

# Economical OEM Digital Mass Flow Controller (up to 200 slpm)

## Features

- All the performance features of a digital mass flow controller at an OEM price
- Control gas mass flow rates to 200 slpm (nlpm)
- Stability and reliability optimized for long-term process control
- Ideal for control of carrier gases used in wafer cleaning and polishing operations
- Wide utility in chamber purge operations for Physical Vapor Deposition (PVD) and other semiconductor process applications
- Accuracy: +/- 1.5% full scale for common gases (Air, Ar, CO<sub>2</sub>, CO, CH<sub>4</sub>, He, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>)
- Repeatability: +/- 0.25% full scale
- Advanced 316L SS platinum sensor technology and patented LFE provide excellent linear performance
- Aluminum or 316 SS flow bodies with Viton® elastomers
- Local display and digital setpoint control with optional analog setpoint/output signals
- RS-232 interfaces easily with PLC or workstation (user software and communication cables available)
- Field adjustable zero and span
- RS-485 (addressable) enables networking within complex semiconductor tools
- Dual I/O DB9 comm ports for installation flexibility
- Powerful direct-acting control valve minimizes leak-by
- CE Approved

# Smart-Trak® 50 Series Medium Flow



## Description

Optimized to feature the stability, reliability and simplicity of operation required in long-term process control applications, Sierra's Smart-Trak® 50 Series Medium Flow Controller offers high accuracy and reliable gas mass flow control at an economical price. This makes it an ideal choice for OEMs who require exceptional performance at a price point that meets their budgetary constraints.

Sierra's new Medium Flow Controller increases the maximum flow range of the award-winning Smart-Trak® 50 Series from 50 slpm to 200 slpm. This makes it a perfect fit for controlling the carrier gases used in wafer cleaning and polishing operations or for purge control in PVD and other semiconductor operations. It also excels in the mass flow control of common gases in general applications.

The 50 Series builds on the same core sensor, LFE and valve technology found in Sierra's flagship Smart-Trak 100 Series, all backed by Sierra's trademark personalized customer support. A flexible and powerful direct-acting frictionless-hovering control valve sets it apart from the competition by minimizing leak-by, while offering +/- 0.25% repeatability.

It is Sierra's philosophy that only the highest performing core sensor technology can produce an excellent MFC. In contrast to the many wetted parts of CMOS and MEMS flow sensors, Sierra uses its advanced 316L stainless steel platinum-wound capillary sensor technology to deliver the highest reliability, repeatability and stable accuracy.

The Smart-Trak 50 Series offers flexibility and simplicity of operation. Both analog and digital inputs and outputs are available, enabling the 50 Series to work with older analog systems or the newest multi-drop digital tools. Field adjustment of zero and span enable small adjustments in calibration to align with on-site process conditions.

Experience our passion for flow with the Smart-Trak 50 Series Medium Flow Controller and enjoy the peace of mind gained from unparalleled stability, reliability and simplicity in your next application.



[www.sierrainstruments.com](http://www.sierrainstruments.com)

## Performance Specifications

### Accuracy

+/- 1.5% of full scale including linearity over 32° to 122°F (0° to 50°C) and 5 to 145 psig (0.3 to 10 barg) for common gases: Air, Ar, CO<sub>2</sub>, CO, CH<sub>4</sub>, He, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>.

### Repeatability

+/- 0.25% of full scale

### Temperature Coefficient

0.025% of full scale per °F (0.05% of full scale per °C), or better

### Pressure Coefficient

0.01% of full scale per psi (0.15% of full scale per bar), or better

### Response Time

Two seconds (typical) to within +/- 2% of final value including setting time. 50 Series may be tuned to be faster or slower (consult factory)

## Operating Specifications

### Gases

All neutral, non-contaminated dry and clean gases compatible with wetted materials aluminum, stainless steel and Viton<sup>®</sup>

### Mass Flow Rates

The 50 Series can be calibrated for any gas compatible with Viton<sup>®</sup>, aluminum and stainless steel, using any units, to either normal or standard conditions, for flow rates up to 200 slpm air equivalent.

