

0250-Series

Secondary Electronics

Four Channel Power Supply, Readout and Set Point Controller



Model 0254
Secondary Electronics

Overview

The Brooks 0254 is a four-channel power supply, readout, and set point controller. This innovative, reliable microcomputer-based controller provides power for up to four Brooks thermal mass flow, Quantim Coriolis mass flow, and/or pressure devices; all in a new compact design. Additionally, the 0254 can be used to generate flow setpoint commands, display flow rate, totalize flow, for blending multiple flow streams, and more. This fully RoHS compliant device has a very user-friendly operation and is offered with multiple mounting capabilities such as rack mount, panel mount, and table-top mount.

Product Description

Four Channel Display

The process variable and setpoint for each of the four channels are displayed simultaneously for quick reading and adjustment. The value displayed on each channel can be independently set for percent full scale or engineering units to display flow rate, pressure, density, or temperature.

Backlit Graphic Display

The 0254 features a large, high contrast, backlit graphic display which allows the user to view real-time process variables and the programmed setpoint for each connected device right on the home screen. This enables the user to rapidly identify and make in-process adjustments in seconds. The display and audio indicators provide the user immediate status quantities, rates, and diagnostic operating status.

Communication

Every 0254 comes with a RS-232 port, giving users serial communication capability. The RS-232 port provides remote readout, setpoint, control, and data acquisition.

Diagnostics

Powerful automatic built-in diagnostic tests support easy installation and assist in ensuring a long, trouble-free operating life. These tests include overall system operating status, memory conditions, communication adapter status, display functionality, and keypad operation.

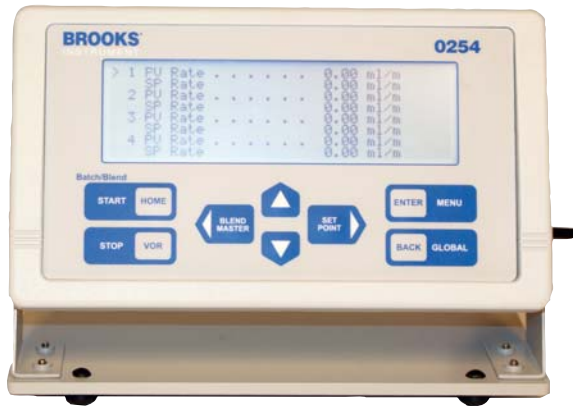
Sensor Factor

A gas sensor factor dropdown list is a standard menu feature, allowing the user to adapt the 0254 to any non-calibrated fluid.

Approvals and Certifications

The 0254 is fully RoHS compliant to EU 2002/95, CE certified to EN61326-1, FCC certified to Part 15 Class A and Part 68. UL USA and Canada general purpose approval to UL61010.

Product Description



Brooks Model 0254 Table Top Front View



Brooks Model 0254 Table Top Back View



Brooks Model 0254 Rack Mount Assembly

Features and Benefits

Features	Benefits
Variety of mechanical configurations (panel, desktop, rack mount)	Makes installation easy for users specific application.
Self diagnostics on every power-up	Ensures device is fully functional.
Large graphic high contrast eight (8) line backlit display	East to read. Displays all process variables and setpoints for quick reading and adjustment.
Totalization	Can be used for inventory management.
Batch control	Allow single or multi channel batch recipes.
Blending	Supports master slave blending configuration and operation.
Valve Override Control (VOR) open, closed or normal	Valve open allows rapid purge or chamber flooding.
RS-232 serial port	Allow remote control, data logging, and remote alarms.
Brooks Smart DDE Software	Simplifies data exchange between the 0254 and commonly used programs such as Microsoft® Excel, Test Point™ and LabView™.
Gas factor scaling	Adapts 0254 to any non-calibrated fluid.

Product Applications

Catalyst Research

The challenge is scaling up the catalyst process from the laboratory to the pilot plant and, ultimately, to production levels. It is imperative that the amount of feed flowing through the research catalyst bed be precisely measured so that the conversion rate and selectivity can be accurately calculated and scaled-up successfully.

Brooks' Quantim Series Coriolis mass flow controllers and SLA Series thermal mass flow controllers have been selected by many companies involved in catalyst research because these instruments provide exceptional flow control precision, wide dynamic range, and super stability. The Quantim Series utilizes coriolis technology making them extremely well suited for critical measurement where the composition or thermal properties of feeds vary. Both series are available for extremely high pressure service, have appropriate area classifications, and are offered with a variety of wetted materials. The 0254 secondary electronics may be used to provide power, set point, and local display. The 0254 can easily share data with a PC via the RS-232 port and DDE software.

Heat treating, cutting/welding, and other thermal processes

The thermal process market is diverse, but the application demands are similar: reliable, accurate control of inert shielding gases and excellent control of O₂ to ensure that the desired outcome is achieved time after time.

