

MASS FLOW CONTROLLERS Series 810C Mass-Trak

DESCRIPTION

Thermal mass flow controllers like the Series 810C Mass-Trak are more reliable than volumetric flow devices like rotameters because they are relatively immune to changes in gas temperature and pressure. Because these instruments measure molecular flow, they provide the most reliable, repeatable and accurate method of delivering gas to your system.

The 810C is designed to control the flow of non-corrosive gases. The instruments built-in display and set-point control eliminate the need for separate power supply and readout electronics, standard on most mass flow controllers. A straight, large diameter sensor tube prevents clogging and contamination. The fast response valve provides precise one-step control of critical gas flows. You simply, set it and forget it.

Available in flow ranges from 0- 10 sccm to 0-50 slpm. The standard unit accepts 0-5 VDC or 4-20 mA command signals for applications that require remote set point control.

HOW IT WORKS

Gas enters the Mass-Trak and divides into two flow paths. Most of the flow goes through the laminar-flow bypass. This creates a pressure drop that forces a known fraction of the flow through the sensor tube. Two resistance temperature detector coils around the sensor tube direct a constant amount of heat into the gas stream. Heat transfer between these elements results in the interaction with the molecules of the flowing gas, independent of temperature and pressure fluctuations. The sensor signal is amplified, linearized and calibrated to achieve a direct reading of gas mass flow rate.

As the gas leaves the sensor and bypass, it flows through the servo-control valve. This valve is similar to an on-off solenoid valve, except that the current to the valve is modulated so that the valve plug assumes the exact height above the valve orifice necessary to maintain the valve's commanded flow. Built-in electronics allow Mass-Trak to maintain continuous proportional control by comparing the measured sensor signal to the command valve flow rate.

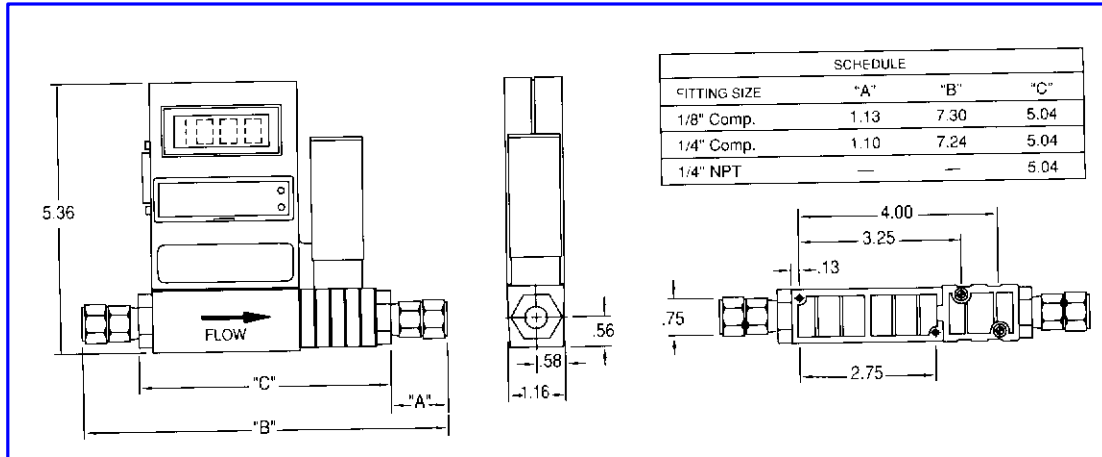


MATERIALS OF CONSTRUCTION

Wetted materials are: 10% glass-filled nylon 6/6 316 stainless steel 430F stainless steel nickel plating Viton o-rings

SPECIFICATIONS

Accuracy:	+1.5% of full scale
Repeatability:	+0.25% of full scale
Gas and ambient temperature:	32 °F to 120 °F
Gas pressure:	20 psig optimum 150 max
Leak integrity:	1×10^{-4} ATM cc/sec of helium
Control range:	calibrated for 10 to 100% full scale
Output signal:	linear 0-5 VDC into 2000 ohm minimum load resistance and linear 4-20 mA into 1000 ohm maximum load resistance (500 ohm-watts/15 VDC supply)
Response time:	1 second



