



SIERRA®



PRODUCT LINE CATALOG

Flow meter solutions for those who demand precision.

LOW

Industrial Flow Meters



InnovaMass®

VORTEX / InnovaMass

Models

- 240i InLine
- 241i Insertion

Description

- Completely re-designed "iSeries"
- 5-in-1: Mass & volumetric flow rate, temperature, pressure, density
- Raptor II OS for best performance
- New Applications: FloPro™, qMix™, Dial-A-Pipe™, Dial-A-Fluid™, ValidCal™
- Field firmware upgrade capability
- Thermal energy / BTU measurement

Fluids Measured

- Steam, Gases, and Liquids

Flow Range (30:1 turndown)

- Liquids:
1.0 ft/s (0.3 m/s) Velocity Min.
30 ft/s (9.14 m/s) Velocity Max.

Gas & Steam:

Velocity Minimum / ρ = fluid density

$$\sqrt{\frac{25}{\rho}} \text{ ft/s (see note 1)} \quad \sqrt{\frac{37}{\rho}} \text{ ft/s (see note 2)}$$

Velocity Maximum / 300 ft/s (91.5 m/s)

Note 1: ρ in lb_m/ft³ **Note 2:** ρ in kg/m³

Digital Communications

- HART, Modbus, Profibus DP, Foundation Fieldbus, USB, RS-232

Hazardous Area Approvals

- CE, cFMus, ATEX, PED, IECEx

INLINE VERSION

Accuracy

- Mass flow: +/-1.0% of reading (liquids); +/-1.5% of reading (gas & steam)
- Volumetric: +/-0.7% of reading (liquids); +/-1.0% of reading (gas & steam)

Repeatability

- Mass flow: +/- 0.2% of reading
- Volumetric: +/- 0.1% of reading

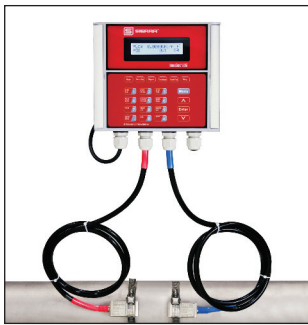
INSERTION VERSION

Accuracy

- Mass flow: +/-1.2% of reading (liquids); +/-2.0% of reading (gas & steam)
- Volumetric: +/-1.0% of reading (liquids); +/-1.5% of reading (gas & steam)

Repeatability

- Mass flow: +/- 0.2% of reading
- Volumetric: +/- 0.1% of reading



InnovaSonic®

ULTRASONIC / InnovaSonic

Models

- 203 Fixed installation economical
- 205i Fixed installation
- 210i Portable

Description

- Transit-time ultrasonic
- Clamp-on outside of pipe for easy set up
- No pipe cutting or process shutdown
- Fixed installation and portable versions
- High accuracy at low and high flows
- Bi-directional flow
- Thermal energy/BTU measurement

- Buy online from stock, next day shipping
- Rental programs

Fluids Measured

- Water and liquids; Tolerant of liquids with small amounts of air bubbles or suspended solids

Flow Range (30:1 turndown)

- Bi-directional flow range of 0.16 ft/s to 40 ft/s (0.05 to 12 m/s)
- Pipe sizes from 2 to 236 inches (50 to 6000mm)

Digital Communications

- RS-232, RS-485, Modbus RTU

Accuracy & Repeatability

203 Fixed Installation (Economical)

- Accuracy: +/- 1.0% of reading from 0.16 ft/s to 40 ft/s (0.05 m/s to 12 m/s)
- Repeatability: +/- 0.3% of reading

205i Fixed Installation

- Accuracy: +/- 0.5% of reading from 0.16 ft/s to 40 ft/s (0.05 m/s to 12 m/s)
- Repeatability: +/- 0.15% of reading

210i Portable

- Accuracy: +/- 0.5% of reading from 0.16 ft/s to 40 ft/s (0.05 m/s to 12 m/s)
- Repeatability: +/- 0.3% of reading



