

# Model 603AV

美国Porter 大流量质量流量控制器 MFC

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding

Porter的型号603AV系列 II 质量流量控制器 (MFC) 被设计适用于几乎所有的常规工艺气体的精确流量控制。MFC由热式质量流量传感器，一个精确的控制阀和一个带有现场总线的基于PID控制的微处理器组成。基于输入值所述设定点，流量控制器迅速调整到所需的流速。质量流率被提供作为模拟信号或数字通过RS232或各种现场总线选项。每个单元取决于气体种类和应用的工艺条件进行校正。



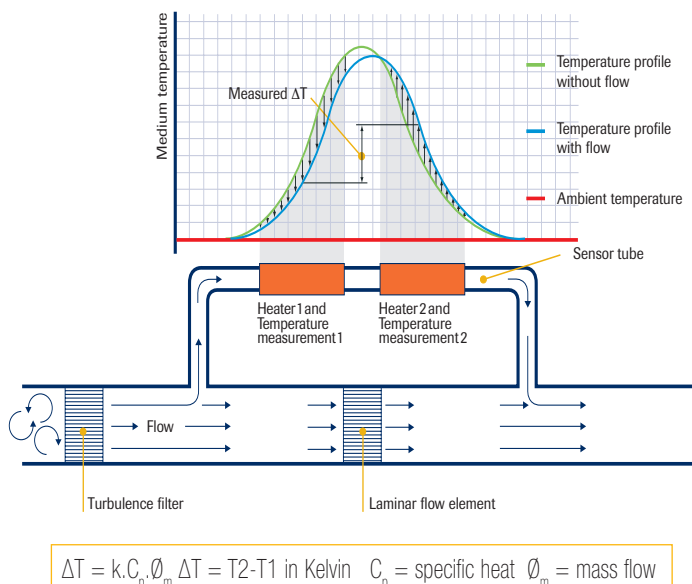
## 产品特点:

- 满刻度流量范围从200升/分钟，到1670升/分钟
- 工作压力可达928 PSIA
- 高精度和可重复性
- 最多内置8个校正曲线
- 用户可配置的控制特性
- 流动参数调整功能高达150 PSIA
- 有效量程比<180: 1
- 模拟或数字: RS232, DeviceNet™, ProfibusDP®, Modbus-RTU

# 500/600 Series II Flowmeter Products

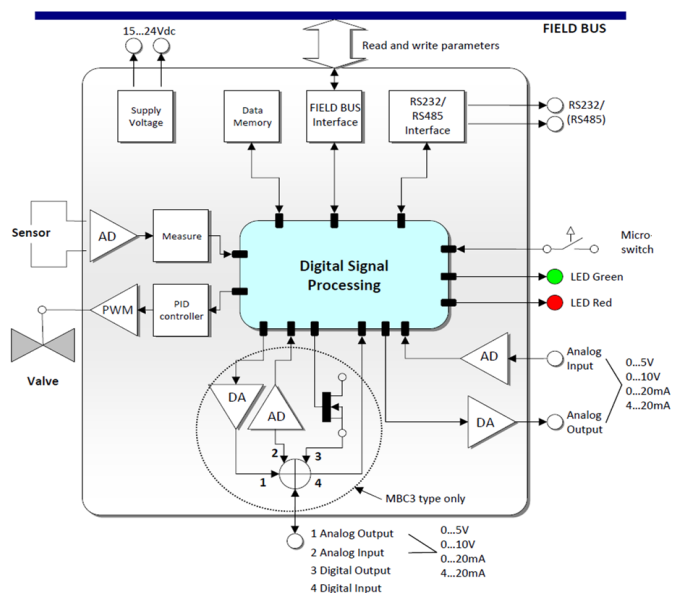
## 质量流量测量原理

质量流量传感系统由不锈钢毛细管构成，带围绕所述管的外侧缠绕两个精密加热器和温度感测元件。当气体流经毛细管，热被移位到下游的温度传感器，两个传感器之间产生温度差。差值与通过管的质量流量成正比。在主流道通道，一个专利层流元件的阻力，确保穿过传感器和总流量具有固定百分比，



## 先进的数字设计

Porter's Series II Mass Flow products are equipped with a microprocessor based digital pc-board offering high accuracy, excellent temperature stability and fast MFC response time. The basic digital pc-board contains all of the general functions needed for measurement and control. RS232 communication and analog I/O are included. An optional integrated communication interface board provides DeviceNet™, Profibus-DP® or Modbus-RTU.



