

5850EMH Series

Metal-Sealed, High-Temperature Mass Flow Controllers for High-Flow Applications

Originally developed to support the rapid growth of fiber optic cable manufacturing in Asia, the 5850EMH Series of high-temperature mass flow controllers continues to be produced by Brooks Instrument in Hatfield, Pennsylvania, USA using the same proven manufacturing processes. Designed for demanding industrial and materials processing environments, the platform delivers stable, repeatable gas flow control for applications requiring reliable performance at elevated temperatures.

Engineered for flexibility and long-term reliability, the 5850EMH Series combines robust metal-sealed construction with precise thermal mass flow sensing to deliver dependable gas measurement and control. Its compact design and broad operating capability make it well suited for precursor and dopant vapor delivery processes where consistent throughput, operational stability, and process control are essential.



Features

High leak integrity ($<10^{-11}$ Pa·m³/s He) with helium leak check ports

Wide flow range (0.003–100 slpm N₂ equivalent)

High flow capability (up to 100 slpm)

High-purity 316L stainless steel wetted materials and particulate-free design

Normally closed valve with optional normally open configuration

Advanced valve control features (low command flow cutoff, electrically activated override, TTL “valve off”)

Benefits

Ensures exceptional sealing performance and enables quick verification of system integrity, protecting high-purity processes from contamination or gas loss.

Supports both very low and high flow applications in a single platform, reducing the need for multiple controllers, simplifying system design.

Enables high-throughput operation while maintaining precise flow control in demanding industrial and materials processing environments.

Maintains gas purity and protects sensitive processes from contamination, improving yield and system reliability.

Provides fail-safe operation during power loss while offering flexibility to match different system safety requirements.

Improves process safety, simplifies troubleshooting, and enables seamless integration with automated control systems.

Product Specifications

	5850EMH	5851EMH
Performance		
Flow Range	0.003 - 30 lpm (N ₂ equivalent)	10 - 100 lpm (N ₂ equivalent)
Flow Accuracy	±1% full scale	
Control Range	5 - 100%	
Repeatability	±0.25% of rate	
Linearity	Included in accuracy	
Response Time (Settling time within ±2% for 0 - 100% command step)	< 3 sec	

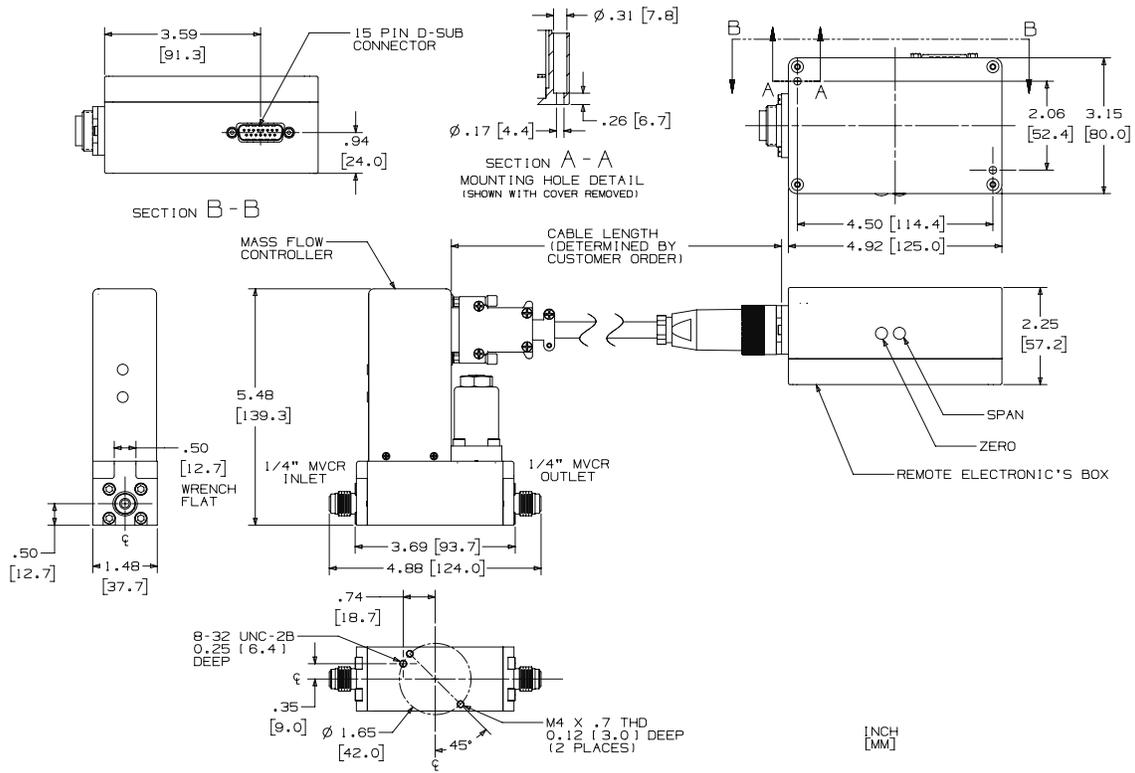
Ratings		
Operating Temperature Range	50 - 105 °C (122 - 221 °F)	
Maximum Pressure Rating	1 MPaG (145 psig)	
Pressure Differential (Controller)*	50 - 350 kPa (7 - 50 psid)	
Leak Integrity	1x10 ⁻¹¹ Pa.m ³ /s (1 x 10 ⁻¹⁰ atm.cc/s) Helium	