Brooks Model 1350 and 1355 Sho-Rate VA meters are examples of simple, reliable flow meters optimized for applications requiring 2-5% gas flow accuracy for CO₂ lasers, for example. Both can be supplied with Model 8800 flow controllers that hold flow constant despite changes in feed pressure. The new Model 4850 provides economical thermal mass flow control at flows up to 40 slpm and a convenient local operator interface for changing flow parameters and setpoint. Leading thermal spray equipment suppliers often select MF Series mass flow controllers because their NEMA 4X/IP66 ingress protection prevents damage from dust and water.

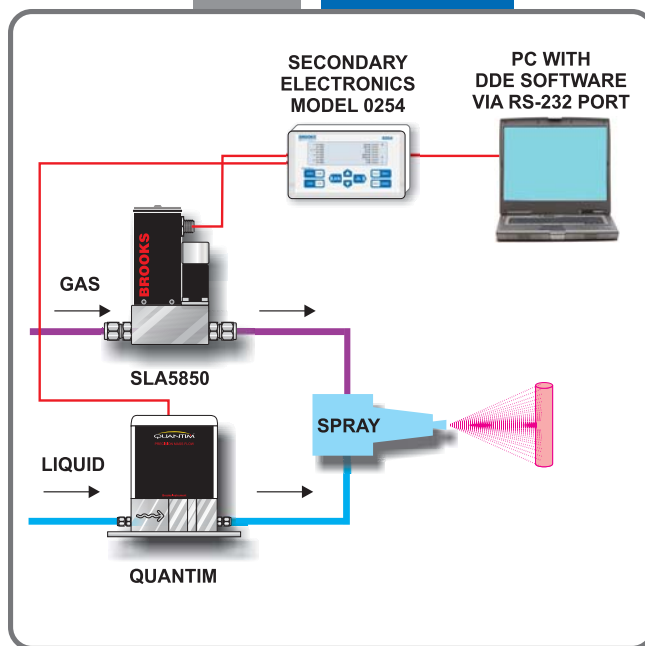
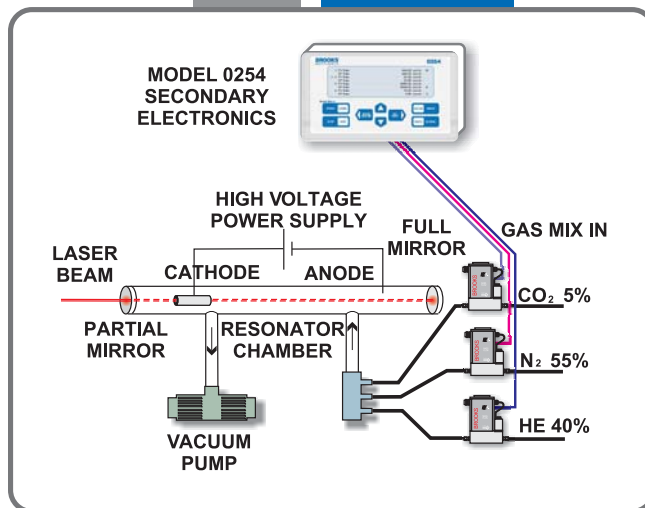
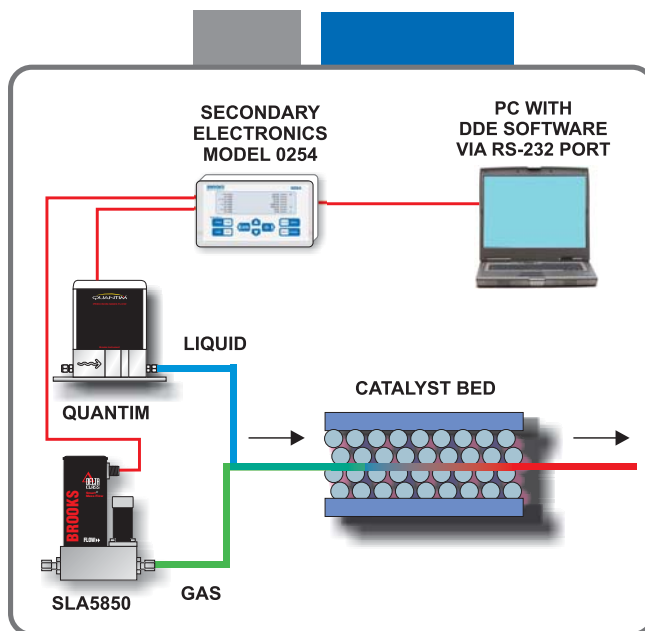
The 0254 Secondary Electronics is being used to provide power, readout and setpoint functionality. The user is also taking advantage of the built in blending capability.

Precision Coatings

Many coating processes use liquids that are sprayed onto substrates. The liquid delivery rate to the spray nozzle controls the film thickness on the substrate, while gas flow determines droplet size and spray pattern.

The Quantim Series Coriolis mass flow controller is perfect for controlling the liquid flow rate to the nozzle. In addition, the instantaneous density output available from the Quantim Series can be employed diagnostically to detect the presence of gas bubbles in the liquid stream. The SLA Series gas flow controller is often selected for this application because of its very fast response and highly accurate, repeatable flow control.

