DS-TMF-SLA5800-Series-RevB-MFC-eng
November, 2018

Data Sheet

SLA5800 Series

Model SLA5850

Thermal Mass Flow

Elastomer Sealed, Digital, Thermal Mass Flow Meters and Controllers

Overview

The SLA5800 Series mass flow meters and mass flow controllers have gained broad acceptance as the standard for accuracy, 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 chemical and petrochemical research, laboratory, analytical, fuel cell and life science applications, among others.

Highlights of the SLA5800 Series mass flow products include: industry leading long term stability, accuracy backed by superior metrology systems and methods using primary calibration systems directly traceable to international standards, and a broad range of analog and digital I/O options to suite virtually any application. An independent diagnostic/service port permits users to troubleshoot or change flow conditions without removing the mass flow controller from service.

Product Description

The SLA5800 Series provides a highly configurable platform based on a simple modular architecture. The SLA5800 Series feature set was carefully selected to enable drop-in replacement and upgrade of many brands of mass flow controllers. With the wide range of options and features available, the SLA5800 Series provides users with a single platform to support a broad range of applications.

Features and Benefits

Features	Benefits
Industry leading long term sensor stability	Increased system uptime and reduced cost of ownership by reducing maintenance and eliminating periodic recipe adjustments and/or recalibrations
User accessible service port	Simplified installation, start-up, troubleshooting and access to diagnostics provides maximum uptime
Advanced diagnostics	Ensures device is operating within user specified limits for high process yield uptime
Superior valve technology	Minimumleak-by,wideturndown,fastresponseandsuperiorcorrosionresistantmaterialsreducesoverall gas panel cost and increases throughput
Adaptable mechanical configurations	Easily retrofit to existing systems
Primary standard calibration systems	Ensures measurement accuracy is traceable to international standards
Simple modular design	Easy-to-service elastomer sealed design provides for factory or field service maximizing uptime and reducing total cost of ownership

BROOKS® INSTRUMENT

Product Description

Advanced Thermal Flow Measurement Sensor

Brooks' sensor technology combines:

- Excellent signal to noise performance for improved accuracy at low setpoints
- Superior long-term stability through enhanced sensor manufacturing and burn in process
- Isothermal packaging to reduce sensitivity to external temperature changes

Advanced Diagnostics

The mass flow controller remains the most complex and critical component in gas delivery systems. When dealing with highly toxic or corrosive gases, removing the mass flow controller to determine if it is faulty should be the last resort. In response to this, Brooks pioneered smarter mass flow controllers with embedded self test routines and introduced an independent diagnostic/service port to provide the user with a simple interface, for troubleshooting without disturbing flow controller operation.

Wide Flow Range

The SLA5800 Series covers an extremely broad range of flow rates. Model SLA5850 can have a full scale flow as low as 3 ccm. With a high turndown ratio of 100:1 for any full scale range from 1-50 lpm N2 equivalent and 50:1 turndown for all other flow rates, accurate gas flow can be measured or controlled down to 0.06 ccm! Model SLA5853 can monitor or control gas flows up to 2500 lpm.

Fast Response Performance

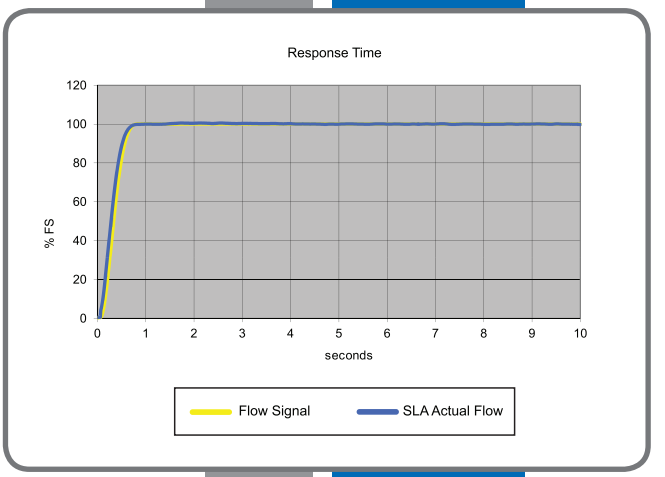
The all-digital electronics and superior mechanical configuration in the SLA5800 Series provide for ultra fast response characteristics.

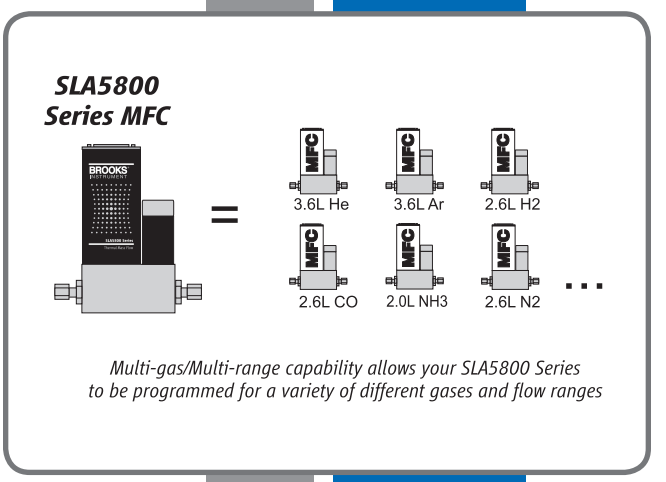
Broad Array of Communication Options

Brooks offers traditional 0-5 volt and 4-20mA analog options as well as RS-485 digital communications ("S-protocol", based on HART) Brooks also offers control interfaces via digital network protocols including EtherNet/IP™, DeviceNet®, EtherCAT® and Profibus®. EtherNet/IP™ is a modern, high-speed digital protocol that permits multiple , additional diagnostics to provide MFC users with rich, real-time system information. Brooks' communication capabilities and device-profiles have been tested for certification by the ODVA (Open DeviceNet Vendor's Association) and the ITK (Interoperability Test Kit). Other network protocols are in development. Talk to your Brooks representative about your specific needs.

Multi-gas/Multi-range Capabilities

The SLA5800 Series multi-gas and multi-range capabilities reduce inventory. Storage and pre-programming of up to 6 gas calibrations easily permits users to switch between different gasses and ranges on a single device.





Multi-gas/Multi-range capability allows your SLA5800 Series to be programmed for a variety of different gases and flow ranges

Product Specifications

Flow Ranges and Pressure Ratings:

Mass Flow Controller Model	Mass Flow Meter Model	Flow Ranges N2 Eq. Ratings		Pressure Unit psi/bar		PED Module H Category
		Min. F.S.	Max. F.S.	Standard	Optional	
SLA5850	SLA5860	0.003	50 lpm	1500 psi/103 bar	4500 psi/310 bar @ Maximum Flow of 10 lpm N2 (with HP Valve)	SEP
SLA5851	SLA5861	15	200 lpm*	1500 psi/103 bar	NA**	SEP
SLA5853	SLA5863	100	2500 lpm	1000 psi/70 bar	NA	1 for all 150 lb flanges 2 for all other connections

* 600 lpm of H2 possible with decreased accuracy ** 4500 psi/310 bar available as a special on the SLA5861 only
> 40 psig inlet required for flows greater than 100 lpm for SLA5851X.

