

5800E Series

Elastomer Sealed, Analog,
General Purpose Gas Mass Flow
Controllers & Meters

The 5800E Series thermal mass flow meters and mass flow controllers have gained broad acceptance as the standard for stability and reliability. These products have a wide flow measurement range and are suitable for a broad range of temperature and pressure conditions making them well suited for applications in chemical and petrochemical research, laboratory, analytical, fuel cell and life science among others.



Features

Industry-Leading Long-Term Sensor Stability

Superior Valve Technology

Adaptable Wide Range of Configurations

Primary Standard Calibration Systems

Simple Modular Architecture

Benefits

Increased system uptime and reduced cost of ownership by reducing maintenance and eliminating periodic recipe adjustments and/or recalibrations

Minimum leak-by, wide turndown, and superior corrosion resistant materials reduces overall gas panel cost

Easily retrofit to existing systems

Ensures measurement accuracy is traceable to international standards

Easy-to-service elastomer sealed design provides for factory or field service maximizing uptime and reducing the total cost of ownership

Product Specifications

Flow Ranges and Pressure Ratings

Mass Flow Controller Model	Mass Flow Meter Model	Flow Ranges N ₂ Eq. Ratings		Pressure Unit psi/bar Standard	PED Module H Category
		Min. F.S.	Max. F.S.		
5850	5860	0.003	30 slpm	1500 psi / 100 bar	SEP
5851	5861	10	100 lpm ¹	1500 psi / 103 bar ³	SEP
5853	5863	100	1000 lpm	1000 psi / 70 bar	1 for all 150lb flanges 2 for all other connections

¹ 200 lpm of H₂ possible, 600 lpm of H₂ possible with decreased accuracy

	5850E / 5860E	5851E / 5861E	5853E / 5863E
Performance			
Flow Accuracy ²	1% full scale		
Control Range	50:1		
Repeatability & Reproducibility	0.25% of rate		
Linearity	Included in accuracy		
Response Time (Settling Time within ± 2% F.S. for 0 - 100% command step)	< 3 seconds		
Zero Stability	< ± 0.2% full scale per year		
Temperature Coefficient	Zero: < 0.075% of full scale per °C. Span: < 1.0% of full scale shift from original calibration over 10 - 50 °C (50 - 122 °F) range		
Pressure Coefficient	± 0.3% per psi (0 - 200 psi N ₂)		
Attitude Sensitivity	< 0.5% full scale maximum deviation from specified accuracy after re-zeroing		

Ratings

Operating Temperature Range	5 - 65 °C (41 - 149 °F)		
Minimum Pressure Differential (Controllers) ³	5 psi / 0.35 bar	10 psi / 0.69 bar	Min.: 7.5 psi / 0.52 < 500 lpm Min.: 11.8 psi / 0.81 > 500 lpm
Maximum Pressure Differential (Controllers) ³	50 psi / 3.45 bar		290 psi / 20 bar
Leak Integrity (External)	1 x 10 ⁻⁹ atm. cc/sec He		

Mechanical

Valve Type	Normally Closed, Normally Open, Meter
Primary Wetted Materials	316L Stainless Steel, High Alloy Stainless Steel, Viton® fluoroelastomers, Buna-N, Kalrez® and Teflon®

² Accuracy including linearity at calibration conditions.

³ Differential pressures beyond the specified limits may be possible depending on process conditions.