The 0254 Secondary Electronics may be used to provide power, local display and setpoint for both devices. The liquid density measurement, used for quality control, is also displayed. A totalizer function may be used to track liquid inventory to ensure that the process supply does not run low. All of this can be easily integrated with a PC via the RS-232 port and DDE software.

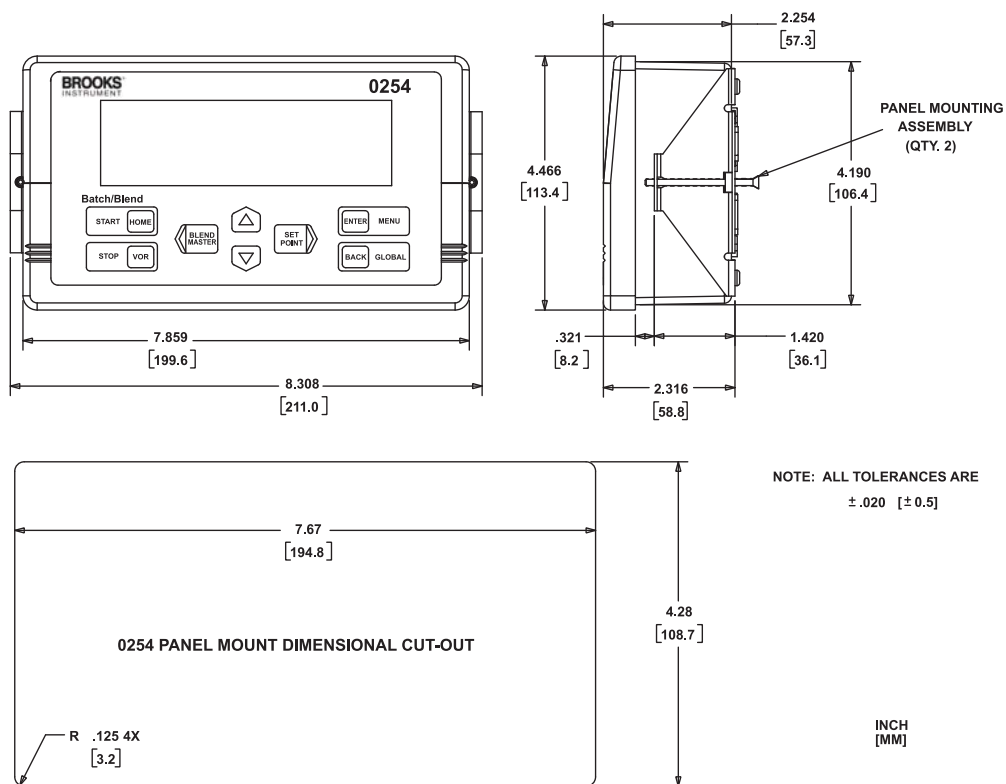


Product Specifications

Performance

Display	8 line x 40 character back-lit LCD display.								
Controls	Keypad: 8-Key metal dome tactile push buttons with selectable audio beep for setpoint (rate, batch, blend), VOR, emergency stop, full operation and programming.								
Date Retention	Non-volatile ram/rom, 100 year retention.								
Power Input	Voltage: 12-24Vdc required, -15Vdc permitted. Current: 400mA max. current draw per channel. Instrument power draw: 0.8 Watts. Optional power module: 100-240Vac, 47-63Hz.								
Power Output	+15V/2.0A, -15V/1.0A or 12-24Vdc/2.0A.								
Signal Input	0(1)-5 Volts, 0(2)-10 Volts, 0(4)-20mA.								
Signal Output	0(1)-5 Volts, 0(2)-10 Volts, 0(4)-20mA.								
Communications	Full communications capability for remote readout, setpoint, control, programming and data acquisition. via RS232.								
Enclosure	ABS cyclac resin.								
Mounting Options	Panel mount kit, table top kit, rack mount kit, rack mount kit with 19" sub-rack. Retrofit applications for 0152/54.								
Dimensions	See product dimensions on page 6 and 7.								
Temperature/Humidity	Operating: 32-122°F (0-50°C), 0-95% non-condensing. Ship/Storage: (-)40-85°C (-)40-185°F, 0-95% non-condensing.								
Certifications	<table> <tr> <td>CE Mark</td><td>EN61326-1</td></tr> <tr> <td>FCC</td><td>Part 15 Class A, part 68</td></tr> <tr> <td>RoHS</td><td>EPD 2002/95/EC, 01Jul2006</td></tr> <tr> <td>UL-USA & Canada</td><td>UL 61010 Electrical Safety for General Purpose Indoor Use.</td></tr> </table>	CE Mark	EN61326-1	FCC	Part 15 Class A, part 68	RoHS	EPD 2002/95/EC, 01Jul2006	UL-USA & Canada	UL 61010 Electrical Safety for General Purpose Indoor Use.
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Product Dimensions