Performance

	SLA5850/60	SLA5851/61	SLA5853/63
Flow Accuracy (accuracy includes uncertainty from reference standards)	±0.9% of S.P. (20-100% F.S.), ±0.18% of F.S. (2-20% F.S., 1-20% F.S. from 1-50 lpm)		±0.9% of S.P. (20-100% F.S.), ±0.18% of F.S. (2-20% F.S.) up to 1100 lpm ±1.0% of F.S. from 1100 lpm up to 2500 lpm
Control Range	100:1 for F.S. from 1-50 lpm (50:1 for all other F.S. flows)		
Repeatability & Reproducibility	0.20% S.P.		
Linearity	Included in accuracy		
Response Time (Settling Time within ±2% F.S. for 0-100% command step)*	< 1 second		< 3 seconds
Zero Stability	< ± 0.2% F.S. per year		
Temperature Coefficient	Zero: <0.05% of F.S. per °C. Span: <0.1% of S.P. per °C		
Pressure Coefficient	±0.03% per psi (0-200 psi N2)		
Attitude Sensitivity	<0.2% F.S. maximum deviation from specified accuracy after re-zeroing		

* Response time can be improved upon request

Ratings

Operating Temperature Range	-14 to 65°C (7 to 149°F)**		
Minimum Pressure Differential (Controllers)	5 psi/0.35 bar	10 psi/0.69 bar	Min.: 7.5 psi/0.52 bar at 500 lpm Min.: 14.5 psi/1.00 bar at 1000 lpm Min.: 35.0 psi/2.41 bar at 2500 lpm
Maximum Pressure Differential (Controllers)	Application specific up to 4500 psi/300 bar (limited conditions)***	50 psi/3.45 bar	300 psi/20.0 bar
Leak Integrity (external)	$1x10^{-9}$ 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®, Teflon®/Kalrez®, and EPDM

Diagnostics

Status Lights	MFC Health, Network Status
Alarms*	Control Valve Output, Flow Totalizer, Network Interruption, Over Temperature, Power Surge/Sag, Service Required
Diagnostic/Service Port	RS485 via 2.5mm jack

* Alarm modes are dependent on the communications interface. These are described in the corresponding digital communication interface manual.
** Hazardous area certifications have a temperature range limitation of 0-65°C.
*** >1500 PSI DP as a Special Order

Certifications - See Page 11

Electrical Specifications

Communication Protocol	RS485	Profibus®	DeviceNet™	EtherCAT®	EtherNet/IP™
Electrical Connection	1 x 15-pin Male Sub-D, (A)	1 x 15-pin Male Sub-D/ 1 x 9-pin Female Sub-D	1 x M12 with threaded coupling nut (B)	1 x 5-pin M8 with threaded coupling nut 2 x RJ45	1 x 5-pin M8 with threaded coupling nut / 2 x RJ45
Analog I/O	0-5 V, 1-5 V, 0-10 V, 0-20 mA, 4-20 mA		N/A	0-5V	N/A
Power Max./Purge	From +13.5 Vdc to +27 Vdc		From +11 Vdc to +25 Vdc	From +13.5 Vdc to +27 Vdc	From +13.5 Vdc to +27 Vdc
Power Requirements Watts, Max.	Valve Orifice > 0.032": 8 W Valve Orifice ≤ 0.032": 5 W Without Valve: 2 W		Valve Orifice > 0.032": 10 W Valve Orifice ≤ 0.032": 7 W Without Valve: 4 W	Valve Orifice > 0.032": 8.5 W Valve Orifice ≤ 0.032": 5.5 W Without Valve: 2.5 W	Valve Orifice > 0.032": 10 W ≤0.032": 7 W Without Valve:3 W
Web-based Network Settings Interface	N/A		N/A	N/A	Network configuration is DHCP. Network address is 192.168.1.100

Voltage Set Point Input Specifications				
Nominal Range	0-5 Vdc, 1-5 Vdc or 0-10 Vdc	N/A	N/A	N/A
Full Range	(-0.5)-11 Vdc	N/A	N/A	N/A
Absolute Max.	18 V (without damage)	N/A	N/A	N/A
Input Impedence	>990 kOhms	N/A	N/A	N/A
Required Max. Sink Current	0.002 mA	N/A	N/A	N/A
Current Set Point Input Specifications				
Nominal Range	4-20 mA or 0-20 mA	N/A	N/A	N/A
Full Range	0-22 mA	N/A	N/A	N/A
Absolute Max.	24 mA (without damage)	N/A	N/A	N/A
Input Impedence	100 Ohms	N/A	N/A	N/A
Flow Output (Voltage) Specifications				
Nominal Range	0-5 Vdc, 1-5 Vdc or 0-10 Vdc	N/A	N/A	N/A
Full Range	(-1)-11 Vdc	N/A	N/A	N/A
Min Load Resistance	2 kOhms	N/A	N/A	N/A
Flow Output (Current) Specifications				
Nominal Range	0-20 mA or 4-20 mA	N/A	N/A	N/A
Full Range	0-22 mA (@ 0-20 mA); 3.8-22 mA (@ 4-20 mA)	N/A	N/A	N/A
Max. Load	380 Ohms (for supply voltage: < 16 Vdc)	N/A	N/A	N/A
Analog I/O Alarm Ouput*				
Type	Open Collector	N/A	N/A	N/A
Max. Closed (On) Current	25 mA	N/A	N/A	N/A
Max. Open (Off) Leakage	1µA	N/A	N/A	N/A
Max. Open (Off) Voltage	30 Vdc	N/A	N/A	N/A
Analog I/O Valve Override Signal Specifications**				
Floating/Unconnected	Instrument controls valve to command set point	N/A	N/A	N/A
VOR < 0.3 Vdc	Valve Closed	N/A	N/A	N/A
1 Vdc < VOR < 4 Vdc	Valve Normal	N/A	N/A	N/A
VOR > 4.8 Vdc	Valve Open	N/A	N/A	N/A
Input Impedence	800 kOhms	N/A	N/A	N/A
Absolute Max. Input	(-25 Vdc) < VOR < 25 Vdc (without damage)	N/A	N/A	N/A

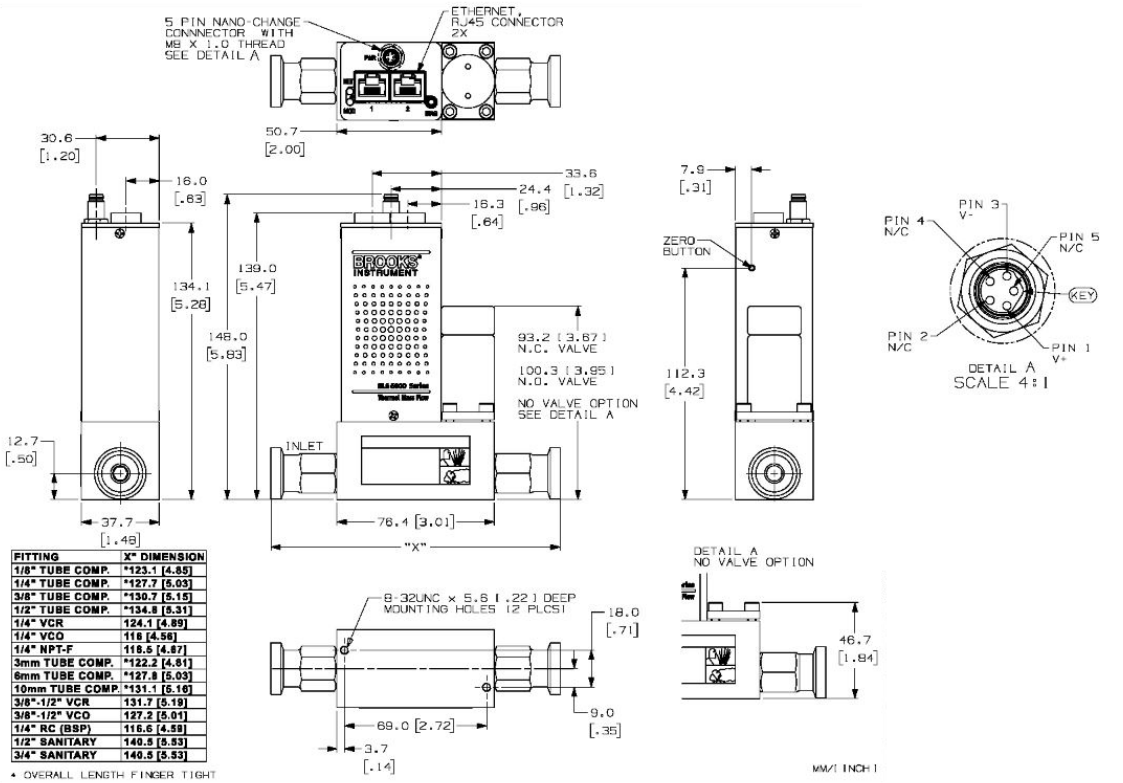
*The Alarm Output is an open collector or "contact type" that is CLOSED (on) whenever an alarm is active. The Alarm Output may be set to indicate any one of various alarm conditions.