InnovaSwitch®

FLOW/LEVEL SWITCH InnovaSwitch

Models

- 615

Description

- Ultra sensitive with fast response time
- Switches on a flow/no flow condition
- Ideal for industrial pump protection
- Unique high temperature to 850°F (454°C)
- 2-year workmanship warranty
- Buy online, next day shipment

Fluids Measured

- Gases and liquids

Accuracy

- Range of 0.01 to 5 sfps (0.003 to 1.524 smps) in liquids and 0.1 to 500 sfps (0.03 to 152.4 smps) gases

Repeatability

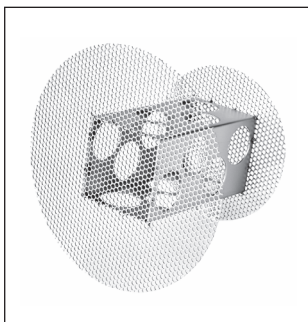
- +/- 1% of set point (Flow) or 1/32" (0.8mm) Level

Stability

- Drift <0.5% from calibrated set point over a range of +/-50°F

Operating Temperature Range

- Standard -100°F to 390°F (-73.3°C to 200°C)
- Medium Temperature to 572°F (300°C)
- High Temperature to 850°F (454.4°C)



FlowTrak™

CONDITIONERS / FlowTrak

Description

- Creates uniform flow profile to maximize accuracy in constrained piping areas
- Reduce upstream piping diameters to less than 3 diameters
- Use upstream of any gas flow meter
- Proven Dual-Plate inline flow conditioning technology
- Creates uniform flow profile at an economical price
- Low pressure drop

- May be used in very large diameter pipes
- Designed for use with ANY point velocity flow measurement device

Fluids Measured

- Gas metering applications

Straight Length Improvement

Diameters relative to flow profile disturbance in brackets ()

- One 90° Elbow: FlowTrak (1); Orifice plate (28)
- Two 90° Elbows Same Plane: FlowTrak (3); Orifice plate (36)

- Two 90° Elbows Different Planes: FlowTrak (3); Orifice plate (62)

- Reducer - 4/1: FlowTrak (3); Orifice plate (14)

- Globe Valve - Fully Open: FlowTrak (2); Orifice plate (32)

Select by Application

GAS / Industrial

- InnovaMass 240i, 241i (Vortex)
- QuadraTherm 640i, 780i (Thermal)
- SteelTrak 640S, 780S (Thermal)
- BoilerTrak 620S (Thermal)
- FastFlo 620S (Thermal)
- InnovaSwitch Flow/Level 615 (Thermal)

GAS / Flow Conditioning

- FlowTrak (Dual-Plate Inline)

GAS / MFCs – OEM & Scientific

- SmartTrak 100 (Capillary Thermal)
- SmartTrak 50 (Capillary Thermal)
- SideTrak 840 (Capillary Thermal)
- TopTrak 820, 820S (Capillary Thermal)
- Specialty MFCs – Low flow, IP67, Low DeltaP, High Pressure (Capillary Thermal)
- FloBox – Digital Control / Power Supplies

GAS / Control Valves

- SmartVO (Electromagnetic proportional)

GAS / Calibration

- CalTrak 500, 800, XL
(Primary standard piston prover)

LIQUID

- InnovaSonic 203, 205i, 210i (Ultrasonic)
- InnovaMass 240i, 241i (Vortex)
- InnovaSwitch Flow/Level 615 (Thermal)

STEAM

- InnovaMass 240i, 241i (Vortex)
- InnovaSwitch Flow/Level 615 (Thermal)



QuadraTherm®

THERMAL MASS / QuadraTherm

Models

- 640i Insertion Probe
- 780i Inline

Description

- Highest accuracy thermal meter in the world
- Multivariable outputs: Mass flow rate, temperature, pressure
- Patented "QuadraTherm" 4-Sensor thermal technology
- Patented no-drift DrySense™ sensor, lifetime warranty
- Inline version has built-in flow conditioning
- No moving parts, low pressure drop, high 100:1 turndown

- Free user software
- Change gas in the field
- Change pipe size in field (insertion version)
- Validate in field for in-situ calibration
- Certified for GHG measurement meeting EPA (40 CFR Part 98)
- Hazardous-area location approvals
- Buy online, next day shipment