Panel Mount Dimensions

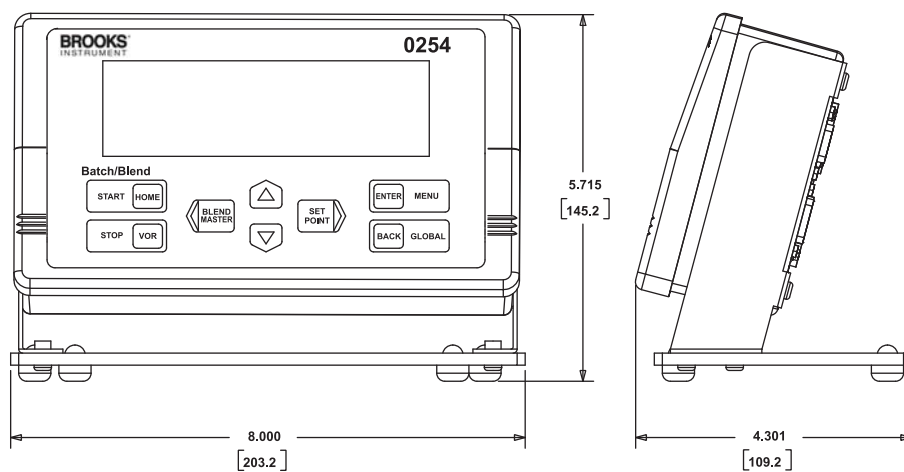
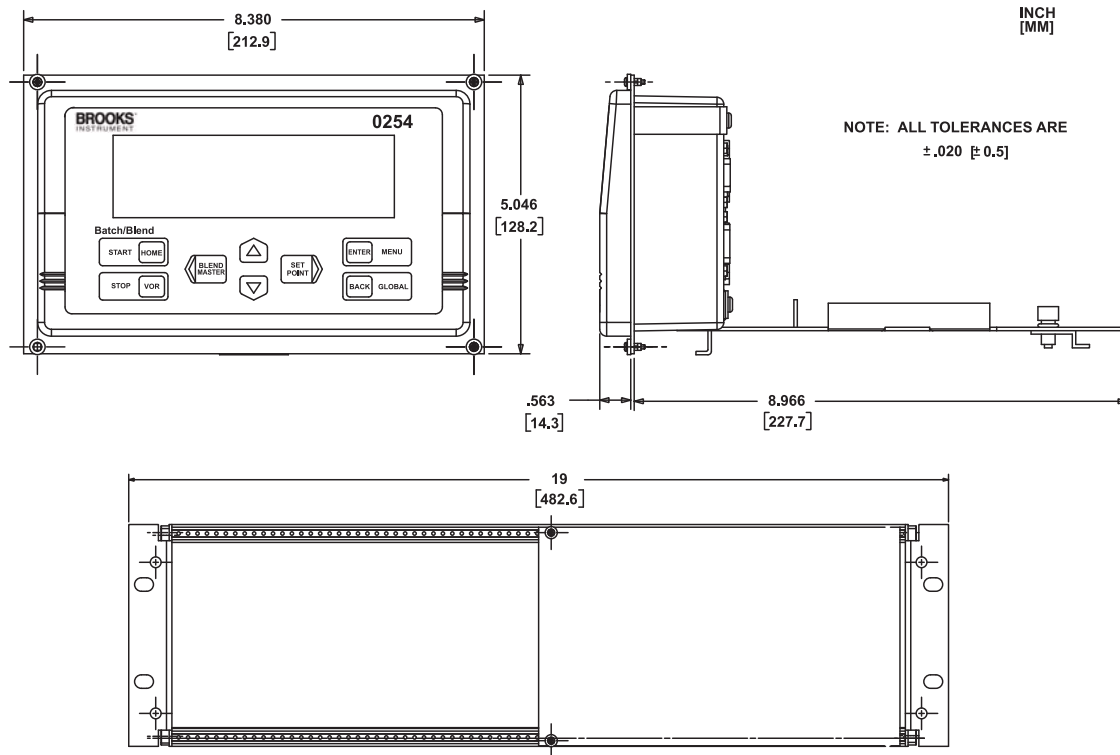


Table Top Dimensions

Product Dimensions



Rack Mount Dimensions

Model Code

Code Description	Code Option	Option Description
I. Base Model Code	0254A	Four channel secondary electronics
II. Mounting	A	Panel mount kit
	B	Table top kit
	C	Rack mount kit (can be used to retrofit 0254 into 0152/54 Installations)
	D	Rack mount kit with 19" rack
III. Power Cord for Power Supply Module 100-240 VDC	1	North american power cord for 120 VAC
	2	European power cord for 220 VAC
	3	None
IV. Power Supply Output Voltage	A	+/- 15 VDC
	B	+ 24 VDC
	C	No power supply
V. Input / Output Pinout and Signal Adapters	1	Current pinout (pin compatible with standard Brooks 0(4)-20 mA cables)
	2	Current pinout / Voltage Pinout Adapter Set (four adapters for use with standard Brooks 0(1)-5 VDC cables)
VI. Options	1	None
	3	RS-232 communication cable (3m 10ft., 9 pin female 'D' to 9 pin female 'D')
	4	Communication software (Smart DDE)
	5	RS-232 communication cable (3m 10ft., 9 pin female 'D' to 9 pin female 'D') and Communication software (Smart DDE)
VII. OEM Code	A	Standard Brooks Labeling

Sample Model Code

I	II	III	IV	V	VI	VII
0254A	B	1	B	2	5	A

Brooks Service and Support

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

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

START-UP SERVICE AND IN-SITU CALIBRATION

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

CUSTOMER SEMINARS AND TRAINING

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

Please contact your nearest sales representative for more details.