** The Valve Override Signal (VOR) is implemented as an analog input which measures the voltage at the input and controls the valve based upon the measured reading as shown in this section.

Product Dimensions

SLA5850, Thru-Flow, EtherNet/IP

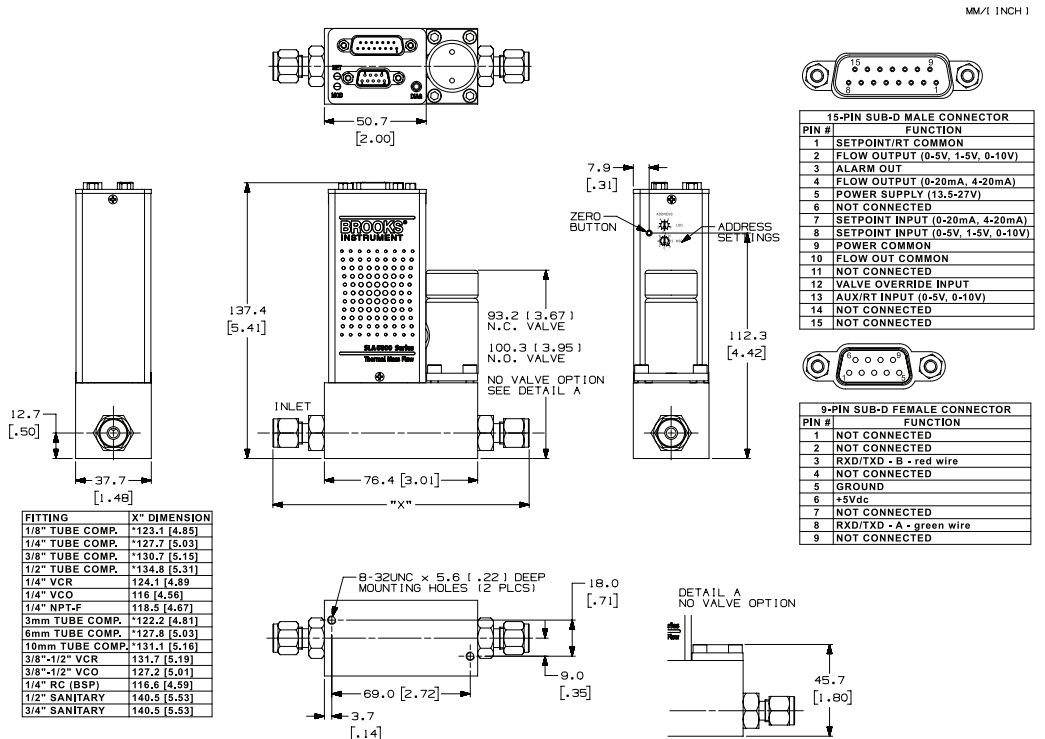
Note: RJ-45 I/O Connectors use industry-standard pin outs



FITTING	X* DIMENSION
1/8" TUBE COMP.	*123.1 [4.85]
1/4" TUBE COMP.	*127.7 [5.03]
3/8" TUBE COMP.	*130.7 [5.15]
1/2" TUBE COMP.	*134.8 [5.31]
1/4" VCR	124.1 [4.89]
1/4" VCO	116 [4.56]
1/4" NPT-F	118.5 [4.67]
3mm TUBE COMP.	*122.2 [4.81]
6mm TUBE COMP.	*127.8 [5.03]
10mm TUBE COMP.	*131.1 [5.16]
3/8"-1/2" VCR	131.7 [5.19]
3/8"-1/2" VCO	127.2 [5.01]
1/4" RC (BSP)	116.6 [4.59]
1/2" SANITARY	140.5 [5.53]
3/4" SANITARY	140.5 [5.53]

* OVERALL LENGTH FINGER TIGHT

SLA5850, Thru-Flow, Profibus



15-PIN SUB-D MALE CONNECTOR	
PIN #	FUNCTION
1	SETPOINT/RT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX/RT INPUT (0-5V, 0-10V)
14	NOT CONNECTED
15	NOT CONNECTED

9-PIN SUB-D FEMALE CONNECTOR	
PIN #	FUNCTION
1	NOT CONNECTED
2	NOT CONNECTED
3	RXD/TXD - B - red wire
4	NOT CONNECTED
5	GROUND
6	+5Vdc
7	NOT CONNECTED
8	RXD/TXD - A - green wire
9	NOT CONNECTED

FITTING	X* DIMENSION
1/8" TUBE COMP.	*123.1 [4.85]
1/4" TUBE COMP.	*127.7 [5.03]
3/8" TUBE COMP.	*130.7 [5.15]
1/2" TUBE COMP.	*134.8 [5.31]
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1/2" SANITARY	140.5 [5.53]
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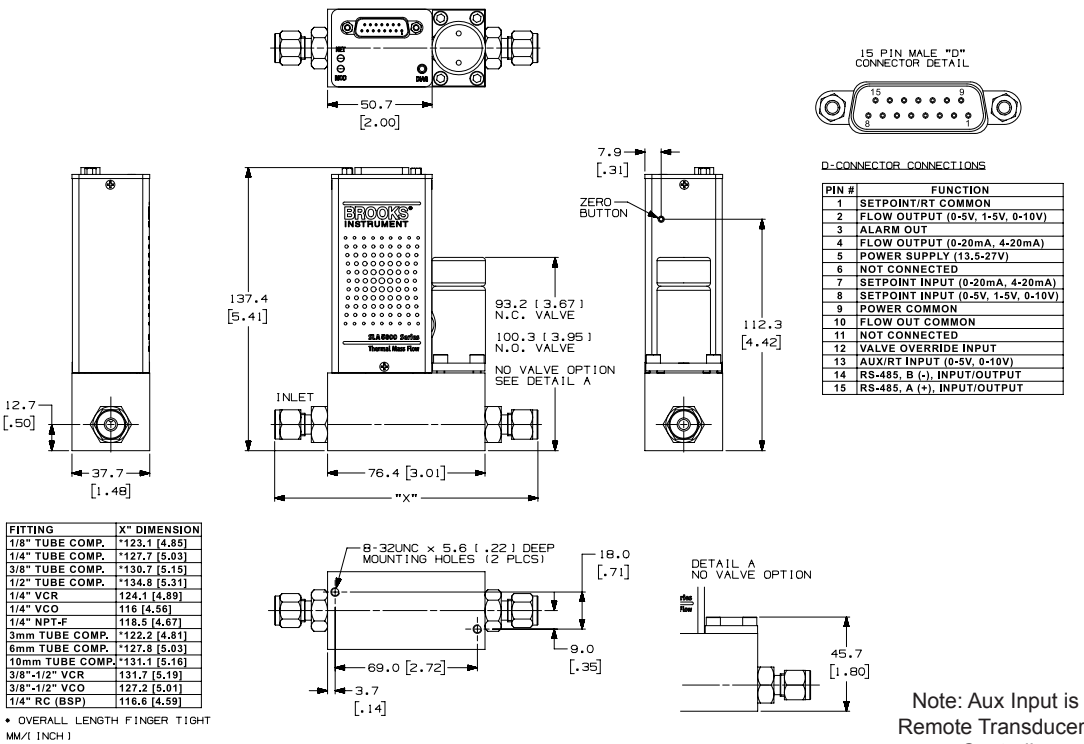
* OVERALL LENGTH FINGER TIGHT

