directivei 2014/34/EU EU.
- Toate debitmetrele Brooks corespund clasei 1 de fluide.
- Produsele mai mari de 25 mm sau 1 țol corespund categoriei PED I, II sau III.
- Produsele mai mici de 25 mm sau 1 țol se conformează practicii ingineresti acceptate (SEP).

**Directiva europeană privitoare la compatibilitatea electromagnetă (EMC).**

Instalațiile (electrice /electronice) ce poartă marca Brooks Instrument CE îndeplinesc cu succes cerințele testelor de verificare ale compatibilității electromagnetice (Cf. directivelor europene EMC cu nr. 2014/30/EU).

În același timp trebuie acordată o atenție deosebită la alegerea cablurilor de semnalizare utilizate pentru instalațiile ce poartă marcajul CE.

**Calitatea cablurilor de semnalizare, a legăturilor prin cablu și a conectoarelor:**

Brooks Instrument oferă cabluri de calitate ridicată, care corespund cerințelor calitative ale CE.

În măsura în care folosiți cabluri proprii, trebuie alese acelea care sunt 100% ecranate și prevăzute cu filtre.

Conectoarele „D” sau cele „circulare” trebuie să 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 mașon și în ambele cazuri trebuie asigurată ecranarea la 360°. Ecranarea trebuie terminată cu o legare la pământ.

Conform standardului, conectoarele aparținând plăcilor electronice nu sunt metalice. Cablurile folosite trebuie să fie 100% ecranate și prevăzute cu filtre pentru a corespunde clasificării CE.

Ecranarea trebuie terminată cu o legare la pământ.

Configurație de contact: Vezi instrucțiunile de operare atașate.

**Descărcare electrostatică (ESD)**

**⚠ ATENȚIE: Instalația include piese care sunt predispușe la defectare sub influența electricității statice. Trebuie respectate metodele corespunzătoare de extragere, instalare sau alte manipulări ale circuitelor electronice.**

**Procedură de manipulare:**

1. Instalația 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 articulația mâinii sau alte dispozitive de siguranță disponibile pentru acest scop.
3. Cartelele cu cablaje electronice imprimate trebuie transportate în ambalaje anti-electrostatice (conductive). Cartelele se pot scoate din ambalaj doar nemijlocit înaintea amplasării lor. Cartela demontată trebuie pusă neîntârziat în ambalajul de protecție în vederea transportării, a depozitării sau returnării la producător.

**Observații:**

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.) Experiența a dovedit că acestea pot fi afectate sau deteriorate chiar de energii electrostatice de slabă intensitate. Componentele defectate, cu toate că în aparență sunt funcționale, duc în timp la defecțiuni incipiente.

Slovak

## Základné príkazy Prečítať pred inštaláciou!

Brooks Instrument svoje výrobky projektuje, vyrába a testuje takým spôsobom, aby tieto vyhovel domácom 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 servisom 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.

**⚠ VAROVANIE: pred montážou sa uistite, že toto zariadenie disponuje potrebnými klasifikáciami povolení, ktoré spĺňajú miestne a národné predpisy. Nedodržanie tohto varovania môže mať za následok vážne zranenia osôb alebo poškodenie zariadenia.**

- 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 prevádzky 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 teplej roztlačenej 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.
- Produkty uvedené v návode na obsluhu vyhovujú smernici 2014/34/EU EÚ.
- Všetky prietokomery Brooks patria do 1. skupiny kvapalín.
- Produkty presahujúce rozmery 25 mm alebo 1 " spĺňajú I., II., alebo III. kategóriu PED.
- Produkty 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 zaslužili značku CE, úspešne splnili skúšobné testy požiadaviek elektromagnetickej kompatibility (smernica EMC č. 2014/30/EU).

Pritom treba venovať zvláštnu starostlivosť na výber signálnych káblov zariadenia, s označením CE.

**Kvalita signálnych káblov, káblových spojov a pripojov:**

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.

Pripojky "kruhovité" 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.

Pripojky vedúce ku kartám podľa noriem sú nekovové. Použitie 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 údržbe 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 zdánlivo pracujú bez chyby, odkazujú na vznikajúce poruchy.



