X-Flow™ Mass Flow Controller

Flow Range from 0.8 ml/min to 20 l/min

The Parker X-Flow™ is a new simplified mass flow controller for your instrument, lab, or process needs. X-Flow™ delivers fast, repeatable, and reliable high accuracy flow control through proven Constant Thermal By-Pass Mass Measurement Technology coupled with our most popular digital communication protocols. X-Flow™ is calibrated to your specific conditions and includes the Parker Tracking System that assists with your annual asset calibration needs delivering a new level of productivity, efficiency, and reliability.

Target Markets

- Laboratory and Process Instrumentation
- Pharma / Bio-Pharma Equipment
- Air Quality Monitoring Systems
- Furnace and Coatings

Typical Applications

- Gas Control for Laboratory and Process Equipment
- Burner Ratio Control for Ceramics and Metals
- Process and Environmental Analyzers
- Emissions Monitors and Calibrators

Features

- Fast, Repeatable and Reliable Performance
- Premium Accuracy with Proven Thermal Mass Flow Sensor and Laminar Flow Element
- Easy to integrate into your new or existing systems
- Asset calibration management software included
- Cleaned for Analytical Use
- Fails shut with Normally Closed Valve for safe operation
- CE, REACH and RoHS II

Product Specifications

Physical Properties

Sensor Technology:
Thermal Sensor, Bypass Method

Control Valve Type:
Normally Closed Proportional Valve

Media:
Inert, Oxidizer, Flammable and Corrosive Gasses

Nominal Dimensions:
4.5" x 1" x 3"
(11.4 cm x 2.5 cm x 7.6 cm)

Weight:
1.1 lbs (0.5 kg)

Process Connections:
Standard: 9/16"-18 UNF 2B (in/out)
Optional : 1/8", 1/4", and 6mm compression fittings with 325 Mesh (44 Micron) Filter Screen

Sold as Accessories (See accessories section for details)

Electrical

Main Voltage: +15-24 Vdc

Input Control Signal:
0-5 Vdc or 4-20 mAdc (Sourcing)

Monitor Output Voltage:
0-5 Vdc or 4-20 mAdc (Sourcing)

Max Current Requirement:
<320 mAdc

Digital Communication:
RS232, Modbus-RTU, Modbus-ASCII (RS485)

Electrical Connection:
9-pin D-connector (male)

Wetted Materials

Body:
316 Stainless Steel

Sensor Assembly:
316L Stainless Steel

Valve Components:
302, 316, 430FR Stainless Steel

O-Rings and Valve Seat: FKM

Performance Ratings

Ratings:
Max operating pressure:
145 PSIG (10 barg)
Max working temperature:
122°F (50°C)

Minimum Pressure Drop:
5 psid (0.34 bard) (typical)*

Performance Characteristics

Accuracy and Linearity:
±1.0% Full Scale

Repeatability:
<0.2% of Reading

Response Time:
1 second (Nominal)