Drawing #SLA5850032 Rev C

Product Dimensions

SLA5850, Thru-Flow, RS485



D-CONNECTOR CONNECTIONS

PIN #	FUNCTION
1	SETPOINT/RT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX/RT INPUT (0-5V, 0-10V)
14	RS-485, B (-), INPUT/OUTPUT
15	RS-485, A (+), INPUT/OUTPUT

FITTING	X" DIMENSION
1/8" TUBE COMP.	*123.1 [4.85]
1/4" TUBE COMP.	*127.7 [5.03]
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6mm TUBE COMP.	*127.8 [5.03]
10mm TUBE COMP.	*131.1 [5.16]
3/8"-1/2" VCR	131.7 [5.19]
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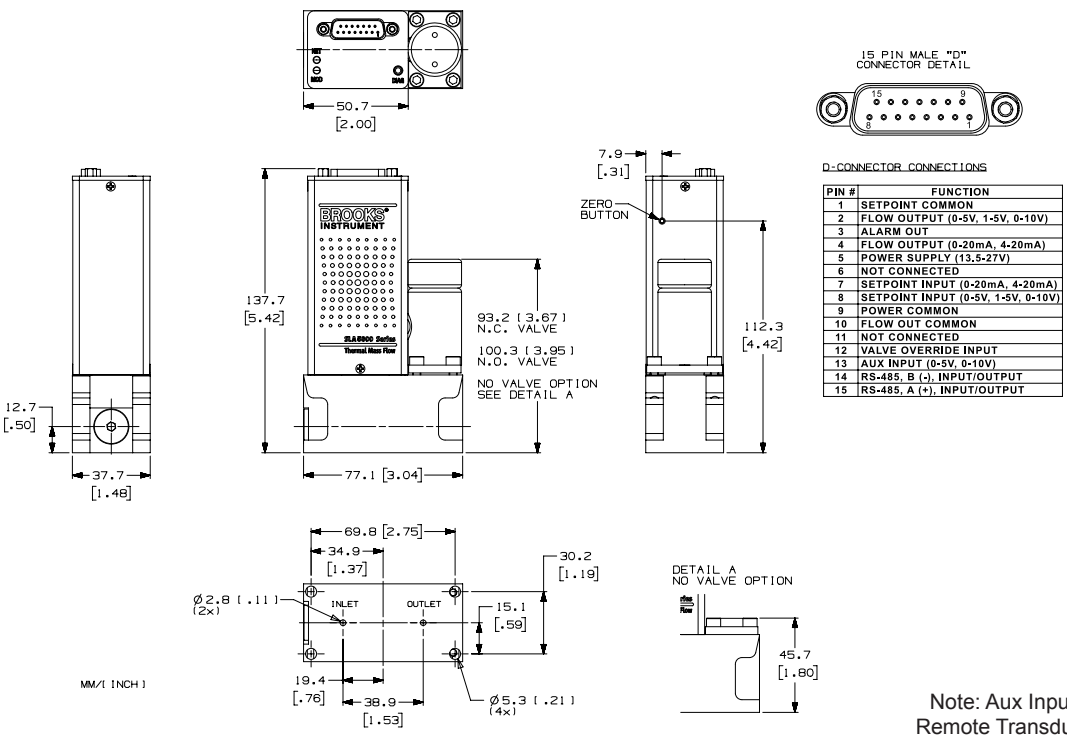
* OVERALL LENGTH FINGER TIGHT

MM/[INCH]

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

SLA5850, Downport, RS485



D-CONNECTOR CONNECTIONS

PIN #	FUNCTION
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX INPUT (0-5V, 0-10V)
14	RS-485, B (-), INPUT/OUTPUT
15	RS-485, A (+), INPUT/OUTPUT

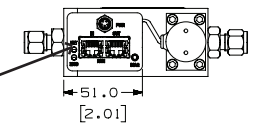
MM/[INCH]

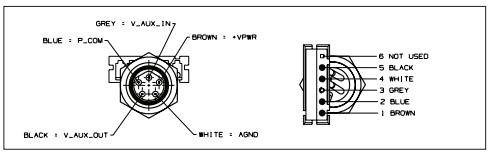
Note: Aux Input is used for Remote Transducer Pressure Controllers only.

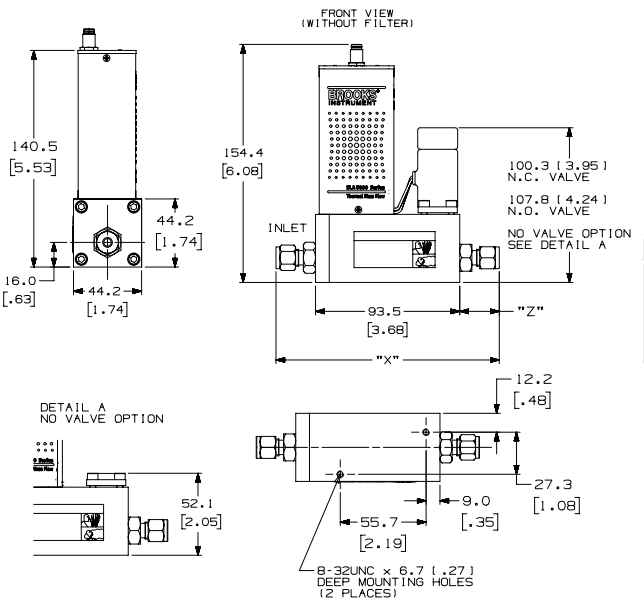
Product Dimensions

SLA5851, Thru-Flow, EtherCAT

EtherCAT RJ-45 Connectors
X2 - uses Industry Standard
pin outs





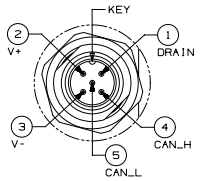


• OVERALL LENGTH FINGER TIGHT

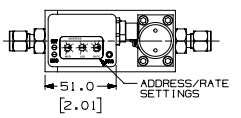
FITTING	"X" DIMENSION (Without Standard Filter)	"Y" DIMENSION (With Standard Filter)	"Z" DIMENSION
9/16"-18 UNF	93.5 [3.68]	129.5 [5.10]	N/A
1/4" TUBE COMP.	•144.8 [5.70]	•180.8 [7.12]	•25.7 [1.01]
3/8" TUBE COMP.	•147.9 [5.82]	•183.9 [7.24]	•27.2 [1.07]
1/2" TUBE COMP.	•152.0 [5.98]	•188.0 [7.40]	•29.2 [1.15]
1/4" VCR	141.3 [5.56]	177.3 [6.98]	23.9 [0.94]
1/4" VCO	133.2 [5.24]	169.2 [6.66]	19.8 [0.78]
1/4" NPT	135.7 [5.34]	171.7 [6.76]	21.1 [0.83]
6mm TUBE COMP.	•144.9 [5.71]	•180.9 [7.12]	•25.7 [1.01]
10mm TUBE COMP.	•148.3 [5.84]	•184.3 [7.26]	•27.4 [1.08]
3/8"-1/2" VCR	148.9 [5.86]	184.9 [7.28]	27.7 [1.09]
3/8"-1/2" VCO	144.3 [5.68]	180.3 [7.10]	25.4 [1.00]
1/4" RC (BSP)	133.7 [5.27]	169.7 [6.68]	20.1 [0.79]