Fluids Measured

- Measure all inert gases and all non-condensing clean gases
- Flammable gases

Flow Ranges (100:1 Turndown)

- Very low flows and high flows up to 60,000 scfm (305 smps)

Accuracy*

- **780i Inline**
• +/- 0.5% of reading above 50% of full scale
- **640i Insertion**
• +/- 0.75% of reading above 50% of full scale
- * Verified by an independent NIST & NVLAP accredited lab

Repeatability

- +/- 0.15% of full scale

Digital Communications

- Foundation Fieldbus, HART, Modbus RTU, and Profibus DP

Hazardous Area Approvals

- cFMus, ATEX, IECEx, PED, GOST R, Chinese Pattern, CE



SteelTrak® / SteelMass®

THERMAL MASS SteelTrak & SteelMass

Models

- SteelMass 640S Insertion probe
- MultiTrak 670S Multi-point insertion
- SteelTrak 780S Inline
- SteelTrak 780S Inline Ultra High Purity

Description

- Insertion, Inline and multi point configurations
- Patented no-drift DrySense™ sensor, lifetime warranty
- No moving parts, low pressure drop, high turndown 100:1
- Insertion and inline, totalizing gas mass flow

- Inline version built-in flow conditioning for only 3-diameters up, zero downstream
- Free user software
- Validate in field for in-situ calibration
- Economical NEMA 4X enclosure available
- High temperature to 800°F (430°C) available
- Axial and purge designs for dirty gases
- Certified for GHG measurement meeting EPA (40 CFR Part 98)
- Hazardous-area location approvals

Fluids Measured

- All inert gases and all non-condensing clean gases
- Flammable gases

Flow Range (100:1 Turndown)

- Wide flow range from 0 to 20,000 sfpm (100 smps)

Accuracy

- +/- 1.0% of reading plus +/- 0.5% of full scale

Repeatability

- +/- 0.2% of full scale

Digital Communications

- Foundation Fieldbus, HART, Modbus RTU, and Profibus DP

Hazardous Area Approvals

- FM, CSA, CRN, ATEX, PED, GOST R, Chinese Pattern, CE



BoilerTrak™

THERMAL MASS BoilerTrak & FastFlo

Models

- BoilerTrak 620S-BT Insertion probe
- FastFlo 620S Insertion probe

Description

- Increase efficiency with fast response time within 200 milliseconds
- No moving parts, low pressure drop, high turndown 100:1
- BoilerTrak optimized for methane, propane and natural gas
- FastFlo optimized for air, nitrogen, and inert gas measurement
- Free user software

- Validate in the field for easy in-situ calibration
- Certified for GHG measurement meeting EPA (40 CFR Part 98)
- Easily install in the field or retrofit
- Buy online, next day shipment

Flow Range (100:1 Turndown)

- Wide flow range from 0 to 20,000 sfpm (100 mps)

Accuracy

- +/- 1% of full scale

Repeatability

- +/- 0.2% of full scale

Digital Communications

- Modbus RTU

Fluids Measured

- **FastFlo 620S**
• Measure all inert gases and all non-condensing clean gases
- **BoilerTrak 620S-BT**
• Flammable gases: methane, propane, natural gas

Hazardous Area Approvals

- CE, GOST R, Chinese Pattern

Mass Flow Meters, Controllers & Valves



SmartTrak® 100

DIGITAL / SmartTrak 100

Models

- 100L Low Flow
- 100M Medium Flow
- 100H High Flow

Description

- Highest performance multi-gas MFC
- Flagship mass flow meter & controller
- Navigate easily with large multi-function display interface
- Free user software
- Primary Standard calibration & NIST traceability
- Make adjustments in the field
- Configure up to 10 gasses

- Proprietary frictionless-hovering, direct-acting control/shut-off valve
- User-friendly pilot module display interface is front-mounted, hand-held, or remote mounted
- Leak integrity 5×10^{-9} smL/sec of helium
- CE Approved
- Buy online, next day shipment

Fluids Measured

- All clean gases including toxics and corrosives
- Dial-A-Gas allows you to change between 10 gases with one unit