### Gas Pressure

Max 145 psig (10 barg) maximum, burst tested to 225 psig (15 barg)

### Minimum Differential Pressure Requirement

See Table

### Pressure Requirement

145 Psi (Specify Delta P at time of order)

### Gas and Ambient Temperature

32°F to 122°F (0° to 50°C)

### Leak Integrity

5 X 10<sup>-9</sup> atm cc/sec of helium maximum

### Power Requirements

24 VDC (+/-10%), 850 mA, regulated, RS-485 option adds 130 mA

### Control Range

5 to 100% of full scale flow (20:1) at published accuracy. Automatic valve shut-off with setpoints below 4.9% of full scale.

### Output and Command (Setpoint) Signal

- RS-232

### Optional:

- Linear 4-20 mA, 500 ohms maximum load resistance
- Linear 0-5 VDC
- RS-485 Addressable (no analog outputs)
- Zero, span, and setpoint are field adjustable via supplied user software and optional RS-232 communications cable

### Display

Flow rate, units, full scale, and setpoint.

## Pressure Drop

### Minimum Pressure Drop for Air, Mass Flow Controller

Flow Rate (slpm)	Medium Flow 3/8 or 1/2 inch fittings Pressure Drop in PSI (mbar)
20	1 (68)
30	1.2 (82)
40	1.6 (110)
50	2 (136)
100	5 (340)
150	10 (680)
200	15 (1020)

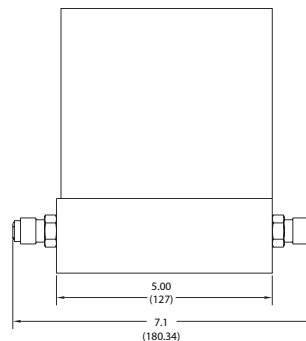
## Physical Specifications & Dimensions

### Wetted Material

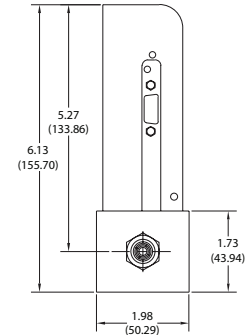
Anodized aluminum or 316 stainless steel flow body. 316L stainless steel sensor tubes; Viton<sup>®</sup> O-rings and valve seats.

Note: All dimensions are in inches with mm in brackets. Certified drawings are available upon request.