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

SLA5851, Thru-Flow, DeviceNet



DETAIL B
DEVICENET BUS
5-PIN MALE M12 CONNECTOR
M12x1 OUTSIDE THREAD



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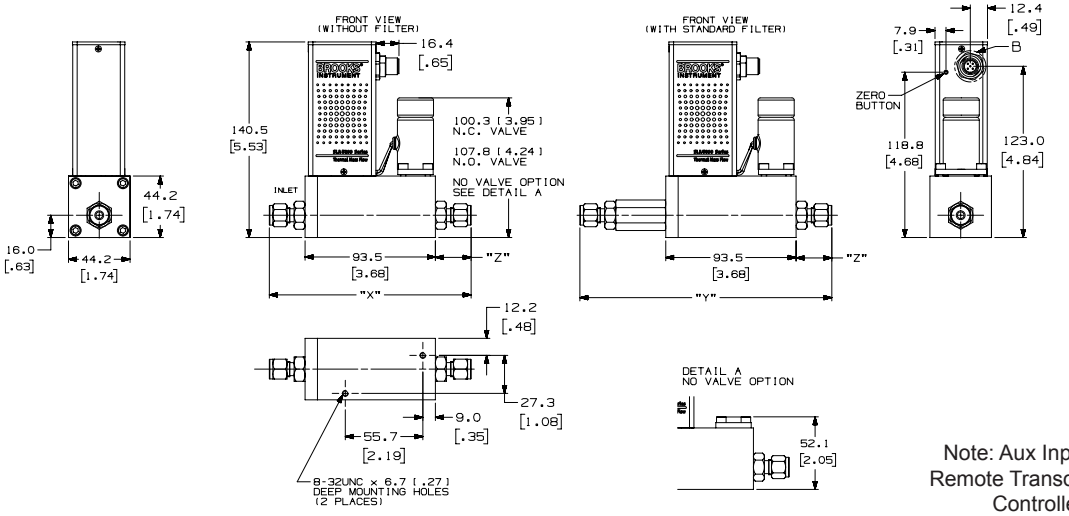
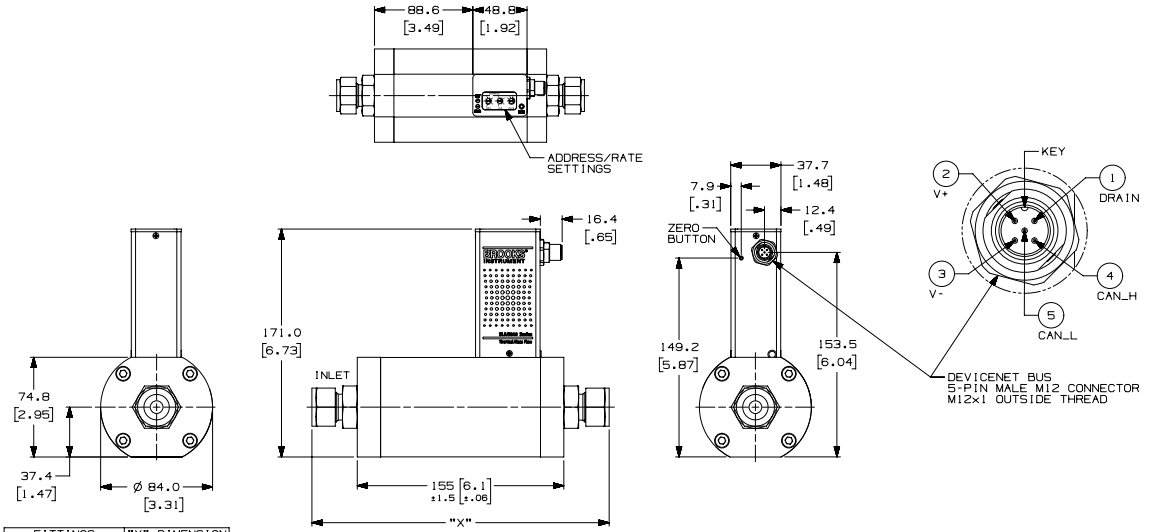
• OVERALL LENGTH FINGER TIGHT MM/[INCH]



Note: Aux Input is used for Remote Transducer Pressure Controllers only.

Product Dimensions (continued)

SLA5853, Thru-Flow, Profibus



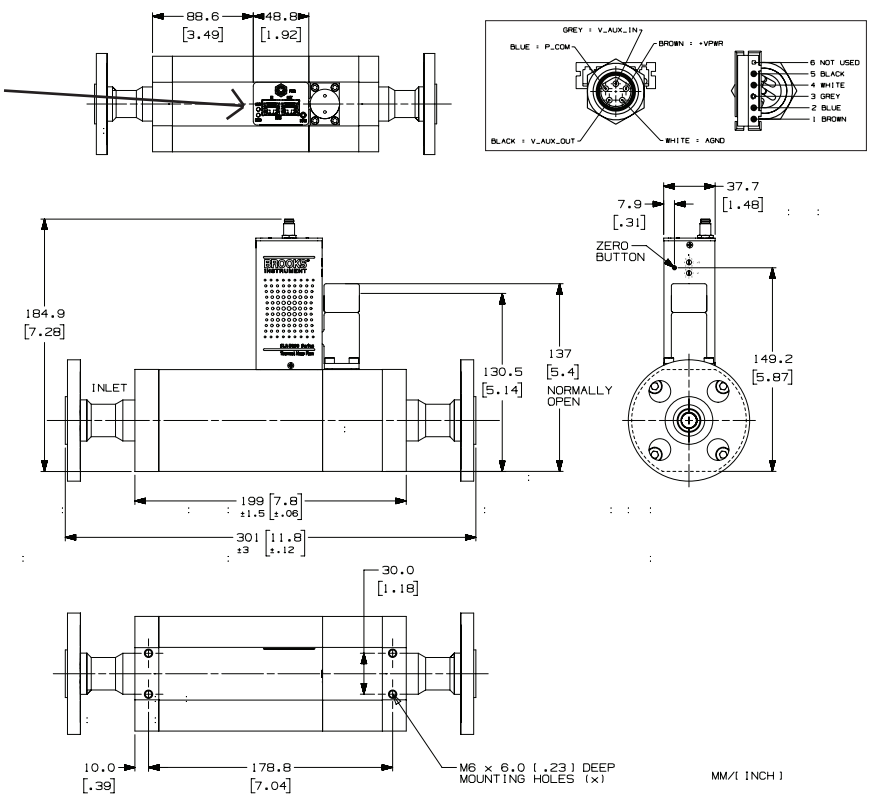
FITTINGS	"X" DIMENSION
9/16" - 18 UNF	155 [6.1]
1-1/16" - 12 UN	155 [6.1]
1 -5/16 - 12 UN	155 [6.1]
1/2" NPT	155 [6.1]
1" NPT	155 [6.1]
1-1/2" NPT	155 [6.1]
1/2" RC (BSP)	155 [6.1]
1" RC (BSP	155 [6.1]
3/8" TUBE COMP.	*229 [9.0]
1/2" TUBE COMP.	*223 [8.8]
3/4" TUBE COMP.	*223 [8.8]
1" TUBE COMP.	*232 [9.1]
1/2" VCO	206 [8.1]
3/4" VCO	213 [8.4]
1" VCO	216 [8.5]
1/2" VCR	213 [8.4]
3/4" VCR	236 [9.3]
1" VCR	234 [9.2]