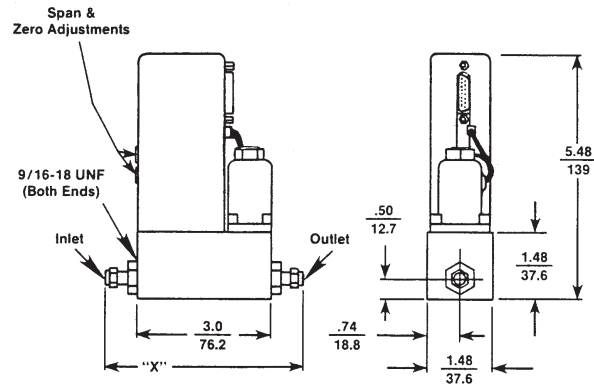
	5850E	5851E	5853E	5860E / 5861E / 5863E
Electrical				
Electrical Connection	15-Pin Male Sub D-Type (DA-15P) or Card Edge connector (Controller models only)			
Input (Setpoint) Signal	0 to 5 Vdc (200 K ohms input resistance)			N/A
Output Signal	0 to 5 Vdc into 2000 ohms (or greater) load			
Reference Output Signal	5 Vdc ±0.01 Vdc, max. load 2 K ohm			
Power Requirements	N.C. Valve or N.O. Valve with flow < 2.5 slpm: 3.5 watts, +15 Vdc @ 35 mA, -15 Vdc @ 180 mA N.O. Valve with flow rate > 2.5 slpm: 10.5 watts, +15 Vdc @ 350 mA, -15 Vdc @ 350 mA	10.5 watts, +15 Vdc @ 350 mA, -15 Vdc @ 350 mA	3.5 watts, +15 Vdc @ 35 mA, -15 Vdc @ 180 mA	1.05 watts +15 Vdc @ 35 mA, -15 Vdc @ 35 mA

Product Approvals

Mark	Agency	Certification	Applicable Standard	Details
	CE	EMC Directive 2004/108/EC	EN:61326-1:2006	PASS

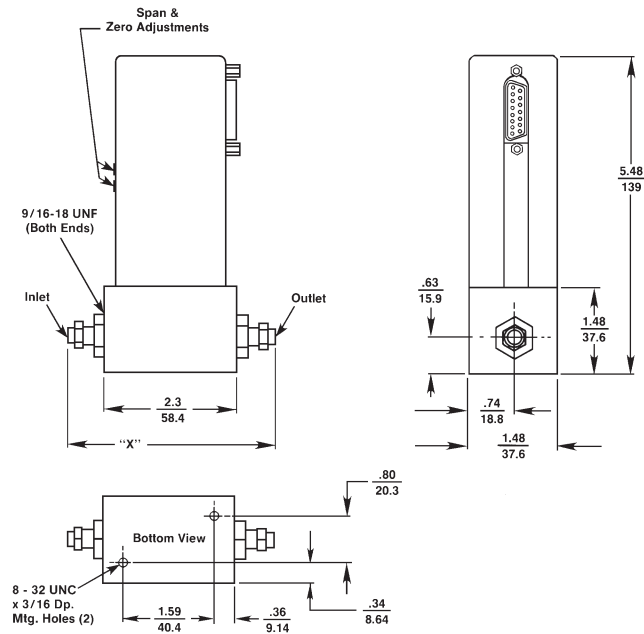
5850E / 5860E

5850E, 15-Pin D Connector



Connection Type	Dim X
1/8" Compression Fitting	4.84in [122.9mm]
1/4" Compression Fitting	5.02in [127.5mm]
3/8" Compression Fitting	5.14in [130.5mm]
1/4" Tube VCO®	4.56in [115.8mm]
1/4" Tube VCR®	4.88in [124.0mm]

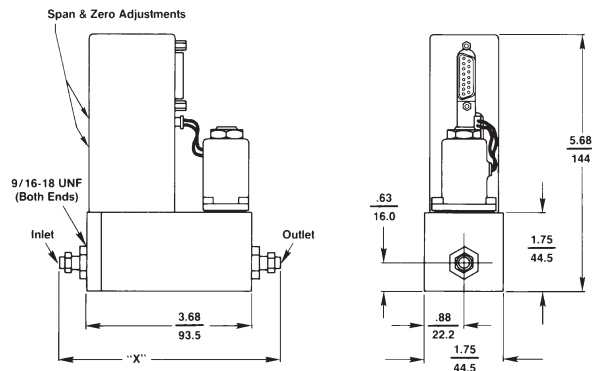
5860E, 15-Pin D Connector



Connection Type	Dim X
1/8" Compression Fitting	4.14in [105.2mm]
1/4" Compression Fitting	4.32in [109.7mm]
3/8" Compression Fitting	4.44in [112.8mm]
1/4" Tube VCO®	3.86in [98.0mm]
1/4" Tube VCR®	4.18in [106.2mm]