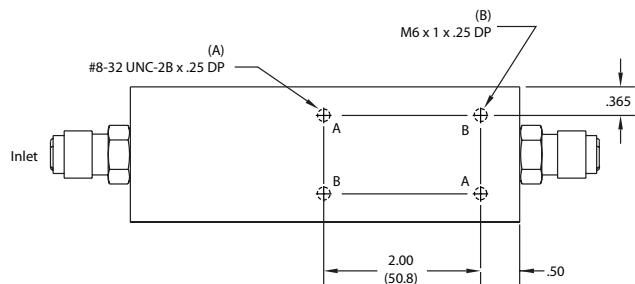
50 Series - Front View



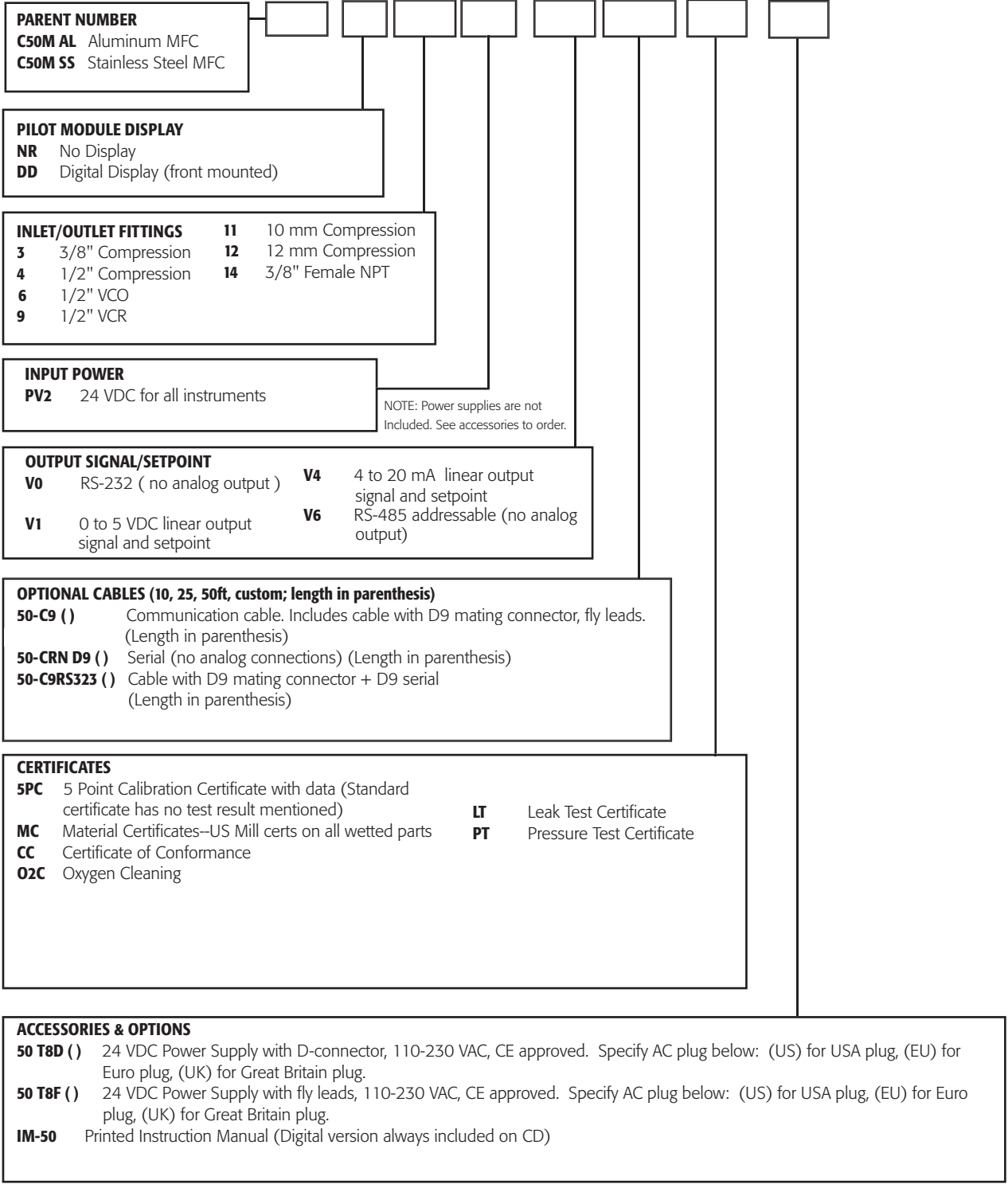
50 Series - Side View



50 Series - Bottom View



## Ordering the 50 Series



Email your questions or request for quote to [50series@sierrainstruments.com](mailto:50series@sierrainstruments.com) TODAY!



SIERRA INSTRUMENTS, NORTH AMERICA • 5 Harris Court, Building L • Monterey, California • (800) 866-0200 • (831) 373-0200 • Fax (831) 373-4402 • [www.sierrainstruments.com](http://www.sierrainstruments.com)

SIERRA INSTRUMENTS, EUROPE • Bijlmansweid 2 • 1934RE Egmond aan den Hoef • The Netherlands • +31 72 5071400 • Fax: +31 72 5071401

SIERRA INSTRUMENTS, ASIA • Rm.618, Tomson Centre, Bldg. A • 188 Zhang Yang Road • Pu Dong New District • Shanghai, P.R. China 200122 • +8621 5879 8521/22 • Fax: +8621 5879 8586