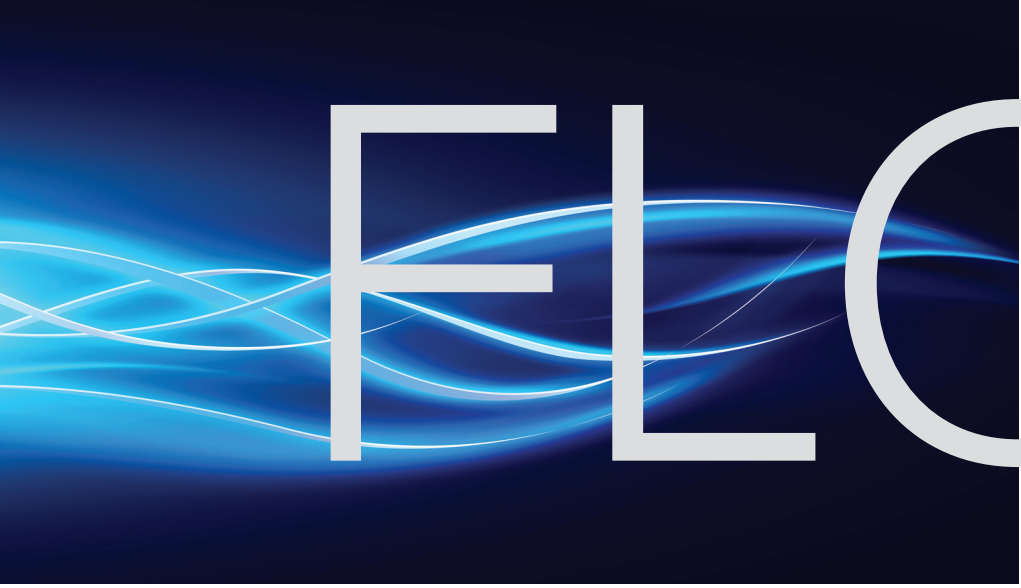




SIERRA®



PRODUCT LINE CATALOG

Flow meter solutions for those who demand precision.

LOW

Industrial Flow Meters



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 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
- * Verified by an independent NIST & NVLAP accredited lab

Repeatability

- +/- 0.15% of full scale

Digital Communications

- HART, Modbus RTU

Approvals

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



BioTrak™

THERMAL MASS / BioTrak

Models

- BioTrak 645i
- BioTrak 645S
- BioTrak 745i
- BioTrak 745S

Description

- Field-Selectable Gases-air, methane, digester gas
- Direct mass flow measurement maintains precise control of aeration, digestion, and cogeneration
- Insertion and inline versions
- AC or DC power input available
- Optional hot top packing gland and retractor

- Integral and remote electronic configurations available
- Microprocessor based, field-programmable electronics
- BioView™ software provides access to meter data / Configure meter settings in field
- BioCal verifies calibration within five minutes

Flow Ranges (100:1 Turndown)

- 15 to 25,000 sfpm (0.07 to 120 nmps)

Accuracy

645i/745i

- Air: ±1% of reading ±0.2% of full scale
- Other gases: ±1.5% of reading ±0.5% full scale

- Accuracy specification applies to customer's selected flow range

645S/745S

- Accuracy: +/-2.0% of full scale

Repeatability

- +/- 0.2% of full scale

Digital Communications

- Hart, Modbus RTU

Approvals

- FM (U.S.) and FMc (CANADA) approved for Class I, Div 1; ATEX/IECEx approved for Zone 1, CE



FlatTrak® / SteelMass®

THERMAL MASS FlatTrak / SteelMass

Models

- SteelMass 640S Insertion probe
- FlatTrak 780S Inline
- FlatTrak 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 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

- Modbus RTU

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 non-condensing clean gases

BoilerTrak 620S-BT

- Flammable gases: methane, propane, natural gas

Approvals

- CE, GOST R, Chinese Pattern

Vortex / Ultrasonic / Flow Switches



InnovaMass®

VORTEX / InnovaMass

Models

- 240S Inline
- 240S-R Reducer
- 241S Insertion

Description

- 5-in-1: Mass & volumetric flow rate, temperature, pressure, density
- Mass & volumetric flow measurement of gas, liquid, and steam
- Loop-powered design simplifies wiring and signal processing
- Insertion probe for pipes/ducts up to 72 in. (2M); Opt. hot tap - no process shutdown
- Thermal energy / BTU measurement
- Field-configurable ranges, alarms, outputs and displays
- Temp. -330°F (-200°C) up to 750°F (400°C)

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

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

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

Note 1: ρ in lb_m/ft^3 Note 2: ρ in kg/m^3

Digital Communications

- HART (with DD), BACnet, RS-485, Modbus RTU, Ethernet available for Modbus and BACnet

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: +/-1.5% of reading (liquids); +/-2.0% of reading (gas & steam)
- Volumetric: +/-1.2% 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
- 210 Portable

Description

- Transit-time ultrasonic
- Clamp-on outside of pipe for easy set up
- Thermal energy/BTU measurement
- 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 (30:1 turndown)

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

Digital Communications

- RS-232, RS-485, USB, Modbus RTU

Accuracy & Repeatability

203 Economical

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

210 Portable

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



InnovaSwitch®

FLOW 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 sfps) in liquids and 0.1 to 500 sfps (0.03 to 152.4 sfps) gases

