Flow meter solutions for those who demand precision.
Industrial Flow Meters

**InnovaMass®**

**VORTEX / InnovaMass**

**Models**
- 240 Inline
- 241 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:
  \[ \sqrt{P_{min}} \text{ (in lb/ft}^2 \text{) (1) } \]
  \[ \sqrt{P_{max}} \text{ (in lb/ft}^2 \text{) (2) } \]
  \[ \text{Velocity Maximum / 300 ft/s (91.5 m/s)} \]

**203 Economical**

- **Accuracy**: +/- 1.0% of reading
- **Repeatability**: +/- 0.3% of reading

**207i Fixed Installation**

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

**210 Portable**

- **Accuracy**: +/- 0.5% of reading
- **Repeatability**: +/- 0.3% of reading

**Hazardous Area Approvals**
- CE, cFMus, ATEX, PED, IECEx

**InnovaSonic®**

**ULTRASONIC / InnovaSonic**

**Models**
- 203 Fixed installation economical
- 207i Thermal Energy/BTU
- 210 Portable

**Description**
- Transit-time ultrasonic
- Clamp-on outside of pipe for easy set up
- Thermal energy/BTU measurement
- Proprietary Raptor II Flow Engine
- Real time density, flow profile adjustment
- Real time heat capacity adjustment
- Fixed installation and portable versions
- High accuracy at low and high flows

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

**Flow Range**
- Liquids: 0.16 ft/s (0.05 m/s) Velocity Min.
  40 ft/s (12 m/s) Velocity Max.
- Gas & Steam:
  \[ \sqrt{P_{min}} \text{ (in lb/ft}^2 \text{) (1) } \]
  \[ \sqrt{P_{max}} \text{ (in lb/ft}^2 \text{) (2) } \]
  \[ \text{Velocity Maximum / 500 ft/s (152.4 m/s)} \]

**203 Economical**

- **Accuracy**: +/- 0.5% of reading
- **Repeatability**: +/- 0.3% of reading

**207i Fixed Installation**

- **Accuracy**: +/- 2.0% of reading (gas & steam)
- **Repeatability**: +/- 0.1% of reading

**210 Portable**

- **Accuracy**: +/- 0.5% of reading
- **Repeatability**: +/- 0.3% of reading

**Digital Communications**
- RS-232, RS-485, USB, Modbus RTU
- BACnet (207i only)

**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

**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

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

**Flow Range**
- Liquids: 0.5 to 120 sfps (0.013 to 3.24 smps) at 73°F (22°C)
- Gas: 0.5 to 500 sfps (0.013 to 15.24 smps) at 73°F (22°C)

**203 Inline**

- **Accuracy**: +/- 1.0% of reading
- **Repeatability**: +/- 0.3% of reading

**240i Inline**

- **Accuracy**: +/- 1.0% of reading
- **Repeatability**: +/- 0.3% of reading

**241i Insertion**

- **Accuracy**: +/- 1.0% of reading
- **Repeatability**: +/- 0.3% of reading

**Operating Temperature Range**
- Standard: -100°F to 390°F (-73.3°C to 200°C)
- Medium Temperature: -100°F to 390°F (-73.3°C to 200°C)
- High Temperature: to 850°F (454°C)

**Digital Communications**
- HART, Modbus, Profibus DP, Foundation Fieldbus, BACnet, USB, RS-232

**Hazardous Area Approvals**
- CE, cFMus, ATEX, PED, IECEx

**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
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, Masstrak 810C (Capillary Thermal)
- Fasttrak 730 (Thermal)
- Specialty MFCs – Low flow, IP67, Low DeltaP, High Pressure (Capillary Thermal)
- FloBox – Digital Control / Power Supplies

GAS / Calibration
- Caltrak 500, 800, XL
  (Primary standard piston prover)

LIQUID
- InnovaSonic 203, 207i, 210 (Ultrasonic)
- Innovamass 240i, 241i (Vortex)
- InnovaSwitch Flow/Level 615 (Thermal)

STEAM
- Innovamass 240i, 241i (Vortex)
- Innovaswitch Flow/Level 615 (Thermal)

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 Port 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 60000 sfpm (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

Repeatability
- +/- 0.1% of full scale

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

Hazardous Area Approvals
- CE, GOST R, Chinese Pattern, PED

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

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 100:1 turndown
- 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 Port 98)
- Hazardous-area location approvals

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

Flow Ranges (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
- +/- 0.15% of full scale

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

Hazardous Area Approvals
- CE, GOST R, Chinese Pattern

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 Port 98)
- Easily install in the field or retrofit
- Buy online, next day shipment

Flow Ranges (100:1 Turndown)
- Wide flow range from 0 to 20,000 sfpm (100 mps)

Accuracy
- +/- 1.0% 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

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 x 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
• +/- 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 (nlp)
100M Medium Flow
• 0 to 300 slpm (nlp)
100H High Flow
• 0 to 1000 slpm (nlp)
Higher & lower flows available upon request

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 x 10^{-9} sml/sec of helium
• CE Approved
• Buy online, next day shipment
Fluids Measured
• All clean gases including toxics and corrosives
Accuracy
• +/- 0.5% 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 (nlp)
50M Medium Flow
• 0 to 200 slpm (nlp)
Higher flows available upon request

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 x 10^{-9} sml/sec of helium
• Free user software
• CE Approved
Fluids Measured
• All clean gases including toxics and corrosives
Accuracy
• +/- 10% of full scale

Repeatability
• +/- 0.2% of full scale
Digital Communications
(may vary based on version)
• Foundation Fieldbus, Modbus RTU, and Profibus DP
Flow Range
(Turndown - Meters 100:1 / Controllers 50:1)
• Mass flow rates up to 1000 slpm (nlp);
higher upon request
• Low flow ranges under 4 sccm (smlm), with a minimum controllable mass flow rate of 0.1 sccm (smlm)
## Mass Flow Meters, Controllers & Valves

### 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

**Fluids Measured**
- All clean gases including toxics, corrosives and combustibles

**Accuracy**
- +/- 1.0% of full scale

**Repeatability**
- +/- 0.5% of full scale

**Flow Ranges**
- 840L Low Flow
  - 0 to 15 slpm (nlpm)
- 840M Medium Flow
  - 0 to 100 slpm (nlpm)
- 840H High Flow
  - 0 to 500 slpm (nlpm)

**Leak integrity**: $1 \times 10^{-9}$ smL/sec of helium

**CE Approved**

**Fluids Measured**
- All clean gases including toxics, corrosives and combustibles

**Accuracy**
- +/- 1.5% of full scale

**Repeatability**
- +/- 0.5% of full scale

**Flow Ranges**
- 810C Nylon
  - 0 to 50 slpm (nlpm)
- 820 Nylon
  - 0 to 50 slpm (nlpm)
- 820S Stainless Steel
  - 0 to 500 slpm (nlpm)
- 826 Aluminum
  - 0 to 175 slpm (nlpm)
- 730 Aluminum or Stainless Steel
  - 0 to 700 slpm (nlpm)

**Programmable Functions**
- 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

### 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
- 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

**Flow Ranges**
- FloBox™
  - 5 sccm to 50 slpm (Across three flow cells)
- FloBox™
  - 0.5 sccm to 100 slpm (Across five flow cells)
- FloBox™
  - 5 sccm to 1500 slpm

### 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

**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 211°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
Find other Sierra Flow Centers of Excellence in Mexico, Brazil, Singapore, and South Korea.