HELP DESK

In case you need technical assistance:

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

TRADEMARKS

Brooks Brooks Instrument, LLC

DS-SE-0250-Series-eng (1010)



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BROOKS[®]
INSTRUMENT

0260 Series

Software & Secondary Electronics



Model 0260
Secondary Electronics
with PC

Control and monitor up to 30 devices with RS-485 Smart protocol digital interface

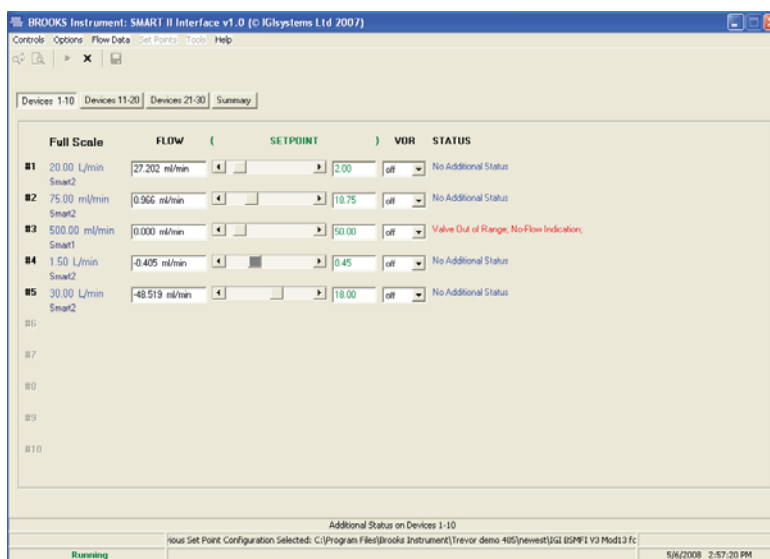
Overview

The Brooks Smart Interface Model 0260 is a Microsoft® Windows® based software application that provides expanded control and monitoring capabilities in laboratory and research environments for the Brooks thermal mass flow meters and controllers with an RS485 Smart protocol digital interface. Together with the power supply and RS485 to USB hardware module this product provides a great turnkey solution for monitoring and controlling up to thirty (30) mass flow meters and flow controllers

Product Description

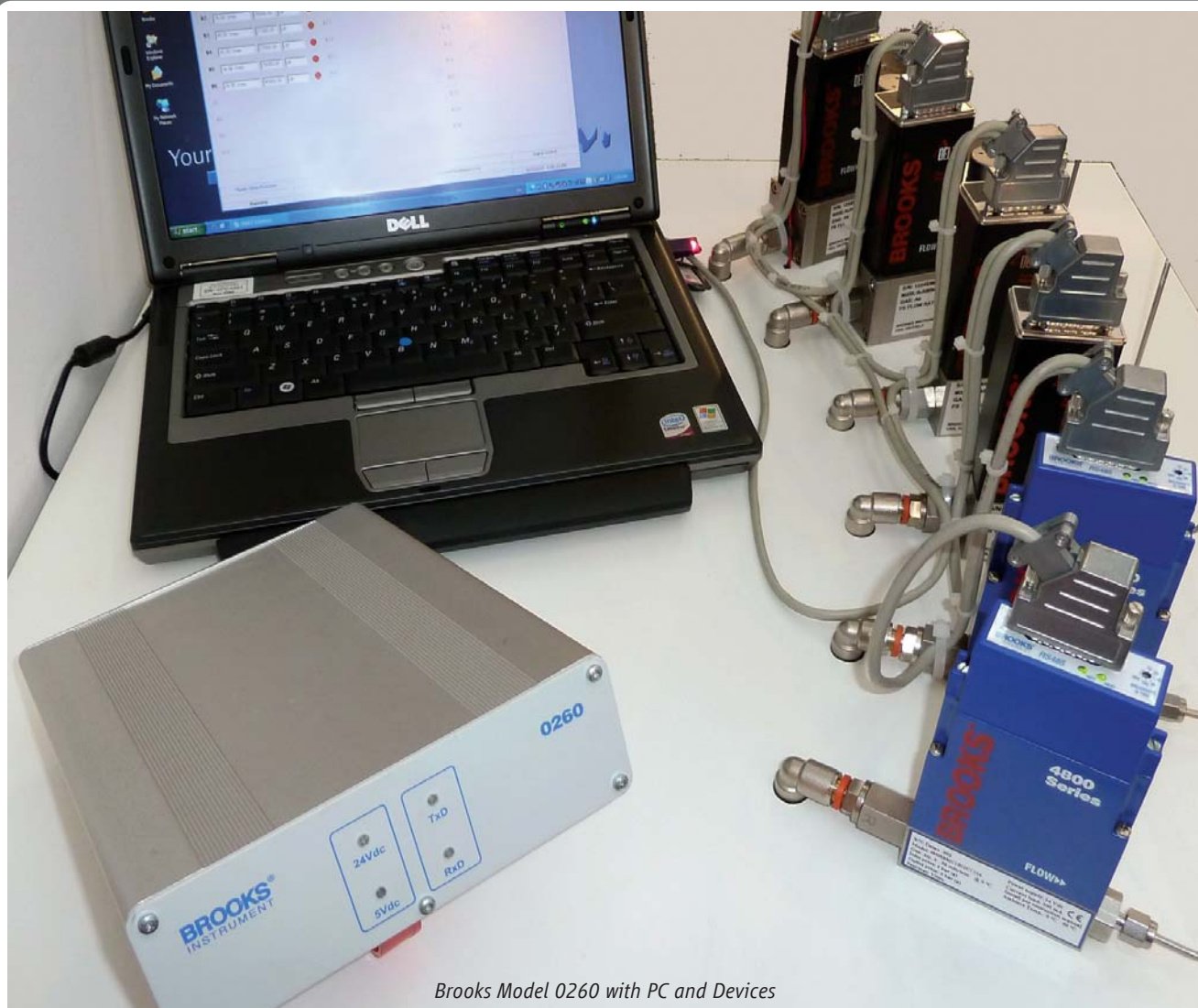
The Brooks Smart Interface software allows the user to display the full scale flow rate, display the measured flow rate, display and adjust the set point, display the device/alarm status and display, and change valve over ride (VOR) status all from the main screen. This software tool also provides data logging, batching, blending and the ability to create automated process recipes.