Rangeability (Turndown): 50:1

Temperature Coefficient:
zero: <0.1% Full Scale/°C;
span: <0.1% Reading/°C

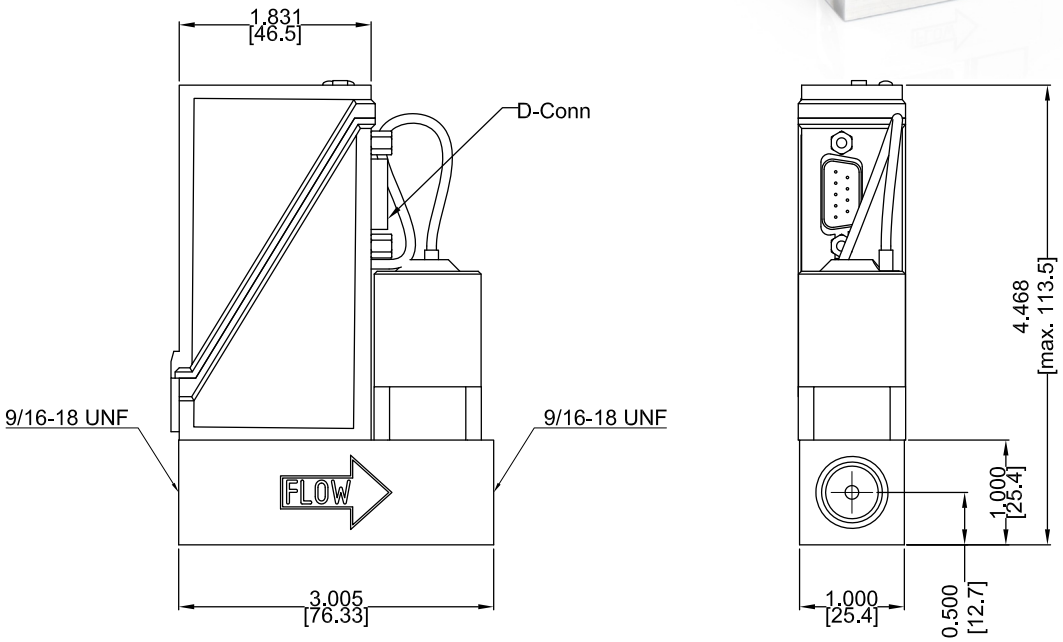
Warm-Up Time:
±2.0% Full Scale after 2 min;
±1.0% Full Scale after 30 min