Mechanical		
Valve Type	Normally Closed, Normally Open	
Primary Wetted Materials	316L and high alloy ferritic stainless steel	
Valve Seat Material	316L stainless steel	
Process Connection	1/4" MVCR	1/2" MVCR or 1/4" MVCR

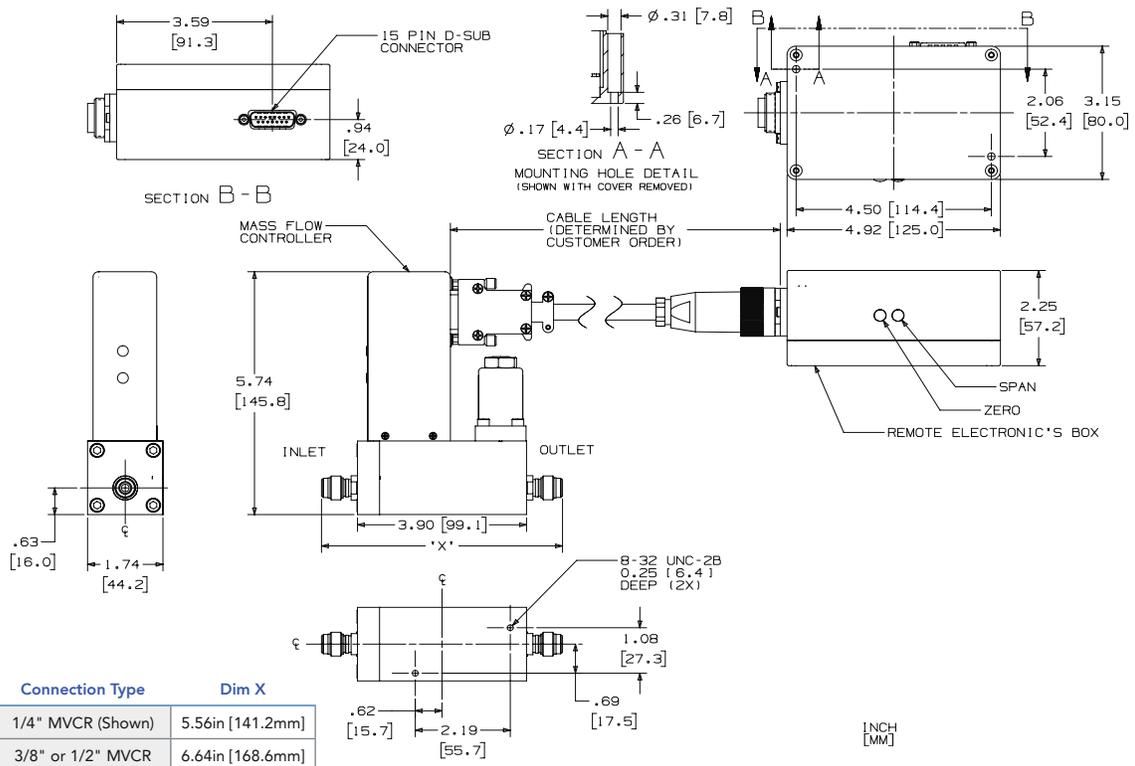
Communication Protocol		
Electrical Connection	1 x 15-pin Male D-sub	
Input Signal	0 - 5 Vdc linearly proportional to required flow	
Output Signal	0 - 5 Vdc linearly proportional to flow rate	
Power Requirement	±15 Vdc @ 350 mA (max)	

*Specify the operating differential pressure at time of request.

5850EMH



5851EMH



Model Code

Code Description	Code Option	Option Description
I. Base Model Code	585	High Temperature SLA Series
II. Flow Range	0	Low Flow (0.003 - 30 lpm N ₂ equivalent)
	1	High Flow (10 - 100 lpm N ₂ equivalent)
III. Model Series	EMH	E-Series, Metal Seal, High Temperature
IV. Valve	1	Normally Closed Control Valve
	5	Normally Open Control Valve
V. Temperature Range	A	85 °C Calibration Temperature
	B	90 °C Calibration Temperature
	C	95 °C Calibration Temperature
	D	100 °C Calibration Temperature
	E	105 °C Calibration Temperature
VI. Cable Length	2	2 meter cable
	3	3 meter cable
VII. Orientation	1	Horizontal, Base Down
	2	Vertical, Inlet Up
	3	Horizontal, Either Side Down
	4	Vertical, Inlet Down
	5	Horizontal, Upside Down
VIII. Orifice	C	Consult Factory
IX. Restrictor	G	Consult Factory
X. Process Connection	A	1/4" male VCR
	K	3/8" - 1/2" male VCR

Sample Model Code

I	II	III	IV	V	VI	VII	VIII	IX	X
585	0	EMH	5	A	3	2	C	G	A

Brooks is committed to assuring all of our customers receive the ideal pressure controllers 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.

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



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Data-Sheet-5850EMH-EN/2026-03

Global Headquarters

Brooks Instrument
407 West Vine Street
Hatfield, PA
19440-0903 USA

Toll-Free (USA): 888-554-FLOW
T: 215-362-3500

BrooksAM@BrooksInstrument.com

A list of all Brooks Instrument locations and contact details can be found at www.BrooksInstrument.com

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