Accuracy

- +/- 1.0% of full scale
- +/- 0.5% of full scale available

Repeatability

- +/- 0.2% of full scale

Digital Communications

- Foundation Fieldbus, Modbus RTU, and Profibus DP

Flow Range

(Turndown - Meters 100:1 / Controllers 50:1)

- 100L Low Flow**
 - 0 to 10 sccm (smlm) to 0 to 50 slpm (nlpm)
 - 100M Medium Flow**
 - 0 to 300 slpm (nlpm)
 - 100H High Flow**
 - 0 to 1000 slpm (nlpm)
- Higher & lower flows available upon request



SmartTrak® 50

DIGITAL / SmartTrak 50

Models

- 50L Low Flow
- 50M Medium Flow

Description

- Economical digital mass flow meter and controller
- Powerful digital high-performance at OEM pricing
- Save money with volume discounts
- Navigate easily with large display
- Free user software
- Choice of aluminum or 316 stainless-steel construction

- Compact size makes drop-in replacement easy
- Local display and digital setpoint
- Optional analog setpoint/output signals
- Field adjustable zero and span
- Primary Standard calibration & NIST traceability
- Leak integrity 1×10^{-9} smL/sec of helium
- CE Approved
- Buy online, next day shipment

Fluids Measured

- All clean gases including toxics and corrosives

Accuracy

- +/- 1.0% of full scale

Repeatability

- +/- 0.25% of full scale

Digital Communications

- RS-232, RS-485 (Multi-drop)

Flow Range

(Turndown - Meters 100:1 / Controllers 50:1)

- 50L Low Flow**
 - 0 to 10 sccm (smlm) to 0 to 50 slpm (nlpm)
 - 50M Medium Flow**
 - 0 to 200 slpm (nlpm)
- Higher flows available upon request



Specialty MFCs

DIGITAL / Specialty MFCs

Models

- MicroTrak 101 Ultra Low Flow
- SmartTrak 140 Ultra Low Delta P
- SmartTrak 100-HP Ultra High Pressure
- MaxTrak 180 Industrial NEMA 6 (IP67)

Description

- Digital MFC's engineered for challenging applications
- Ultra-low flow rates down to 0.1 sccm (smlm)
- Ultra-low pressure drop ΔP of 4.5 psid (310 mBard)
- Industrial approval ratings of NEMA 6 & IP67 ratings

- High pressure up to 5000 psig (345 barg)
- Many other versions available, consult factory
- Leak integrity 5×10^{-9} smL/sec of helium
- Free user software
- CE Approved

Fluids Measured

- All clean gases including toxics and corrosives

Accuracy

- +/- 1.0% of full scale

Repeatability

- +/- 0.2% of full scale

Flow Range

(Turndown - Meters 100:1 / Controllers 50:1)

- Mass flow rates up to 1000 slpm (nlpm); higher upon request
- Low flow ranges under 4 sccm (smlm), with a minimum controllable mass flow rate of 0.1 sccm (smlm)

Digital Communications

- (may vary based on version)
- Foundation Fieldbus, Modbus RTU, and Profibus DP



SmartVO™ Valve

CONTROL VALVES / SmartVO

Models

- VO-100L Low Flow
- VO-100M Medium Flow
- VO-100H High Flow
- VO-100HP High Pressure
- VO-101 Ultra Low Flow

Description

- Fast-response control valve
- Proprietary frictionless-hovering direct-acting control valve
- Operate over a wide pressure differential range
- Many choices of fitting and elastomers

- Valve designed with positive shut off
- Aluminum and 316L stainless steel construction
- Single sided 10-30 VDC input power reduces installation cost and complexity
- Leak integrity 5×10^{-9} smL/sec of helium
- CE Approved
- Buy Online, next day shipment

Fluids Measured

- All clean gases including corrosives and toxics

Control Range

- 0 to 100%, control signal dependent

Flow Ranges

- 0 to 10 sccm to 0 to 1000 slpm
- Ultra-low flow rates down to 0.1 sccm (smlm)
- High pressure up to 5000 psig (345 barg)