How to Order

P/N 810C-DR-W-X-Y-Z

(Select X, Y, and Z parameters from table below)

W = inlet and outlet connections: P4FF=1/4" NPT female
 T2FF = 1/8" compression fittings (up to 15 slpm)
 T4FF = 1/4" compression fittings

X inlet and outlet pressure calibration: NF = normal pressure (up to 40 psig)
 MP 40-150 psig

Y flow range:

0- 10 sccm	= 00010
0-20 sccm	= 00020
0-50 sccm	= 00050
0- 100 sccm	= 00100
0-200 sccm	= 00200
0-500 sccm	= 00500
0-1 slpm	= 01000
0-2 slpm	= 02000
0-5 slpm	= 05000
0-10 slpm	= 10000
0-20 slpm	= 20000
0-30 slpm	= 30000
0-40 slpm	= 40000
0-50 slpm	= 50000

All flows are based on standard conditions of 70°F and 1 ATM unless otherwise specified when ordering

Z = factory set output option: V = 0-5VDC
 A = 4-20 mA

MASS FLOWMETERS

Gas Equipment



Series 820 Top-Trak

DESCRIPTION

Thermal mass flowmeters like the Series 820 Top-Trak are more reliable than volumetric flow devices like rotameters because they are relatively immune to changes in gas temperature and pressure. Because these instruments measure molecular flow, they provide the most reliable and accurate method of delivering gas to your system.

The 820 is designed to measure the flow of non-corrosive gases. The instruments built-in display, power supply, and readout electronics, provides an easy and convenient method of accurately monitoring the gas flow of your system. A straight, large diameter sensor tube prevents clogging and contamination.

Available in flow ranges from 0-10 sccm to 0-40 slpm. The standard unit can be supplied with either 0-5 VDC or 4-20 mA output signal.

HOW IT WORKS

Gas enters the Top-Trak and divides into two flow paths. Most of the flow goes through the laminar flow by-pass. This creates a pressure drop that forces a known fraction of the flow through the sensor tube. Two resistance temperature detector coils around the sensor tube direct a constant amount of heat into the gas stream. Heat transfer between these elements results in the interaction with the molecules of the flowing gas, independent of temperature and pressure fluctuations. The sensor signal is amplified, linearized and calibrated to achieve a direct reading of gas mass flow rate.

MATERIALS OF CONSTRUCTION

Wetted materials are: 10% glass-filled nylon 6/6
316 stainless steel
nickel plating
Viton o-rings



SPECIFICATIONS

Accuracy:	±1.5% of full scale	
Repeatability:	±0.5% of full scale	
Gas and ambient temperature:	32 to 120°F	
Gas pressure:	20 psig optimum, 150 psig max	
Leak integrity:	1 x 10 ⁻⁴ ATM cc/sec of helium	
Input power:	12-18 VDC linear 0-5 VDC standard	
Output signal:	4-20 mA optional	
Response time: Pressure	800 ms time constant	
Coefficient:	0.02% of full scale per psi (0.07 kg/cm ²) or better	
Pressure drop:		Max. AP
	SLM	cm of water
	Up to 10	7
	20	25
	30	47
	40	88
Temperature coefficient:	0.15% of full scale °C or better	

How To Order

822-W-X-Y-Z (select X, Y, and Z parameters from table below)

W= inlet and outlet connections	P4FF = 1/4" NPT female
	T2FF = 1/8" compression fittings (up to 15 slpm)
	T4FF = 1/4" compression fittings
X= inlet and outlet pressure calibration	NF= normal pressure (up to 40 psig)
	MP = 40-150 psig
Y =flow range:0-10 sccm = 00010	0-20 sccm = 00020
	0-50 sccm = 00050
	0-100 sccm = 00100
	0-100 sccm = 00200
	0-500 sccm = 00500
	0-1 sipm = 01000
	0-2 sipm = 02000
	0-5 sipm = 05000
	0-10 sipm = 10000
	0-20 sipm = 20000
	0-30 sipm = 30000
	0-40 sipm = 40000

All flows are based on standard conditions of 70°F and 1 ATM unless otherwise specified