## 型号和流量范围

型号	最小	正常I	最大
603AV - U	4 to 200 l/min	10 to 500 l/min	15 to 750 l/min
603AV - V	8 to 400 l/min	20 to 1000 l/min	1670 l/min

测量于标准状态14.7 PSIA 和 70°F (21.1°C)

# 规格

## 测量/控制系统

精度 (包括线性度) (根据实际校准)	标准: $\pm 0.5\%$ 读数加上 $\pm 0.1\%$ 满量程
可调比	1 : 50 (数字模式高达 1 : 187.5)
重复性	<0.2% 读数
稳定时间 (控制器)	标准: 2-4 秒
控制稳定性	< $\pm 0.1\%$ 满量程 (典型 1 l/min N <sub>2</sub> )
工作温度	-10 to +70°C
温度敏感性	零点: <0.05% Full Scale/°C; 满量程: <0.05% Reading/°C
压力敏感性	0.1%/ATM 典型 N <sub>2</sub> ; 0.01%/ATM 典型 H <sub>2</sub>
系统泄漏率	测试结果 < 2 x 10 <sup>-9</sup> mbar l/s He
位置敏感性	Max. error at 90° off horizontal 0.2% at 1 ATM, typical N <sub>2</sub>
预热时间	30 min. for optimum accuracy 2 min. for accuracy $\pm 2\%$ Full Scale

## 机械部分

材料(与介质接触部分)	不锈钢 316L 或者相应级别
表面质量(与介质接触部分)	Ra= 0.8 $\mu$ m 典型
过程连接	压缩或者面连接接口
密封	标准: Viton 优化: EPDM, Kalrez (FFKM)
保护等级 (外壳)	IP40

## 电气性能

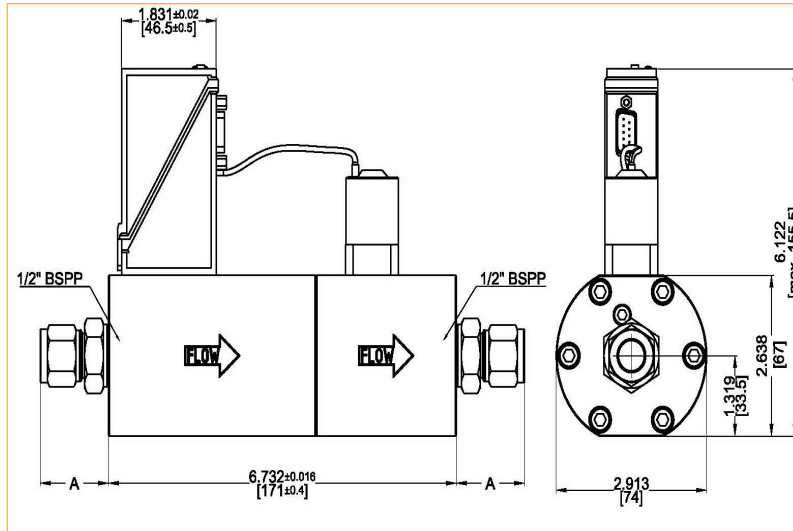
电源支持	+15-24 Vdc
功耗	流量计: 70 mA; 控制器: 最大. 320 mA; 增加 50 mA 对于 Profibus, if applicable
模拟输出/Command	0-5 (10) Vdc or 0 (4)-20 mA - specify - (Sourcing output)
数字通讯	标准: RS232 可选: Profibus-DP®, DeviceNet™, EtherCAT®, Modbus

## 电气连接

模拟/RS232	9-pin D-connector (male)
Profibus-DP®	Bus: 9-pin D-connector (female) Power: 9-pin D-connector (male)
DeviceNet™	5-pin M12-connector (male)
EtherCAT®	2 x RJ45 modular jack (in/out)
Modbus-RTU/FLOW-BUS	RJ45 modular jack

Technical specifications and dimensions subject to change without notice.

# 尺寸



Bracket = Millimeters

Compression		1/2" BSPP
		Size A
Fitting 10 mm OD		1.220 (31.0)
Fitting 12 mm OD		1.319 (33.5)
Fitting 20 mm OD		1.437 (36.5)
Fitting 25 mm OD		1.654 (42.0)
Fitting 3/8" OD		1.209 (30.7)
Fitting 1/2" OD		1.319 (33.5)
Fitting 3/4" OD		1.370 (34.8)

Face-Seal Male		1/2" BSPP
		A
Fitting 1/2" inlet		1.087 (27.6)
Fitting 3/4" inlet		1.437 (36.5)