* OVERALL LENGTH FINGER TIGHT

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

SLA5853, Thru-Flow, EtherCAT

EtherCAT RJ-45 Connectors
X2 - uses Industry Standard
pin outs

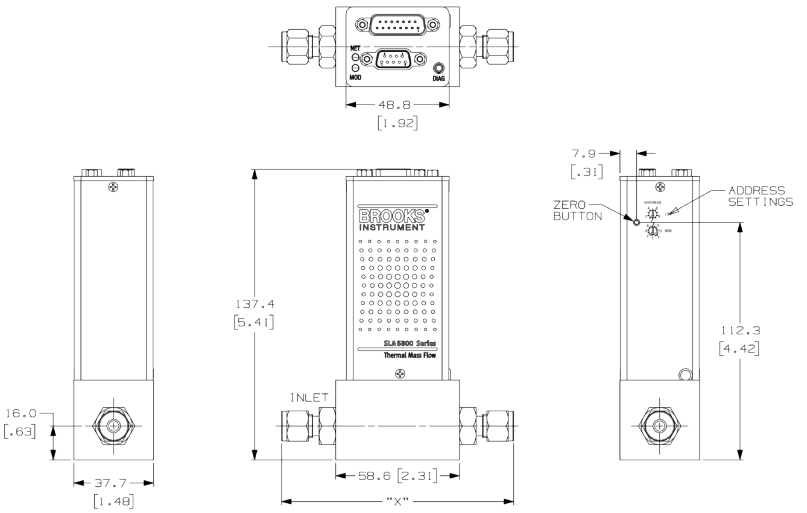


FLANGE TYPE	FLANGE O.D. "D"	
	MM	INCH
ANSI 1/2" 150LBS	89	3.5
ANSI 1/2" 300LBS	95	3.75
ANSI 1" 150LBS	108	4.25
ANSI 1" 300LBS	124	4.875
ANSI 1,5" 150LBS	127	5
ANSI 1,5" 300LBS	156	6.125
DIN DN15 PN40	95	3.74
DIN DN25 PN40	115	4.53
DIN DN40 PN40	150	5.9
DIN DN50 PN40	165	6.5

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

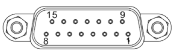
Product Dimensions (continued)

SLA5860, Thru-Flow, Profibus

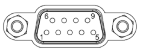


FITTING	"X" DIMENSION
1/8" TUBE COMP.	*105.3 [4.15]
1/4" TUBE COMP.	*109.9 [4.33]
3/8" TUBE COMP.	*112.9 [4.45]
1/2" TUBE COMP.	*117.0 [4.61]
1/4" VCR	106.3 [4.19]
1/4" VCO	98.2 [3.87]
1/4" NPT-F	98.8 [3.89]
3mm TUBE COMP.	*104.4 [4.11]
6mm TUBE COMP.	*110.0 [4.33]
10mm TUBE COMP.	*113.5 [4.47]
3/8"-1/2" VCR	113.9 [4.49]
3/8"-1/2" VCO	109.4 [4.31]
1/4" RC (BSP)	98.8 [3.89]
1/2" SANITARY	122.7 [4.83]
3/4" SANITARY	122.7 [4.83]

* OVERALL LENGTH FINGER TIGHT



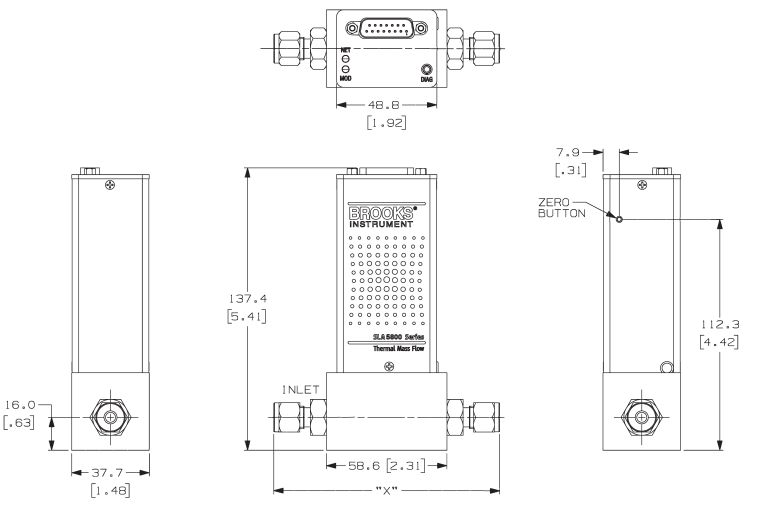
15-PIN SUB-D MALE CONNECTOR	
PIN #	FUNCTION
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX INPUT (0-5V, 0-10V)
14	NOT CONNECTED
15	NOT CONNECTED



9-PIN SUB-D FEMALE CONNECTOR	
PIN #	FUNCTION
1	NOT CONNECTED
2	NOT CONNECTED
3	RXD/TXD - B - red wire
4	NOT CONNECTED
5	GROUND
6	+5Vdc
7	NOT CONNECTED
8	RXD/TXD - A - green wire
9	NOT CONNECTED

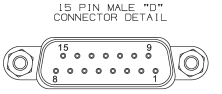
Note: Aux Input is used for Remote Transducer Pressure Controllers only.

SLA5860, Thru-Flow, RS485



FITTING	X" DIMENSION
1/8" TUBE COMP.	*105.3 [4.15]
1/4" TUBE COMP.	*109.9 [4.33]
3/8" TUBE COMP.	*112.9 [4.45]
1/2" TUBE COMP.	*117.0 [4.61]
1/4" VCR	106.3 [4.19]
1/4" VCO	98.2 [3.87]
1/4" NPT-F	98.8 [3.89]
3mm TUBE COMP.	*104.4 [4.11]
6mm TUBE COMP.	*110 [4.33]
10mm TUBE COMP.	*113.5 [4.47]
3/8"-1/2" VCR	113.9 [4.49]
3/8"-1/2" VCO	109.4 [4.31]
1/4" RC (BSP)	98.8 [3.89]
1/2" SANITARY	122.7 [4.83]
3/4" SANITARY	122.7 [4.83]

* OVERALL LENGTH FINGER TIGHT



D-CONNECTOR CONNECTIONS

PIN #	FUNCTION
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX INPUT (0-5V, 0-10V)
14	RS-485, B (-), INPUT/OUTPUT
15	RS-485, A (+), INPUT/OUTPUT

