PRODUCT LINE CATALOG

Flow meter solutions for those who demand precision.

SIERRA®

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

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

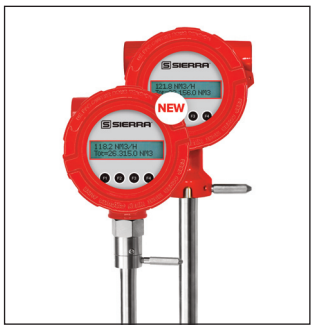
640i Insertion
- +/- 0.75% of reading above 50% of full scale

* 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



TM100™ / TM500™

THERMAL MASS TM100 / TM500

Models
- TM100
- TM500

Description
- Direct measurement of gas mass flow / No volume to mass calculations
- DigiSense™ robust sensor design
- AC or DC power (TM500)
- Use optional Gas-Mix™ feature to easily change gas selection or create gas mixes in the field - no recal required
- Insertion and Inline versions
- Integral and remote electronic configurations available
- Microprocessor based, field-programmable electronic
- TM-Cal: In-situ, operator-initiated calibration validation
- Turndown: up to 1000:1; 100:1 typical

Flow Ranges
TM100: 15 to 25,000 SFPM (0.07 to 120 NMPS)
TM500: 15 to 45,000 SFPM (0.07 to 212 NMPS)

Accuracy
TM100
- +/- 1.0% of reading +/- 0.2% of full scale Air, Nitrogen
- +/- 1.5% of reading +/- 0.5% full scale All other gases

Accuracy
TM500
- +/- 1.0% of reading +/- 0.2% of full scale Air, Nitrogen
- +/- 1.5% of reading +/- 0.5% full scale All other gases

Repeatability
- +/- 0.2% of full scale

Digital Communications
TM100
- HART with pulse output or Modbus RTU (RS485), BACnet MS/TP (RS485)

TM500
- HART or Modbus RTU (RS485)

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: +/- 1.0% 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 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

Thermal / Vortex / Ultrasonic

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

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

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
  $\sqrt{\frac{25}{\rho}}$ ft/s (see note 1) $\sqrt{\frac{37}{\rho}}$ 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 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°C)

GAS / Industrial
- QuadraTherm 640i, 780i (Thermal)
- BioTrak 645i / S, 745i / S (Thermal)
- TM100 & TM500 (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)

SELECT BY APPLICATION

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 x 10^{-9} smL/sec of helium
- CE Approved

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 controler
- 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 x 10^{9} smL/sec of helium
- CE Approved

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

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)

Scientific Flow Meters

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
- Lifetime no-drift sensor warranty

Fluids Measured
- Air, N_2, O_2, He, Ar, CO_2, H_2, CH_4, C_3H_8
- 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
- Lifetime no-drift sensor warranty

Fluids Measured
- Air, N_2, O_2, He, Ar, CO_2, H_2, CH_4, C_3H_8
- 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

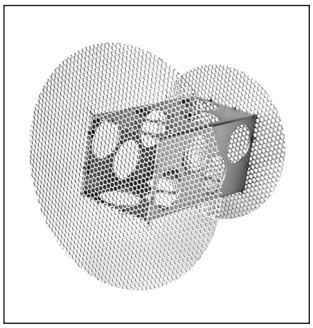
Description
- Quick, easy to use, automatic data capture using free software
- Portable and battery operated
- Results directly traceable to NIST
- Highest accuracy primary standard for labs & industry (compare at ± 0.15% of reading)
- Innovative – 100:1 turndown ratio
- Proven dimensionally-based primary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



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)

GLOBAL LOCATIONS


California / USA


The Netherlands


India


China

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

SIERRA®

Measurably Different.™

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ISO REGISTERED 9001

V5.4/20