The Brooks Smart Interface hardware consists of a power supply and RS485 to USB table top hardware module and the interconnecting power and signal cables for the first device. Each hardware module powers up to 10 devices. The Brooks Smart Interface Model 0260 will work with the following Brooks Instrument mass flow product models: 48xxS, 58xxS, SLA58xxS, SLA78xxS, SLA79xxS, MFxxS and SLAMFxxS.



Main Screen in Run Mode

Product Description



Brooks Model 0260 with PC and Devices

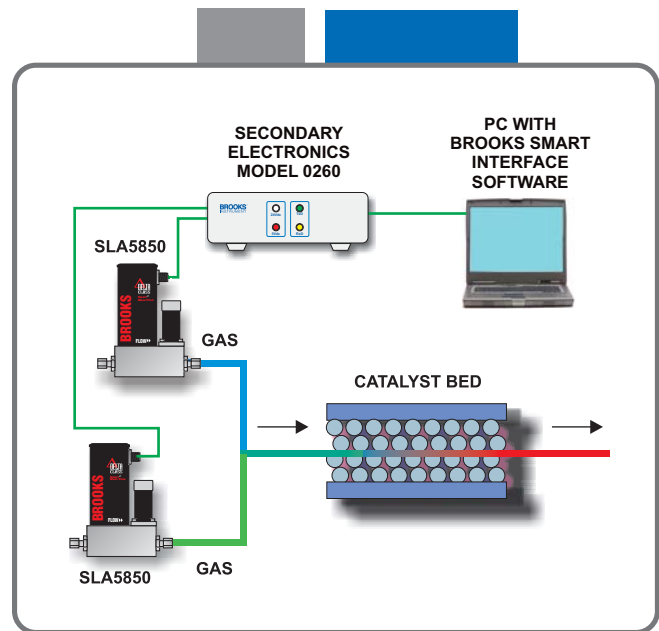
Features and Benefits

Features	Benefits
Monitor and provide set point control for up to 30 devices	Eliminates the need for multiple secondary electronics boxes which saves space, simplifies wiring and reduces overall cost.
Integrated power supply and RS-485 converter	Along with software this hardware and cable set provides the user with an easy to install "turnkey" solution minimizing setup time and headaches.
Data logging	Allows the user to record, review and graph data.
Recipe control	Ability to store recipes (i.e. set points and times for each channel). Eliminates the need for operator intervention to adjust setpoints at designated times which in turn improves test or process reliability and productivity.
Alarm status exist.	Without changing screens, the user is able to see the device status and read any specific alarm conditions that might exist. If there is an alarm condition, it allows the user to quickly troubleshoot and determine the appropriate action.