Mass Flow Meters, Controllers & Valves



SideTrak®

ECONOMICAL MFC / SideTrak

Models

- 840L Low Flow
- 840M Medium Flow
- 840H High Flow

Description

- Dependable analog mass flow control for over 30 years
- Cleanable sensor tube for dirty gases
- Precision control with low pressure drop
- Count on durability with rugged construction
- Available in wide variety of enclosures, process connections, input/output options and control electronics

- Leak integrity 1×10^9 sml/sec of helium
- CE Approved

Fluids Measured

- All clean gases including toxics, corrosives and combustibles

Accuracy

- +/- 1.0% of full scale

Repeatability

- +/- 0.5% of full scale

Flow Ranges (50:1 Turndown)

840L Low Flow

- 0 to 15 slpm (nlpm)

840M Medium Flow

- 0 to 100 slpm (nlpm)

840H High Flow

- 0 to 500 slpm (nlpm)

Higher flows available upon request



TopTrak®

ECONOMICAL MFC / TopTrak

Models

- 820 Nylon
- 820S Stainless Steel
- 826 Aluminum

Description

- Proven flow measurement with affordable OEM pricing
- Choice of nylon, aluminum or stainless-steel construction
- Save money with volume discounts
- Large, tilttable display readout
- Compact size makes drop-in replacement easy

- Precision measurement with low pressure drop
- CE Approved

Fluids Measured

- All clean gases; check compatibility with wetted materials

Accuracy

- +/- 1.5% of full scale

Repeatability

- +/- 0.5% of full scale

Flow Ranges (100:1 Turndown)

820 Nylon

- 0 to 50 slpm (nlpm)

820 Aluminum

- 0 to 175 slpm (nlpm)

820S Stainless Steel

- 0 to 500 slpm (nlpm)

Higher flows available upon request



FloBox™

DIGITAL CONTROL FloBox

Description

- Feature packed digital performance for analog MFC's
- Large digital display with pushbuttons
- Power one to four units
- Master-slave ratio control
- Independent totalizers and alarms

Features

- Power input: 100, 110 or 240 VAC (specify when ordering), 50/60 Hz
- Power output: +/- 15 VDC, 250-500 mA
- Signal input from device: User selectable: 0-5 & 0-10 VDC, 4-20 mA
- Analog output: Set point and output user selectable 0-5 & 0-10 VDC, 4-20 mA (250 ohm max load resistance)
- 2 alarms per channel
- Digital output: RS-232, RS-485

Programmable Functions

(Model 954 four independent channels):

- Valve override: Run, Close, Purge
- Display flow or totalizer
- Engineering units
- Gas name/symbol
- A/D filter rate
- Input signal type
- Alarm high and low values
- Master-slave ratio control
- Calibrate full scale
- Calibrate zero
- Gas correction factor



CalTrak®

GAS FLOW CALIBRATORS CalTrak

Models

- 500, 800 Premium
- XL High Flow

Description

- Quick, easy to use, automatic data capture using free software
- Portable and battery operated
- Results directly traceable to NIST
- Highest accuracy primary standard for labs & industry (compare at ± 0.15% of reading)
- Innovative – 100:1 turndown ratio

- Proven dimensionally-based primary standard accuracy backed by a rigorous uncertainty analysis
- Manufactured to ISO 17025 Standards at a NVLAP accredited lab

Fluids Measured

- All clean gases; toxic and corrosive gas versions available

Accuracy

- Highest accuracy of ± 0.15% of reading gas mass flow rate

Note: At gas pressure of 760 mmHg, (1 atm) and a gas temperature of 25°C (77°F) with standardization temperature set to 21.1 °C (69.98°F)

Flow Ranges

500 Premium

- 5 sccm to 50 slpm (Across three flow cells)

800 Premium

- 0.5 sccm to 100 slpm (Across five flow cells)

XL High Flow

- 5 slpm to 1500 slpm

GLOBAL LOCATIONS



California / USA



Michigan / USA



United Kingdom



The Netherlands



India



China

Find other Sierra Flow Centers of Excellence in Mexico, Brazil, Singapore, and South Korea.



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