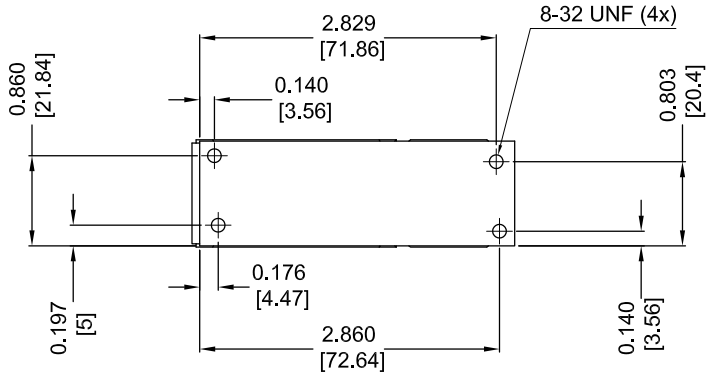
*Dependent on application conditions

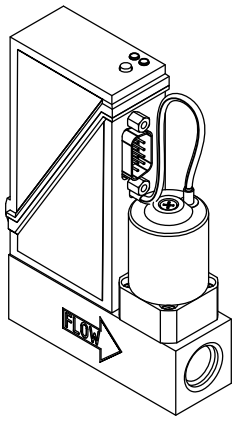
X-Flow™ Mass Flow Controller

Mechanical Integration

Dimensions





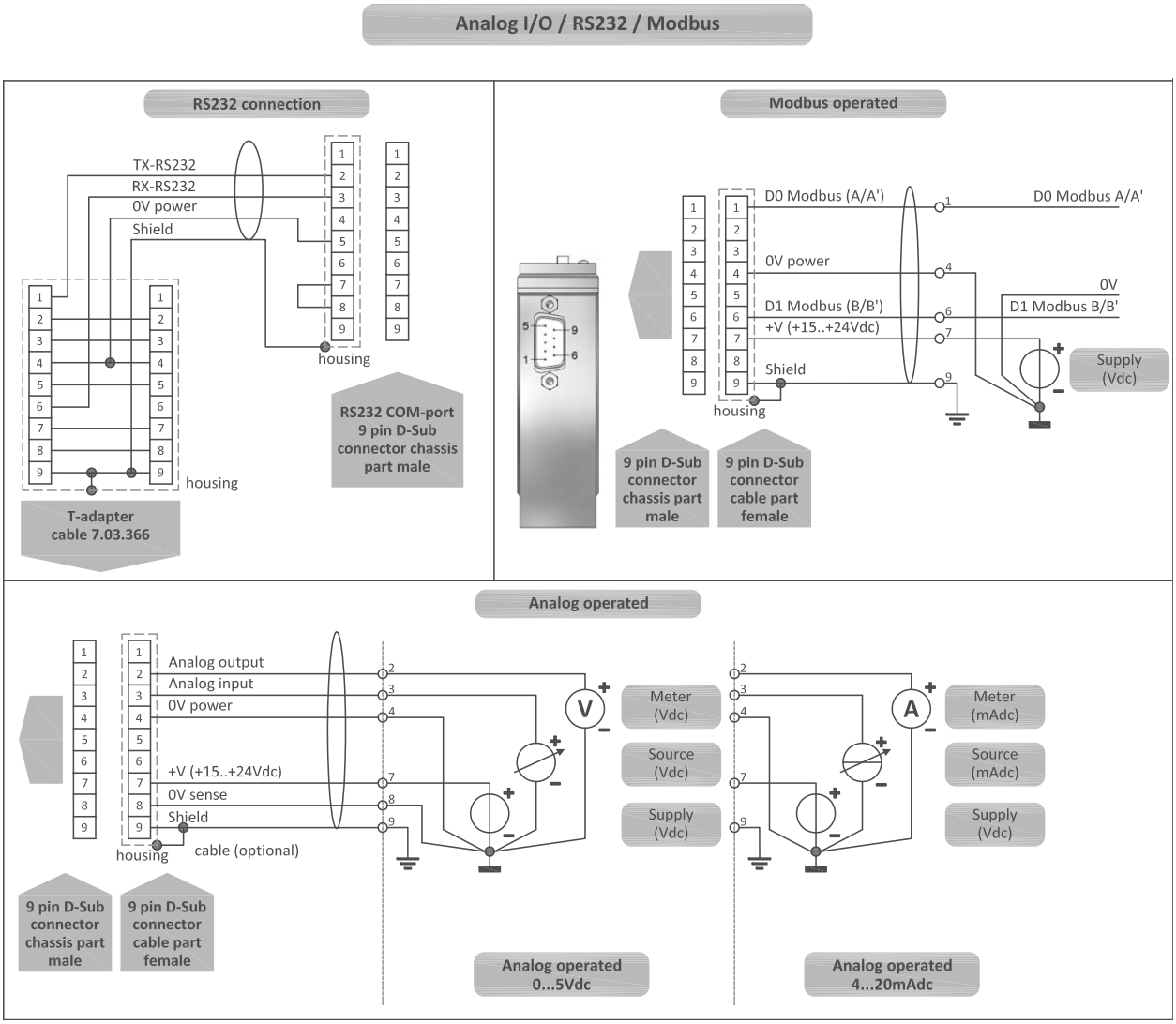


UNITS
IN [MM]

Dimensions subject to change without notice.