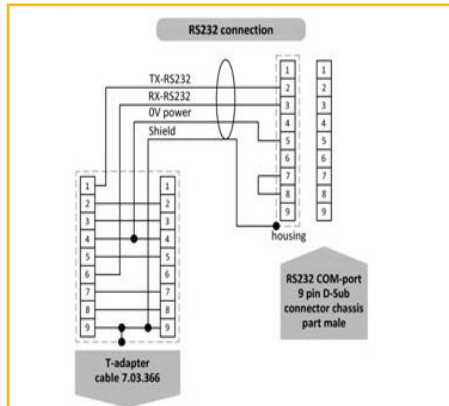
(Millimeters)

# 订购信息

**6 0 3AV U A A D 44 V**

<b>Base</b>	6 Controller
<b>Pressure Rating</b>	0 928 PSIA
<b>Ranges</b>	3AV 0 to 200 / 0 to 1670 l/min
<b>Nominal Range</b>	Factory Selected
<b>Communication (I/O)</b>	A RS232 + Analog (n/c control) B RS232 + Analog (n/o control) D RS232 + DeviceNet (n/c) E RS232 + DeviceNet (n/o) M RS232 + Modbus-RTU (n/c) N RS232 + Modbus-RTU (n/o) P RS232 + Profibus -DP (n/c) Q RS232 + Profibus - DP (n/o) R RS232 + FLOW-BUS (n/c) S RS232 + FLOW-BUS (n/o)
<b>Internal Seals</b>	V Viton (Factory Standard) E EPDM K Kalrez (FFKM)
<b>Connections (in/out)</b>	4 12 mm OD Compression Type 5 1/2" OD Compression Type 6 20 mm OD Compression Type 9 Other 0 None
<b>Supply Voltage</b>	D +15 to 24 Vdc
<b>Analog Output</b>	A 0 to 5 Vdc B 0 to 10 Vdc F 0 to 20 mA Sourcing G 4 to 20 mA Sourcing

# Hook-up Diagram for Analog or RS232 Communication



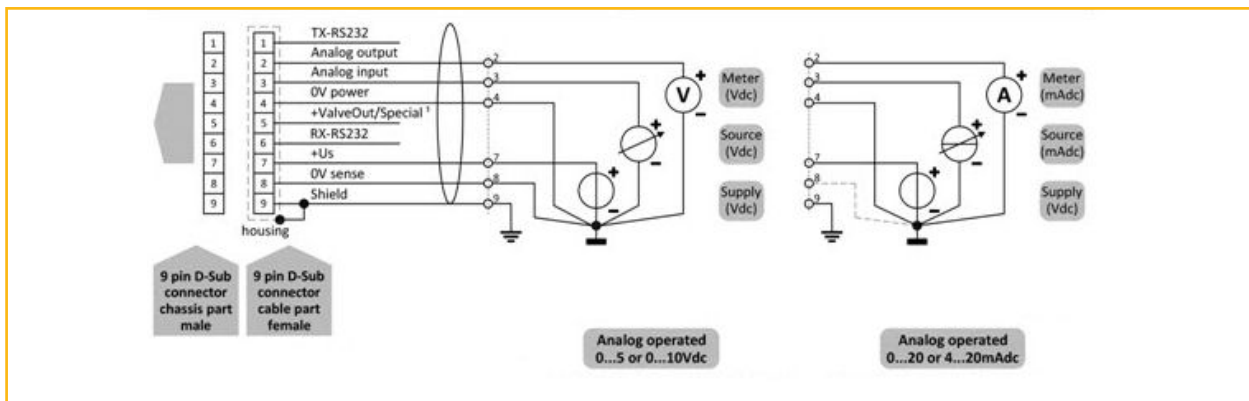
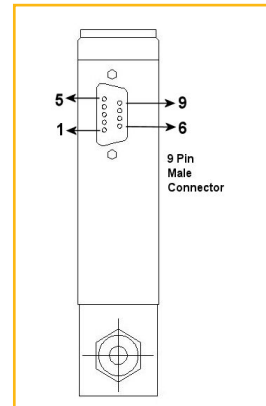
**Note:** Pin 4 and Pin 8 should be separately and connected to power common at the power supply.

**Note:** When using a unit configured for a fieldbus or RS232 I/O, it is not possible to operate the instrument using analog I/O without changing the “control mode” parameter. (See users manual)

**Note:** For hookup details of modbus, Profibus or DeviceNet communications, see users manual.

**Note:** Do not connect external valve to instruments configured as flow meters

**Note:** Valve out signal is 0 - 10 Vdc, .1mA



## ⚠ WARNING – USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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