## 0250 Series

## Slovene

## Osnovna navodila

### Preberite jih pred nadaljevanjem.

Brooks Instrument oblikuje, proizvaja in preskuša svoje izdelke tako, da ustrezajo številnim nacionalnim in mednarodnim standardom. Te izdelke je treba ustrezno namestiti, jih uporabljati in vzdrževati, saj bodo le tako še naprej delovali v skladu s svojimi običajnimi tehničnimi podatki. Upoštevajte spodnja navodila in jih vključite v svoj varnostni program pri namestitvi, uporabi in vzdrževanju izdelkov družbe Brooks Instrument.

- Če želite zagotoviti ustrezno delovanje, zagotovite, da bo izdelek namestilo, uporabljalo, posodabljalo, programiralo in vzdrževalo usposobljeno osebje.
- Pred namestitvijo, uporabo in servisiranjem izdelka preberite vsa navodila. Če ta priročnik ni ustrezen priročnik, na hrbtni strani poiščite podatke za stik z lokalnim prodajnim mestom. Ta priročnik shranite za poznejšo uporabo.

**▲ OPOZORILA: To napravo lahko uporabljate samo v okviru tehničnih podatkov, ki so navedeni v priročniku z navodili za uporabo. Če tega opozorila ne upoštevate, lahko pride do hudih telesnih poškodb in/ali poškodb opreme.**

- Če katerih koli navodil ne razumete, se za pojasnilo obrnite na svojega zastopnika družbe Brooks Instrument.
- Upoštevajte vsa opozorila, svarila in navodila, ki so navedena na izdelku ali so mu priložena.

**▲ OPOZORILO: Pred namestitvijo se prepričajte, da ima ta naprava zahtevane ocene odobritve, ki izpolnjujejo lokalne in nacionalne zakone. Če tega opozorila ne upoštevate, lahko pride do hudih telesnih poškodb in/ali poškodb opreme.**

- Opremo namestite v skladu z navodili za namestitev, ki so navedena v ustreznem uporabniškem priročniku, ter v skladu z veljavnimi lokalnimi in nacionalnimi zakoni. Vse izdelke priključite na ustrezne električne vire in vire tlaka.
- Postopek: (1) V sistemu počasi zaženite pretok. Počasi odprite procesne ventile, da preprečite nihanja pretoka. (2) Preverite, ali prihaja do puščanj okrog vhodnih in izhodnih priključkov merilnika pretoka. Če ne prihaja do puščanj, vzpostavite delovni tlak v sistemu.
- Pred servisom morate odstraniti tlak v obdelovalni liniji. Če potrebujete rezervne dele, zagotovite, da usposobljeno osebje uporablja rezervne dele, ki jih je odobrila družba Brooks Instrument. Neodobreni deli in postopki lahko vplivajo na učinkovitost delovanja izdelka ali ogrozijo varno upravljanje postopka. Rezervni deli, ki so podobni samo na videz, lahko povzročijo požar, nevarnost električnega udara ali nepravilno delovanje.
- Prepričajte se, da so vrata vrata naprave zaprta in da so zaščitni pokrovi nameščeni, da preprečite električni udar in telesne poškodbe, razen kadar usposobljeno osebje izvaja vzdrževalna dela.

**▲ OPOZORILA: Če je pri napravah za pretok tekočine vhodne in izhodne ventile ob napravi treba iz kakršnega koli razloga zapreti, je treba naprave popolnoma izprazniti. Če tega ne naredite, lahko pride do toplotnega raztezanja tekočine, zaradi katerega se lahko naprava prelomi in povzroči telesne poškodbe.**

### Evropska direktiva o tlačni opremi (PED)

Vsa tlačna oprema z notranjim tlakom, ki je večji od 0,5 bara (g), in velikostjo, ki je večja od 25 mm ali 1 palca, spada v direktivo o tlačni opremi (PED).

- V poglavju »Tehnični podatki« v tem priročniku najdete navodila, ki se nanašajo na direktivo PED.
- Izdelki, opisani v tem priročniku, so skladni z direktivo EN 2014/34/EU.
- Vsi merilniki pretoka družbe Brooks Instrument spadajo v skupino tekočin 1.
- Izdelki, večji od 25 mm ali 1 palca, so skladni s kategorijo I, II, ali III direktive PED.
- Izdelki, katerih velikost je 25 mm ali 1 palec ali manjši izdelki, so skladni z dobro inženirsko prakso (SEP).

### Evropska direktiva o elektromagnetni združljivosti (EMC)

Naprave družbe Brooks Instrument (električne/elektronske) z oznako CE so bile uspešno preskušene v skladu s predpisi direktive o elektromagnetni združljivosti (Direktiva o elektromagnetni združljivosti 2014/30/EU).