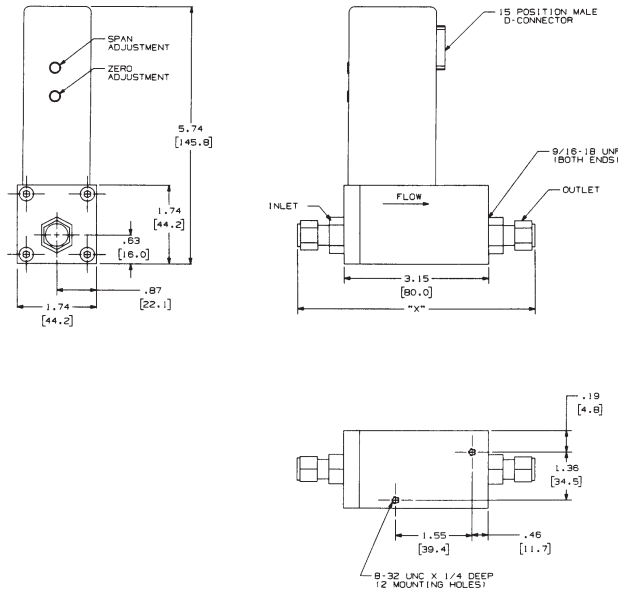
5851E / 5861E

5851E, 15-Pin D Connector



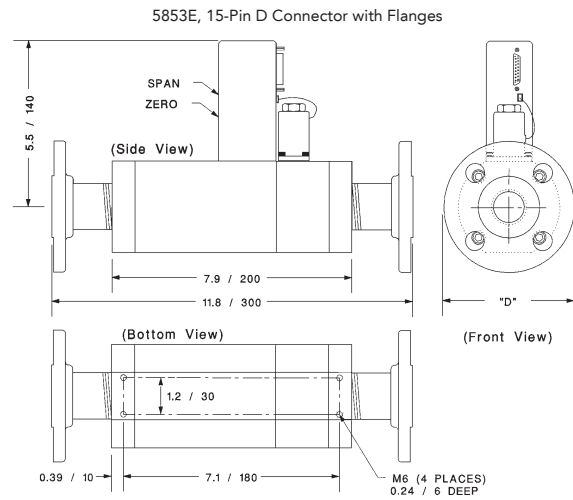
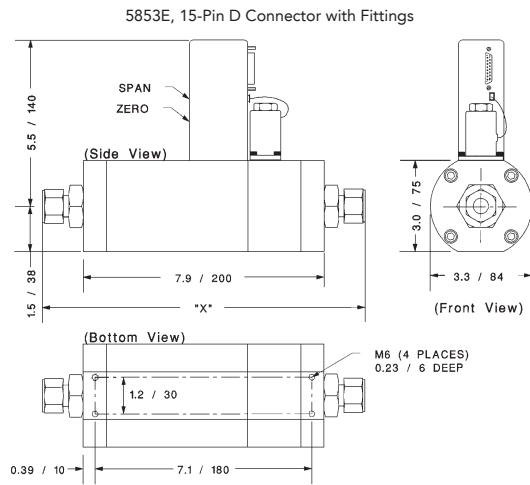
Connection Type	Dim X
1/4" Compression Fitting	5.70in [145mm]
3/8" Compression Fitting	5.82in [148mm]
1/4" Tube VCO®	5.22in [133mm]
1/4" Tube VCR®	5.56in [141mm]
1/2" Tube VCO®	5.68in [139mm]
1/2" Tube VCR®	5.86in [149mm]

5861E, 15-Pin D Connector



Connection Type	Dim X
1/4" Compression Fitting	5.17in [131mm]
1/4" Tube VCO®	4.71in [120mm]
1/4" Tube VCR®	5.03in [128mm]
3/8" Compression Fitting	5.29in [134mm]
3/8" or 1/2" Tube VCO®	5.15in [131mm]
3/8" or 1/2" Tube VCR®	5.33in [135mm]