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

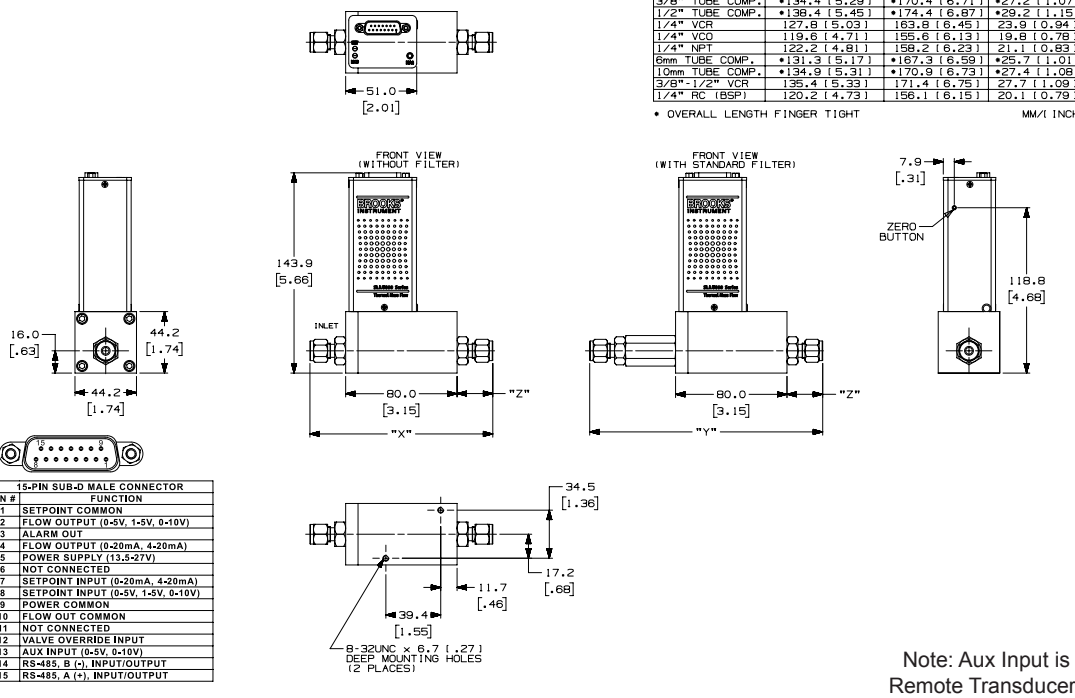
Product Dimensions (continued)

SLA5861, Thru-Flow, RS485

FITTING	"X" DIMENSION (Without Standard Filter)	"Y" DIMENSION (With Standard Filter)	"Z" DIMENSION
9/16"-18 UNF	80.0 [3.15]	116.0 [4.57]	N/A
1/4" TUBE COMP.	•131.3 [5.17]	•167.3 [6.59]	•25.7 [1.01]
3/8" TUBE COMP.	•134.4 [5.29]	•170.4 [6.71]	•27.2 [1.07]
1/2" TUBE COMP.	•138.4 [5.45]	•174.4 [6.87]	•29.2 [1.15]
1/4" VCR	127.8 [5.03]	163.8 [6.45]	23.9 [0.94]
1/4" VCO	119.6 [4.71]	155.6 [6.13]	19.8 [0.78]
1/4" NPT	122.2 [4.81]	158.2 [6.23]	21.1 [0.83]
6mm TUBE COMP.	•131.3 [5.17]	•167.3 [6.59]	•25.7 [1.01]
10mm TUBE COMP.	•134.9 [5.31]	•170.9 [6.73]	•27.4 [1.08]
3/8"-1/2" VCR	135.4 [5.33]	171.4 [6.75]	27.7 [1.09]
1/4" RC (BSP)	120.2 [4.73]	156.1 [6.15]	20.1 [0.79]

• OVERALL LENGTH FINGER TIGHT

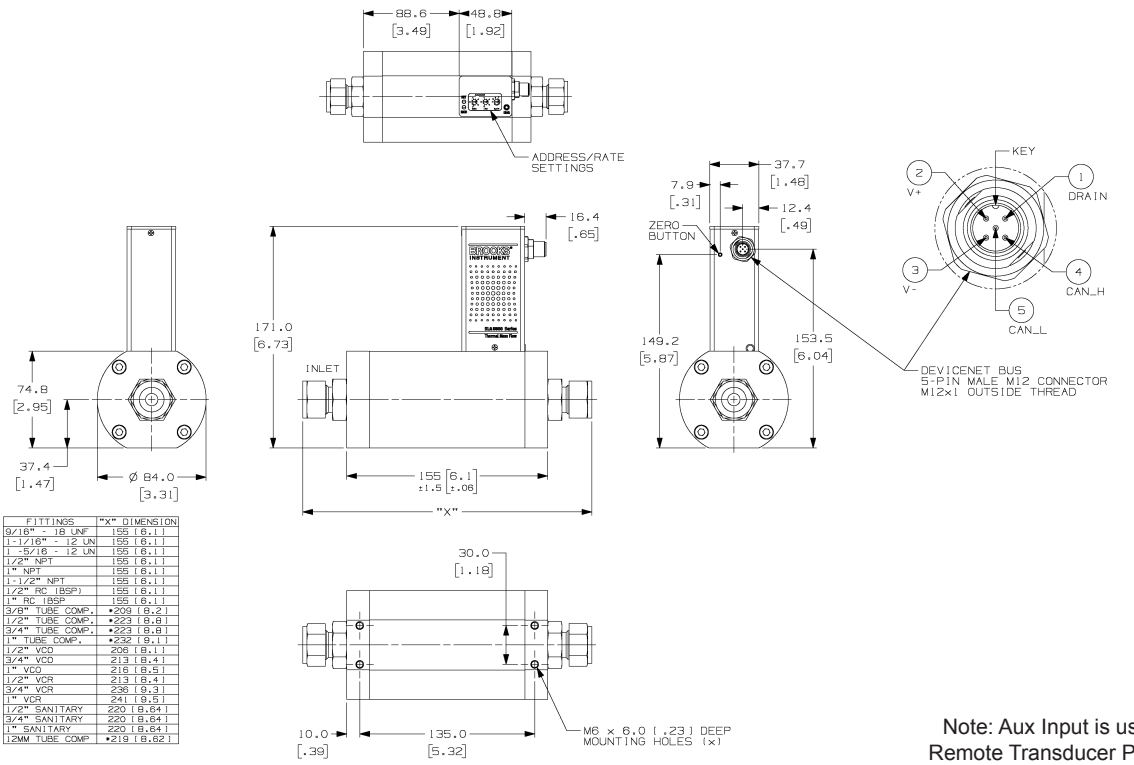
MM/[INCH]



15-PIN SUB-D MALE CONNECTOR	
PIN #	FUNCTION
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V, 1-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NOT CONNECTED
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 1-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NOT CONNECTED
12	VALVE OVERRIDE INPUT
13	AUX INPUT (0-5V, 0-10V)
14	RS-485, B (-), INPUT/OUTPUT
15	RS-485, A (+), INPUT/OUTPUT

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

SLA5863, Thru-Flow, DeviceNet



FITTINGS	"X" DIMENSION
9/16" - 18 UNF	155 [6.1]
1-1/16" - 12 UN	155 [6.1]
1 -5/16 - 12 UN	155 [6.1]
1/2" NPT	155 [6.1]
1" NPT	155 [6.1]
1-1/2" NPT	155 [6.1]
1/2" RC (BSP)	155 [6.1]
1" RC (BSP	155 [6.1]
3/8" TUBE COMP.	•209 [8.2]
1/2" TUBE COMP.	•223 [8.8]
3/4" TUBE COMP.	•223 [8.8]
1" TUBE COMP.	•232 [9.1]
1/2" VCO	206 [8.1]
3/4" VCO	213 [8.4]
1" VCO	216 [8.5]
1/2" VCR	213 [8.4]
3/4" VCR	236 [9.3]
1" VCR	241 [9.5]
1/2" SANITARY	220 [8.64]
3/4" SANITARY	220 [8.64]
1" SANITARY	220 [8.64]
12MM TUBE COMP	•219 [8.62]

• OVERALL LENGTH FINGER TIGHT

Note: Aux Input is used for Remote Transducer Pressure Controllers only.