Posebno pozornost morate nameniti izbiri signalnega kabla, ki jih uporabljate za naprave z oznako CE.

**Kakovost signalnih kablov, kabljskih tesnil in priključkov:**

Brooks Instrument ponuja kable visoke kakovosti, ki ustrezajo tehničnim podatkom za pridobitev oznake CE.

Če uporabljate svoj signalni kabel, morate uporabiti kabel, ki je na splošno popolnoma oklopljen s 100 % zaščito.

Priključki tipa »D« ali »krožni« priključki morajo biti zaščiteni s kovinskim ščitom. Po potrebi je treba uporabiti kovinske kabljske tesnilke, ki zagotavljajo vpenjala za zaslon kabla.

Zaslon kabla je treba priključiti na kovinsko ohišje ali tesnilko in ga na obeh koncih popolnoma zaščititi.

Zaščito je treba prekiniti pri ozemljitvi.

Robni priključki običajno niso kovinski. Kable je treba zaščititi s 100 % zaščito, da ustrezajo oznaki CE.

Zaščito je treba prekiniti pri ozemljitvi.

Navodila z konfiguracijo nožic najdete v priloženem uporabniškem priročniku.

### Elektrostatična razelektritev (ESD)

**▲ OPOZORILO: Naprava vsebuje elektronske komponente, ki so občutljive na poškodbe zaradi statične elektrike. Pri odstranitvi, namestitvi ali drugih postopkih uporabe notranjega tiskanega vezja ali naprav morate upoštevati ustrezne postopke.**

**Postopek ravnanja:**

1. Izklopite napravo.
2. Osebje je treba pred namestitvijo, odstranitvijo ali prilagajanjem katere koli kartice tiskanega vezja ali druge notranje naprave ozemljiti z zapetnim paščkom ali drugimi varnostnimi in primernimi sredstvi.
3. Kartice s tiskanim vezjem je treba prevažati v prevodnem vsebniku. Plošče lahko iz zaščitne embalaže odstranite šele tik pred namestitvijo. Odstranjene plošče je treba takoj shraniti v zaščitno embalažo za prevoz, shranjevanje ali vračilo v tovarno.

**Opombe:**

Ta naprava ni edinstvena z vidika komponent, ki so občutljive na elektrostatično razelektritev. Večina sodobnih elektronskih naprav vsebuje komponente, ki uporabljajo oksidno tehnologijo (NMOS, SMOS itd.). Izkušnje dokazujejo, da lahko celo majhne količine statične elektrike poškodujejo ali uničijo te naprave. Poškodovane komponente se predčasno okvarijo, čeprav navidez delujejo pravilno.

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.

**⚠ ADVERTENCIA: Antes de la instalación, asegúrese de que el instrumento ofrece las características de aprobación necesarias para satisfacer los requisitos normativos locales y nacionales. En caso contrario, se pueden producir lesiones personales y/o daños en el equipo.**

- 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 2014/34/EU.
- Todos los caudalímetros 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 2014/30/EU).

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 conductor. 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:**

Este 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.

## 0250 Series

## 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, uppdatera, 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.

**▲ WARNING: 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.

**▲ WARNING: Säkerställ före installation att detta instrument har alla nödvändiga godkännanden för att uppfylla lokala och nationella regler. Underlåtenhet att följa denna varning kan leda till personskador och/eller skador på utrustningen.**

- 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.

**▲ WARNING: 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 dimensioner 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 2014/34/EU.
- 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 2014/30/EU). Man måste dock ägna särskild uppmärksamhet till valet av signalkabeln som skall användas för CE-märkta anordningar.

#### Signalkablars, packboxars och kontaktdons 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" kontaktdon skall vara skärmade med metalliska avskärmningar. Om det är användbart, bör metallpackboxar som ger en bra fastspänning för kabelskärmar användas.

Kabelavskärmningen måste kopplas till den metalliska skärmade anordningen eller packboxen och skämmas 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 installeras, 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 metalloxd 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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## 0250 Series

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### LIMITED WARRANTY

Visit [www.BrooksInstrument.com](http://www.BrooksInstrument.com) for the terms and conditions of our limited warranty.

### 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](http://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.

### SEMINARS AND TRAINING

Brooks Instrument can provide seminars and dedicated training to engineers, end users and maintenance persons.

*Please contact your nearest sales representative for more details.*

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

### TRADEMARKS

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