X-Flow™ Mass Flow Controller

Hook-up Diagram

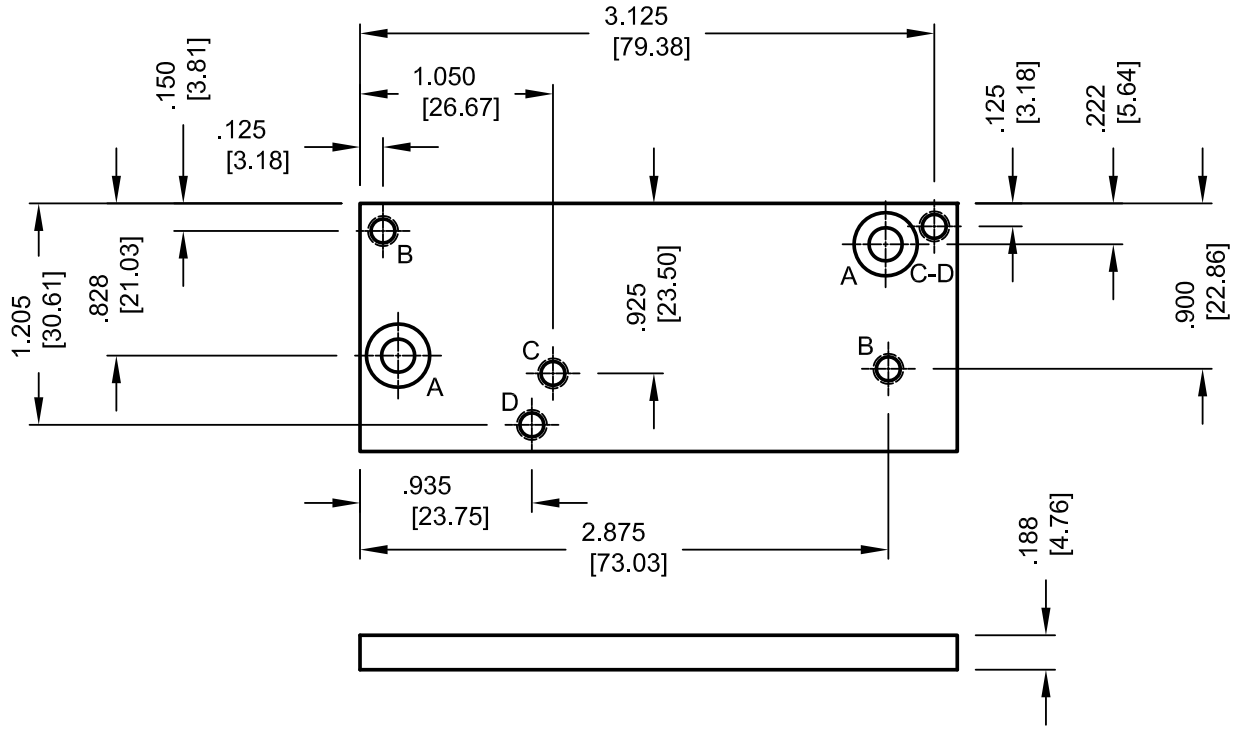


FM - 1409

X-Flow™ Mass Flow Controller

Accessories

Transition Kit
A-4541-000
Includes 3/32 Hex Wrench and
two 8-32 x 1/4 Button Head Screws



HOLE	HOLE TYPE
A	Ø.180 THRU - Ø.344 x .110 DP.
B	8-32 UNF THRU
C	8-32 UNF THRU
D	8-32 UNF THRU

UNITS
IN [MM]

NOTE:
1. PLATE PART # B-5757-000
2. PLATE THICKNESS - 0.188" {4.76mm} - MOUNTING SCREWS MUST NOT EXTEND BEYOND PLATE THICKNESS.

X-Flow™ Mass Flow Controller

Accessories

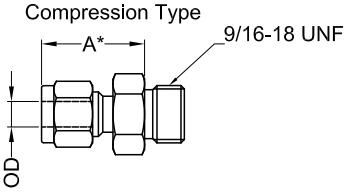
Fittings sold separately.

Fitting 1
B-1562-001V
1/8" Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring

Fitting 2
B-1562-000V
1/4" Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring

Fitting 3
B-1562-036V
6mm Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring

SAE/MS Straight Thread (ST)
Compression Type



*) Dimension A is typical finger tight.

Compression type	Fitting kit part #	A (inch)	A (mm)
adapter 1/8" OD	B-1562-001V	0.920	23.4
adapter 1/4" OD	B-1562-000V	1.010	25.7
adapter 6mm OD	B-1562-036V	1.010	25.7

UNITS
IN [MM]

Dimensions subject to change without notice.

X-Flow™ Mass Flow Controller

Accessories

CM-400

Parker Model CM-400 is a high performance microprocessor-based 4-channel power supply/control module designed for use with Parker mass flow meters and controllers. An 8-line, backlit LCD display provides selectable data on the status of the 4 channels simultaneously; low noise, thermal overload protected +15 Vdc device power is provided on each channel.

The CM-400 accepts user selectable current or voltage input signals and supplies a selectable setpoint signal for each channel. In addition to the analog I/O, a digital communication port is included for computer/PLC interface. A programmable multi-channel blend control with totalizer and batch functions allows the CM-400 to precisely interact with MFCs in a versatile and functional gas management system.