Model Code

Code Description	Code Option	Option Description
I. Base Model Numbers	SLA	
II. Package / Finish Specifications	58	Standard Elastomer Series
III. Function	5	Mass Flow Controller
	6	Mass Flow Meter
IV. Gas or Range	0	3 ccm - 50 lpm
	1	20 - 100 lpm
	3	100 - 2500 lpm
V. Digital I/O Communication	A	None (select applicable analog I/O)
	D	DeviceNet I/O (with 5-pin micro connector)
	E	EtherCAT I/O (with 5-pin Nano-change connector)
	P	Profibus (2x sub-D)
	S	RS485 (select applicable analog I/O)
	7	EtherNET/IP™ I/O (with 5 Pin Nano-change M8 Connector)
VI. Mechanical Connection (Body size 0 & 1 only)	1A	Without adapters, 9/16" - 18 UNF
	1B	1/4" tube compression
	1C	1/8" tube compression
	1D	3/8" tube compression
	1E	1/4" VCR
	1F	1/4" VCO
	1G	1/4" NPT
	1H	6mm tube compression
	1J	10mm tube compression
	1L	3/8"-1/2" VCR
	1M	3/8"-1/2" VCO
	1P	1/2" tube compression
	1S	Elastomer downport
	1T	1/4" RC (BSP)
	1Y	3mm tube compression
	B1	1/4" tube compression w/Filter
	C1	1/8" tube compression w/Filter
	D1	3/8" tube compression w/Filter
	E1	1/4" VCR w/Filter
	F1	1/4" VCO w/Filter
	G1	1/4" NPT w/Filter
	H1	6mm tube compression w/Filter
	J1	10mm tube compression w/Filter
	L1	3/8"-1/2" VCR w/Filter
	M1	3/8"-1/2" VCO w/Filter
	P1	1/2" tube compression w/Filter
	T1	1/4" RC (BSP) w/Filter
	Y1	3mm tube compression w/Filter
	5A	9/16-18 X 1/2" Sanitary
	5B	9/16 -48 X 3/4" Sanitary
VI. Mechanical Connection (Body size 3 only)	2A	Without adapters, 9/16" - 18 UNF
	2B	1-1/16"-12 SAE/MS
	2C	3/8" tube compression
	2D	1/2" tube compression
	2E	3/4" tube compression
	2F	1" tube compression
	2G	1/2" NPT (F)
	2H	1" NPT (F)
	2J	1-1/2" NPT (F)
	2K	1/2" VCO
	2L	3/4" VCO
	2M	1/2" VCR
	2N	1/2" RC (BSP)
	2P	1" RC (BSP)
	2R	1-5/16"-12 SAE/MS
	2S	1" VCO
	2T	3/4" VCR
	2U	1" VCR
	3A	DIN DN15 PN40 Flange
	3B	DIN DN25 PN40 Flange
	3C	DIN DN40 PN40 Flange
	3D	DIN DN15 PN40 Flange
	5C	1 1/16-12 X 1/2" Sanitary
	5D	11/16-12 X 3/4" Sanitary
	5E	1 1/16-12 X 1" Sanitary

Model Code

Code	Description	Code Option	Option Description
VI.	Mechanical Connection (Body size 3 only)	3E	ANSI 1/2" 150# RF Flange
		3F	ANSI 1/2" 300# RF Flange
		3G	ANSI 1" 150# RF Flange
		3H	ANSI 1" 300# RF Flange
		3J	ANSI 1-1/2" 150# RF Flange
		3K	ANSI 1-1/2" 300# RF Flange
VII.	O-ring Material	A	Viton
		B	Buna
		C	PTFE
		D	Kalrez
		E	EPDM
		J	FDA/USP Class VI - Viton
		L	FDA/USP Class VI - EPDM
VIII.	Valve Seat	A	None (Sensor only)
		B	Viton (for body size 3, diaphragm material = PTFE)
		C	Buna (for body size 3, diaphragm material = PTFE)
		D	Kalrez (for body size 3, diaphragm material = PTFE)
		E	EPDM (for body size 3, diaphragm material = PTFE)
		F	PTFE
		G	Metal (for body size 3, diaphragm material = PTFE)
IX.	Valve Type	0	None (Sensor only)
		1	Normally closed
		2	Normally closed (Pressure diff. >30 psig (2 bar))
		3	Normally closed (Pressure diff.<30 psig (2 bar))
		4	Normally closed - high pressure
		5	Normally open
X.	Analog I/O Communications	A	None - Digital Communications only
		B	0-5 Volt 0-5 Volt 15-pin D-conn
		C	4-20 mA 4-20 mA 15-pin D-conn
		L	1-5 Volt 1-5 Volt 15-pin D-conn
		M	0-20 mA 0-20 mA 15-pin D-conn
		0	0-10 Volt 0-10 Volt 15-pin D-conn
		1	0-5 Volt 4-20 mA 15-pin D-conn
		2	0-5 Volt 0-20 mA 15-pin D-conn
		3	4-20 mA 0-5 Volt 15-pin D-conn
		4	0-20 mA 0-5 Volt 15-pin D-conn
		9	0-10 Volt 0-5 Volt 15-pin D-conn
XI.	Power Supply Inputs	1	+15 Vdc
		2	24 Vdc
XII.	Output Enhancements	A	Standard response
XIII.	Certification	1	Safe Area
		2	For Zone 2 ATEX/IECEx
		4	Div. 2/Zone 2 UL Recognized

Sample Standard Model Code

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
SLA	58	5	0	A	1A	A	B	1	B	1	A	1

Model Code (continued)

Certifications

Mark	Agency	Certification	Applicable Standard	Details
	UL[5.] (Recogonized)	Class I, Div 2, Group A, B, C, D Class I, Zone 2, IIC T4 Class II, Zone 22	UL & CSA Standards	E73889 Vol 3, Sec 4
	ATEX[5.]	II 3 G Ex nA IIC T4 Gc	EN60079-0:2012 EN 60079-15:2010	KEMA 04ATEX 1118X
	IECEx[5.]	II 3 G Ex nA IIC T4 Gc	IEC 60079-0:2011 IEC 60079-15:2010	IECEx DEK 14.0072X
	KOSHA[5.]	Ex nA IIC T4		15-AV4BO-0641 15-AV4BO-0640
CE	CE	EMC Directive 2014/30/EU Directive 2011/65/EU	EN:61326-1:2013	EMC RoHS

*ATEX/IECEx Special Conditions for safe use:

1. The module shall be installed in a suitable enclosure providing a degree of protection of at least IP54 according to EN 60529 / IEC 60529, taking into account the environmental conditions under which the equipment will be used.
2. When the temperature under rated condition exceeds 70 °C at the cable or conduit entry point, or 80 °C at the branching point of the conductors, the temperature specification of the selected cable shall be in compliance with the actual measured temperature values.
3. Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40%.
4. The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
5. Pending for EtherNET/IP

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.

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

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