

mass flow controllers **Series 810C Mass-Trak**



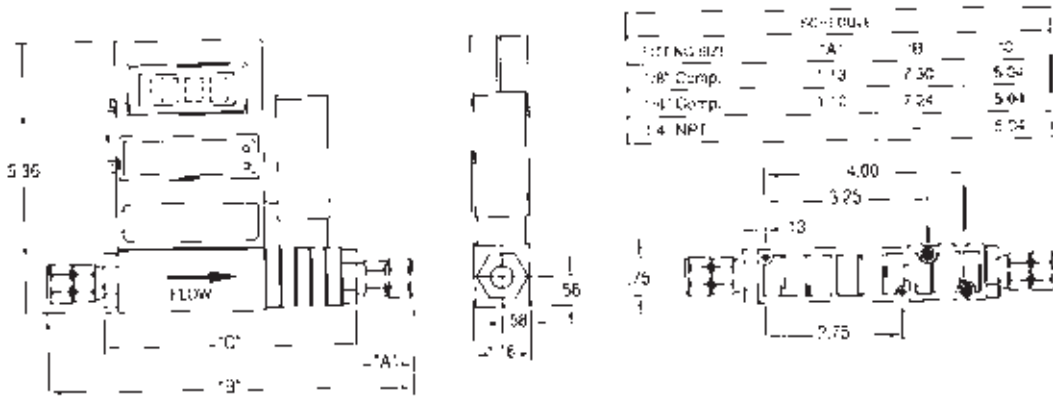
Description	How It Works
<p>Thermal mass flow controllers like the Series 810C Mass-Trak are more reliable than volumetric flow devices like rotameters because they are relatively immune to changes in gas temperature and pressure. Because these instruments measure molecular flow, they provide the most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

Materials	Specifications	
<p><i>Wetted materials are</i></p> <ul style="list-style-type: none"> <li>10% glass-filled nylon 6/6</li> <li>316 stainless steel</li> <li>430F stainless steel</li> <li>nickel plating</li> <li>Viton o-rings</li> </ul>	<p><i>Accuracy</i> +1.5% of full scale</p> <p><i>Repeatability</i> +0.25% of full scale</p> <p><i>Gas and ambient temperature</i> 32 to 120°F</p> <p><i>Gas pressure</i> 20 psig optimum, 150 psig max.</p> <p><i>Leak integrity</i> 1 x 10<sup>-4</sup> ATM cc/sec of helium</p>	<p><i>Control range</i> calibrated for 10 to 100% of full scale</p> <p><i>Output signal</i> linear 0-5 VDC into 2000 ohm minimum load resistance and linear 4-20 mA into 1000 ohm maximum load resistance (500 ohm-watt/15 VDC supply)</p> <p><i>Response time</i> 1 second</p>

## Series 810C Mass-Trak

mass flow controllers

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Series 810C Dimensional Drawing

### Ordering Information

**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
- 0-500 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 = 0-5 VDC  
A = 4-20 mA