Repeatability

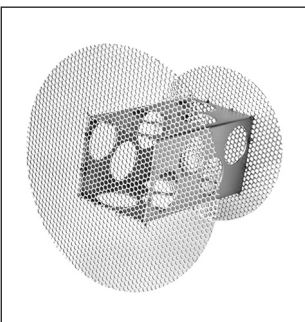
- +/- 1% of set point (Flow) or 1/32" (0.8mm) Level

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°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 (5); 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

- QuadraTherm 640i, 780i (Thermal)
- BioTrak 645i/S, 745i/S (Thermal)
- SteelMass 640S (Thermal)
- FlatTrak 780S (Thermal)
- BoilerTrak 620S (Thermal)
- FastFlo 620S (Thermal)
- InnovaMass 240S, 241S (Vortex)
- InnovaSwitch Flow / Level 615

GAS / Flow Conditioning

- FlowTrak (Dual-Plate Inline)

GAS / MFCs – OEM & Scientific

- SmartTrak 100 (Capillary Thermal)
- SmartTrak 50 (Capillary Thermal)
- TopTrak 820 (Capillary Thermal)
- RedySmart (MEMS-based Thermal)
- RedyCompact (MEMS-based Thermal)
- RedyIndustrial (MEMS-based Thermal)

GAS / Calibration

- CalTrak 800, XL
(Primary standard piston prover)

LIQUID

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

STEAM

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

Scientific Flow Meters



SmartTrak® 100

DIGITAL / SmartTrak 100

Models

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

Description

- Highest performance multi-gas MFC
- Navigate easily with large multi-function display interface
- Free user software
- Primary Standard calibration & NIST traceability
- Make adjustments in the field
- 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

- Modbus RTU

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 200 slpm (nlpm)
- **100H High Flow**
• 0 to 1000 slpm (nlpm)
Contact factory for higher flows



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 5×10^{-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

Scientific Flow Meters



TopTrak®

ECONOMICAL MFM / MFC TopTrak

Models

- 820 Nylon
- 820S Stainless Steel

Description

- Proven flow measurement with affordable OEM pricing
- Choice of nylon or stainless-steel construction
- Save money with volume discounts

- Large, tiltable 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)
- **820S Stainless Steel**
• 0 to 500 slpm (nlpm)



RedySmart™ / Industrial™

DIGITAL / RedySmart / Industrial

Models

- RedySmart meters and controllers
- RedyIndustrial meters and controllers with IP67 & EX protection

Description

- Ultimate OEM solution, make gas mixing blocks
- Direct mass flow rate measurement/control
- Large digital display, free user software
- Micro Electro-Mechanical System (MEMS) technology
- Direct mass flow using thermal CMOS sensor

- Primary standard calibration & NIST traceability
- CE approved
- Buy online, next day shipment
- Lifetime no-drift sensor warranty

Fluids Measured

- Air, N₂, O₂, He, Ar, CO₂, H₂, CH₄, C₃H₈
- Other gases and mixes upon request

Accuracy

- Actual gas calibration over entire range
- RedySmart: +/- 1.0% full scale
- RedyIndustrial: +/- 1.0% full scale

Repeatability

- RedySmart: +/- 0.2% full scale
- RedyIndustrial: +/- 0.2% full scale

Flow, Temp. & Pressure Ranges

- Flow: 0 to 500 slpm (nlpm)
- Temperature: 32 - 122°F (0 - 50°C)
- Pressure: 3 - 160 psia (0.2 - 11 bara)

Additional Features:

- **RedySmart™**
- Modbus RTU included on every instrument
- Precision electromagnetic control valve
- Fast response (80 ms)
- 18 - 30 VDC power



RedyCompact™

DIGITAL / RedyCompact

Models

- RedyCompact meters and regulators

Description

- Ultimate OEM solution, make gas mixing blocks
- Direct mass flow rate measurement/control
- Large digital display, free user software
- Micro Electro-Mechanical System (MEMS) technology
- Direct mass flow using thermal CMOS sensor

- Primary standard calibration & NIST traceability
- CE approved
- Buy online, next day shipment
- Lifetime no-drift sensor warranty

Fluids Measured

- Air, N₂, O₂, He, Ar, CO₂, H₂, CH₄, C₃H₈
- Other gases and mixes upon request

Accuracy

- Actual gas calibration over entire range
- RedyCompact: +/- 2.0% full scale

Repeatability

- RedyCompact: +/- 0.5% full scale

Flow, Temp. & Pressure Ranges

- Flow: 0 to 500 slpm (nlpm)
- Temperature: 32 - 122°F (0 - 50°C)
- Pressure: 3 - 160 psia (0.2 - 11 bara)

Additional Features:

- Compact footprint
- Designed to replace VA meters
- Battery operated
- Large touch screen with rotational adjustment
- Precision needle valve to regulate flow



CalTrak®

GAS FLOW CALIBRATORS CalTrak

Models

- 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

- **800 Premium**
• 0.5 sccm to 100 slpm (Across five flow cells)
- **XL High Flow**
• 5 slpm to 1500 slpm

GLOBAL LOCATIONS



California / USA

The Netherlands

India

China

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



SIERRA[®]
Measurably Different.[™]

sierrainstruments.com

NORTH AMERICA

5 Harris Court, Building L / Monterey, CA 93940 / USA
1.831.373.0200

EMEA

Bijlansweid2 / 1934RE Egmond aan den Hoef / The Netherlands
+31 72 5071400 / fx +31 72 5071401

ASIA - PACIFIC

Second Floor Building 5 / Senpu Industrial Park
25 Hangdu Road Hangtoun Town / Pu Dong New District
Shanghai, P.R. China Post Code 201316
+8621 5879 8521/22 / fx +8621 5879 8586