Product Features and Options:

- 4 Independent Channels
- Displays in Selectable Engineering Units
- Multiple I/O Configurations
- Programmable Gas Correction Factors
- Programmable Multi-channel Blend Control
- Totalizer and Batch Control
- +15 Vdc MFC Power Output
- 110/240 Vac Operation

- CM-400 4-channel Power Supply / Control
- PN: C-1739-010 Interface Cable 10'

Gas Flow Range

	F	G	H	I	J	K	M	N
Gas	**ml/min**					**l/min**		
N2	0.8 to 100	2 to 200	4 to 500	10 to 1000	20 to 2000	0.04 to 5	0.1 to 10	0.2 to 20
AR	1.9 to 139	2.8 to 277	5.6 to 694	13.9 to 1,388	27.5 to 2,737	0.1 to 7	0.1 to 14	0.3 to 27
CH4	0.6 to 78	1.6 to 157	3.1 to 392	7.8 to 784	15.7 to 1580	0.03 to 4	0.07 to 8	0.15 to 16
CO2	0.6 to 73.7	1.5 to 147.1	2.9 to 368.6	7.3 to 737.2	14.6 to 1,458	0.03 to 3.6	0.07 to 7.3	0.14 to 14.6
H2	0.6 to 78.3	1.6 to 156.7	3.1 to 391.7	7.8 to 783.5	15.7 to 1,580	0.03 to 4	0.07 to 7.9	0.15 to 15.8
He	1.1 to 142.8	2.9 to 285.7	5.7 to 714.2	14.3 to 1429	28.9 to 2936	0.06 to 7.3	0.14 to 14.7	0.3 to 29.4
O2	0.8 to 98.6	2 to 197.1	3.9 to 492.8	9.9 to 985.6	19.7 to 1973	0.04 to 4.9	0.1 to 9.9	0.2 to 19.7

Notes

The selected orifice of the control valve may limit the rangeability
Standard accuracy (based on actual calibraiton): ± 1% FS
Factors for gas not in the above table are available from the factory
All flow ranges are standard conditions of 0°C and 14.7 PSIA

X-Flow™ Mass Flow Controller
Ordering Information

601XF F A A D 00 V

Base Model

601XF

Nitrogen Full Scale Equivalent Flow Range*

F	40-100 ml/min
G	100-200 ml/min
H	200-500 ml/min
I	500-1000 ml/min
J	1000-2000 ml/min
K	2-5 l/min
M	5-10 l/min
N	10-20 l/min

*Standard conditions of 14.7 PSIA and 0°C

Elastomers

V	FKM

Connection

00	None

Supply Voltage

D	+15-24 Vdc

Analog I/O

A	0-5 Vdc
G	4-20 mAdc Sourcing

Communication (I/O)

A	Analog + RS232 or ModBus™

Accessories

B-1562-001V: 1/8" Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring
B-1562-000V: 1/4" Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring
B-1562-036V: 6mm Compression Fitting with 325 Mesh (44 Micron) Filter Screen and FKM O-ring
B-5757-000: Transition Plate for Increased Mounting Options
A-4541-000: Transition Kit with Transition Plate, 2 Screws and Hex Wrench
C-700-002: Interface cable with flying leads on one end
C-1739-010: CM400 Interface Cable
7.03.366 Digital Interface T Cable
Electrical Adapter / Connector (Contact Factory for Details)

NOTE: In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

1. Gas Type
2. Flow Rate
3. Inlet Pressure
4. Outlet Pressure
5. Operating Temperature
6. Standard Calibration Condition
7. Connection Fitting Size and Type
8. Set point / Output signal

For more detailed information, visit us on the web or call Applications Engineering.

To learn more about the Parker X-Flow™, CAD models and detailed information, please visit us on the Web (www.parker.com/precisionfluidics/x-flow), call (+1.603.595.1500) or email at ppfinfo@parker.com.

Parker Hannifin Precision Fluidics Division reserves the right to make changes. Drawings are for reference only.

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