5853E



Connection Type	Dim X
Female Pipe Thread	7.9in [200mm]
1/2" Tube Compression*	10.6in [268mm]
3/4" Tube Compression*	10.6in [268mm]
1" Tube Compression*	10.9in [277mm]
1/2" VCO** (100 slpm max.)	9.9in [251mm]
3/4" VCO*	10.2in [258mm]
1/2" VCR** (100 slpm max.)	10.1in [257mm]
1/2" VCR*	10.2in [259mm]

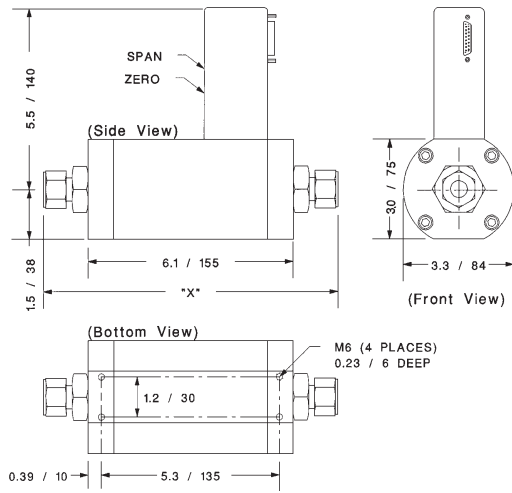
* 1-1/16 - 12 UNF Connection to Body

** 9/16 - 18 UNF Connection to Body

Flange Type	Flange OD, "D"
ANSI 1/2" 150 lb	3.5in [89mm]
ANSI 1/2" 300 lb	3.75in [95mm]
ANSI 1.0" 150 lb	4.25in [108mm]
ANSI 1.0" 300 lb	4.88in [124mm]
ANSI 1.5" 150 lb	5in [127mm]
ANSI 1.5" 300 lb	6.13in [156mm]
ANSI 2.0" 150 lb	6in [152mm]
ANSI 2.0" 300 lb	6.5in [165mm]
DIN DN15 PN40	3.74in [95mm]
DIN DN25 PN40	4.53in [115mm]
DIN DN40 PN40	5.90in [150mm]
DIN DN50 PN40	6.50in [165mm]

5863E

5863E, 15-Pin D Connector with Fittings



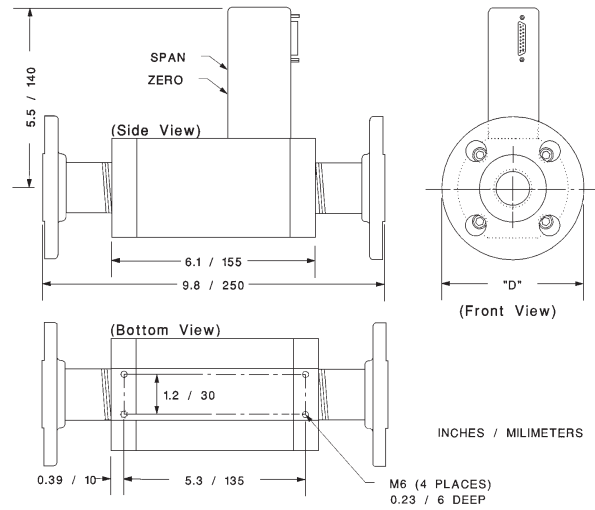
Connection Type Dim X

Connection Type	Dim X
Female Pipe Thread	6.1in [155mm]
1/2" Tube Compression*	8.8in [223mm]
3/4" Tube Compression*	8.8in [223mm]
1" Tube Compression*	9.1in [232mm]
1/2" VCO** (100 slpm max.)	8.1in [206mm]
3/4" VCO*	8.4in [213mm]
1/2" VCR** (100 slpm max.)	8.3in [211mm]
1/2" VCR*	8.4in [214mm]

* 1-1/16 - 12 UNF Connection to Body

** 9/16 - 18 UNF Connection to Body

5863E, 15-Pin D Connector with Flanges



Flange Type Flange OD, "D"

Flange Type	Flange OD, "D"
ANSI 1/2" 150 lb	3.5in [89mm]
ANSI 1/2" 300 lb	3.75in [95mm]
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DIN DN40 PN40	5.90in [150mm]
DIN DN50 PN40	6.50in [165mm]

INCHES / MILLIMETERS

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.



TRADEMARKS

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