Product Applications

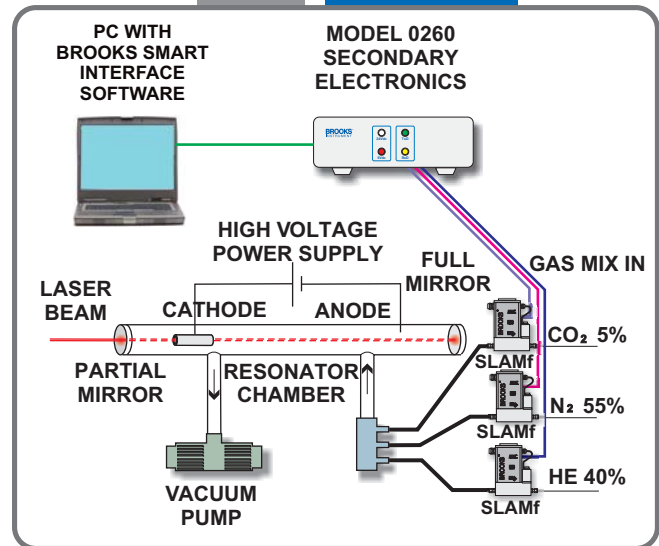
Catalyst Research

The challenge is scaling up the catalyst process from the laboratory to the pilot plant and, ultimately, to production levels. It is imperative that the amount of feed flowing through the research catalyst bed be precisely measured so that the conversion rate and selectivity can be accurately calculated and scaled-up successfully. Brooks' SLA Series thermal mass flow controllers have been selected by many companies involved in catalyst research because these instruments provide exceptional flow control precision, wide dynamic range, and super stability. The SLA is available for extremely high pressure service and has appropriate area classifications. The Brooks Smart Interface Model 0260 allows the user to monitor and control up to thirty (30) RS485 Smart protocol devices through a user friendly Windows based PC interface.



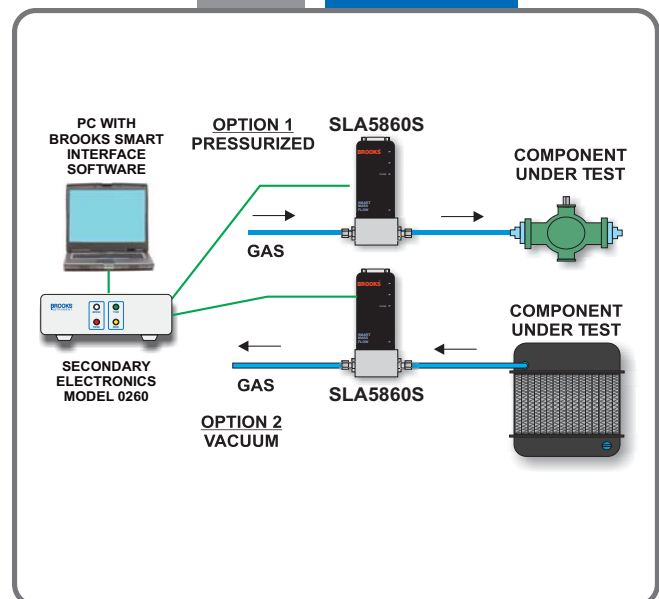
Heat treating, cutting/welding, and other thermal processes

The thermal process market is diverse, but the application demands are similar: reliable, accurate control of inert shielding gases and excellent control of O₂ to ensure that the desired outcome is achieved time after time. The Model 4850 thermal mass flow controller provides economical thermal mass flow control at flows up to 40 slpm. Leading thermal spray equipment suppliers often select SLAMF Series thermal mass flow controllers because their NEMA 4X/IP66 ingress protection prevents damage from dust and water. Regardless of the mass flow device selected the Brooks Smart Interface Model 0260 allows the user to monitor and control up to thirty (30) RS485 Smart protocol devices through a user friendly Windows based PC interface. The user can also take advantage of the built in recipe and blending capability.



Device Testing And Metrology

Components and assemblies that are designed against leaks during use can be tested quickly and reliably using Brooks flow meters. This is accomplished by simply applying pressure or vacuum to the device under test and confirming the absence of flow using a Brooks variable area, thermal, or Coriolis flow meter. Examples include valves, radiators, hydraulic and pneumatic assemblies, plumbing fixtures, and more. Components designed to deliver a certain flow rate at a given set of pressure conditions (orifices and nozzles); to have a certain pressure drop at a given flow rate (filters); to have a minimum power output at a given fuel consumption (engines) can also be tested using Brooks flow meters. Fluid handling equipment like pumps, injectors, dispense heads, and even other flow meters can be periodically verified using Brooks flow meters because the accuracy of the Brooks meter is usually far greater than the device under test. The Brooks Smart Interface Model 0260 allows the user to monitor and control up to thirty (30) RS485 Smart protocol devices through a user friendly Windows based PC interface. The data logging capability built into the software allows user to capture test results for quality assurance or audit purposes.



Product Specifications

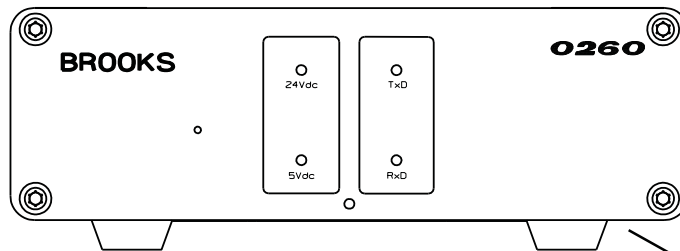
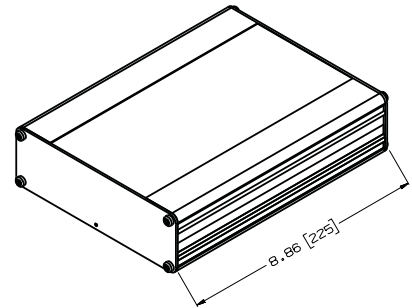
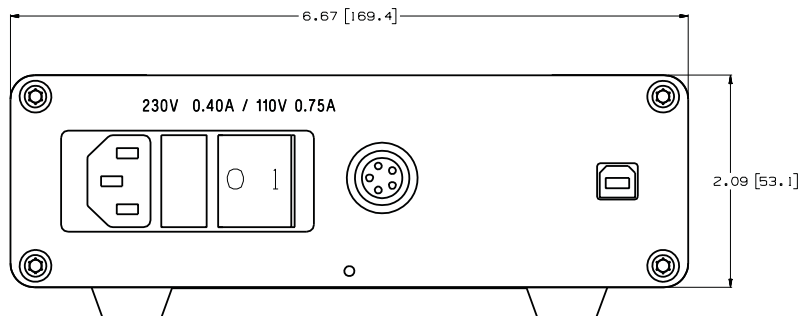
Hardware

Power Input	85-250 Vac, 47-63 Hz	
Power Output	Voltage: 24 Vdc (-/+10%) Current: 3.5 Amp Will power up to ten (10) Brooks S-Series, SLA Smart II or 4800 Series mass flow meters and/or mass flow controllers	
Power On/Off	Rocker switch on panel	
Fuse	Back panel accessible 2.5 Amp Anti-surge, 5 x 20 mm	
Signal Input/Output	RS-485 "S" Protocol (HART Command Set)	
Status LEDs	Four (4) status LEDs located on the front panel Functionality: 24 Vdc present, 5 Vdc PC to USB-485 converter, Coms RX/TX XZ	
Mounting Options	Table top	
Dimensions	See product dimensions on page 5.	
Temperature/Humidity	Operating: 0-50°C (32-122°F), 0-95% non-condensing. Ship/Storage: -40-85°C (-40-185°F), 0-95% non-condensing.	
Cables	AC Power: Standard North American, European or United Kingdom cables PC Interface: 3 meter (10 ft) cable from 0260 with USB connector at PC Device power and signal: 2 meter (6 ft) cable with circular self latching Lemo 5 way 2B series in-line plug at 0260 and a 15 pin female D connector with a Tyco double entry D15 back shell at the first node/device. Optional custom specified multi drop cable for connection to additional nodes/devices	
Certifications	CE Mark RoHS	EN61326-1 EPD 2002/95/EC, 01Jul2006

Software

Software Requirements	Microsoft Windows XP (SP2), Vista or 7
Number of Devices	Software runs up to 30 devices
Main Screen Functions	Display full scale flow, display flow rate, display and adjust setpoint, display and change valve override status, provide device/alarm status updates
Totalizer Function	Resettable totalizer available on each channel
Data Logging	Log data includes time stamp, setpoint, flow rate, valve drive, temperature and alarm status
Conversion Factor	Two decimal conversion factor (multiplier) available for each channel
Blending	Each channel defined as stand alone, master or slave channel. There may be up to 15 masters with the balance being either slaves or stand alone
Security	Software will function only if security dongle is installed in PC
Loss of Power	Software configurable for return to last setpoint values or setpoint zero
Recipe	Ability to store recipes (i.e. setpoints and times for each channel)
Languages	English

Product Dimensions



Labeling on bottom of unit indicates:

- Manufacturer and Address
- Warnings
- Serial Number
- Model Number
- Reference Number
- Agency Approvals

0260 USB-RS485 Dip-Switch & Jumper Settings				
Dip-Switch for Mode Selection:				
Switch:	S1	S2	S3	S4
Half Duplex (2 wire) - without Echo	ON	OFF	OFF	OFF

Jumpers for Communication Line termination/biasing		
1-2	Tx Termination of 120 Ohm	populated
3-4	Pull-up Tx+ (B) to VCC by 750 Ohm Bias resistor	populated
5-6	Pull-down Tx- (A) to GND by 750 Ohm Bias resistor	populated
7-8	Rx Termination of 120 Ohm	not populated
9-10	Pull-up Rx+ to VCC by 750 Ohm Bias resistor	not populated
11-12	Pull-down Rx- to GND by 750 Ohm Bias resistor	not populated
13-14	CTS Termination of 120 Ohm	not populated

Table Top Dimensions

TRADEMARKS

Brooks Brooks Instrument, LLC
HART HART Communication Foundation
Microsoft Microsoft Corporation
Windows Microsoft Corporation

Model Code

Code Description	Code Option	Option Description
I. Base Model Code	0260	Secondary electronics
II. Model Revision Level	A	
III. Software Application	A	None
	B	Brooks Smart Interface
IV. Software Distribution	A	N/A (not applicable)
	B	Software Download*
	C	CD Kit
V. Hardware Option	A	None
	B	0260 Hardware
VI. Power Cord for 0260 Hardware, 100-240 Vac	A	None
	B	North American power cord for 120 Vac
	C	European power cord for 220 Vac
	D	United Kingdom power cord for 220 Vac

*Customer must download software from the Brooks Instrument website (<http://www.BrooksInstrument.com>)

Sample Model Code

I	II	III	IV	V	VI
0260	A	B	C	B	B

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.

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