



"SAGE PRIME™" INDUSTRIAL & ENVIRONMENT THERMAL MASS FLOW METER

"SAGE PRIME™" HIGH PERFORMANCE, COST EFFECTIVE THERMAL MASS FLOW METER FOR GASES

Sage Prime is the latest addition to our family of high performance Thermal Mass Flow Meters. It features a bright new graphical display of Flow Rate, Total and Temperature, robust Industrial enclosure, and easy to access power and output terminals. Sage Prime has a new dual-compartment windowed enclosure featuring a very high contrast photo-emissive OLED display. The rear compartment, which is separated from the electronics, has large, easy-access and well marked terminals, for ease of customer wiring. It is powered by 24 VDC (12 VDC optional, or 115/230 VAC). The power dissipation is under 2.5 watts (e.g. under 100 ma at 24 VDC).

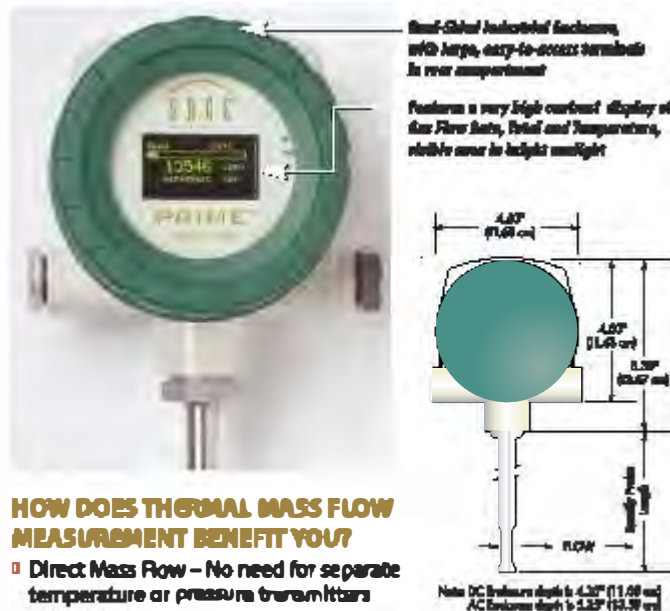
The Sage Prime Flow Meter is offered in the Integral Style (standard) or Remote Style (with lead length compensation up to 1000 feet) with explosion proof Junction Box with your choice of Probe or Flow Body depending on your pipe size. It has a 4-20 ma output as well as a Pulsed Output of Totalized Flow (solid state [sourcing] transistor drive). In addition, Sage Prime supports full Modbus® compliant RS485 RTU communications (IEEE 32.8Kt Floating Point).

THERMAL MASS FLOW METERS

Sage Metering is your source for monitoring, measuring and controlling the gas mass flow in your industrial process or environmental application. Our high performance, NIST Traceable, thermal mass flow meters will help increase productivity, reduce energy costs, maximize product yields, and/or help reduce environmental insult. With over 120 years of combined experience in delivering quality in-line and insertion thermal mass flow meters for a wide variety of industrial and environmental monitoring needs, the Sage Metering management team is dedicated to providing you with the performance and customer support that you deserve.

Sage Thermal Mass Flow Meters are designed for high performance mass flow measurement of flow rate and consumption of gases such as natural gas, air, oxygen, digester gas, landfill gas, biogas and other gases and gas mixes.

Sage Metering has distinguished itself by offering a higher standard – our mass flow meter output is unaffected by even large process temperature variations, and our digital electronics is impervious to external analog noise. Fast response, high resolution, and ultra sensitivity are features that are at the heart of every Sage Thermal Mass Flow Meter. See Sage Metering product brochure (Rev. 0808) for additional information and product benefit, or contact us at 866-677-7243 for application assistance.



HOW DOES THERMAL MASS FLOW MEASUREMENT BENEFIT YOU?

- Direct Mass Flow – No need for separate temperature or pressure transmitters
- High Accuracy and Repeatability – Precision measurement and optimal control of your process
- Turndown of up to 100 to 1 and resolution as much as 1000 to 1
- Low-End Sensitivity – Detects leaks, and measures as low as 5 SFCM
- Negligible Pressure Drop – Will not impede the flow nor waste energy
- No Moving Parts – Eliminates costly bearing replacements, and prevents undetected accuracy shifts
- Dirt Insensitive – Provides sustained performance
- Low cost of ownership

WHAT ARE THE BENEFITS THAT SAGE PRIME THERMAL MASS FLOW METERS OFFER YOU?

- Powerful state-of-the-art microprocessor technology designed for high performance mass flow measurement, at a low cost-of-ownership
- Rugged, user-friendly packaging with easy terminal access
- Proprietary digital sensor drive circuit provides enhanced signal stability and is unaffected by process temperature and pressure changes
- Low power dissipation, under 2.5 Watts (e.g. under 100 ma at 24 VDC)
- High contrast photo-emissive OLED display with numerical Flow Rate, Total and Temperature, as well as Graphical Flow Indicator
- Displays calibration milliwatts (mw) for ongoing diagnostics
- Remote Style has Lead-Length Compensation. Remote electronics up to 1000 ft from probe, and the Junction Box has no electronics
- Modbus® compliant RS485 RTU communications (IEEE 754)
- Ease of installation, and convenient mounting hardware
- Flow conditioning built in to in-line flow meters (1/2" and up)
- Option for Solar Energy use (12VDC Models)



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Rev. 11-0008

SAGE PRIME™ MASS FLOW METER SPECIFICATIONS

Sage Prime™ is a thermal dispersion type of Flow Meter, utilizing the constant temperature difference method of measuring Gas Mass Flow Rate. It contains two reference grade platinum RTD sensors clad in a protective 316 SS sheath. It features direct Mass Flow for gases, wide rangeability, low pressure drop, very low end sensitivity, and no moving parts.

The Prime is microprocessor based, does not have any potentiometers, and has Modbus® RS485 RTU communications. It is powered by 24 VDC (12 VDC optional, or 115/230 VAC). The power dissipation is under 2.5 watts (e.g. under 100 mW at 24 VDC for the DC version). The power and output terminals are in a separate compartment for ease of installation. Sage Prime is CE approved¹.

The enclosure has a dual compartment for ease of wiring. The display is a high contrast photoluminescent OLED display, and it displays Mass Flow Rate, Totalized Flow and Temperature as well as a graphical representation of Flow Rate in a horizontal bar graph format. In addition, the calibration milliwatts (mW) is continuously displayed, providing ongoing diagnostics. Outputs include a 4-20 mA signal proportional to Mass Flow Rate and Pulsed Outputs of Totalized Flow (24VDC solid state [sourcing] transistor drive), as well as Modbus® compliant RS485 RTU communications (IEEE 32 Bit Floating Point).

The Flow Element (Integral and Remote, Insertion Style) consists of a 1/2" OD probe (3/4" optional) with lengths up to 36" long (typically 15"

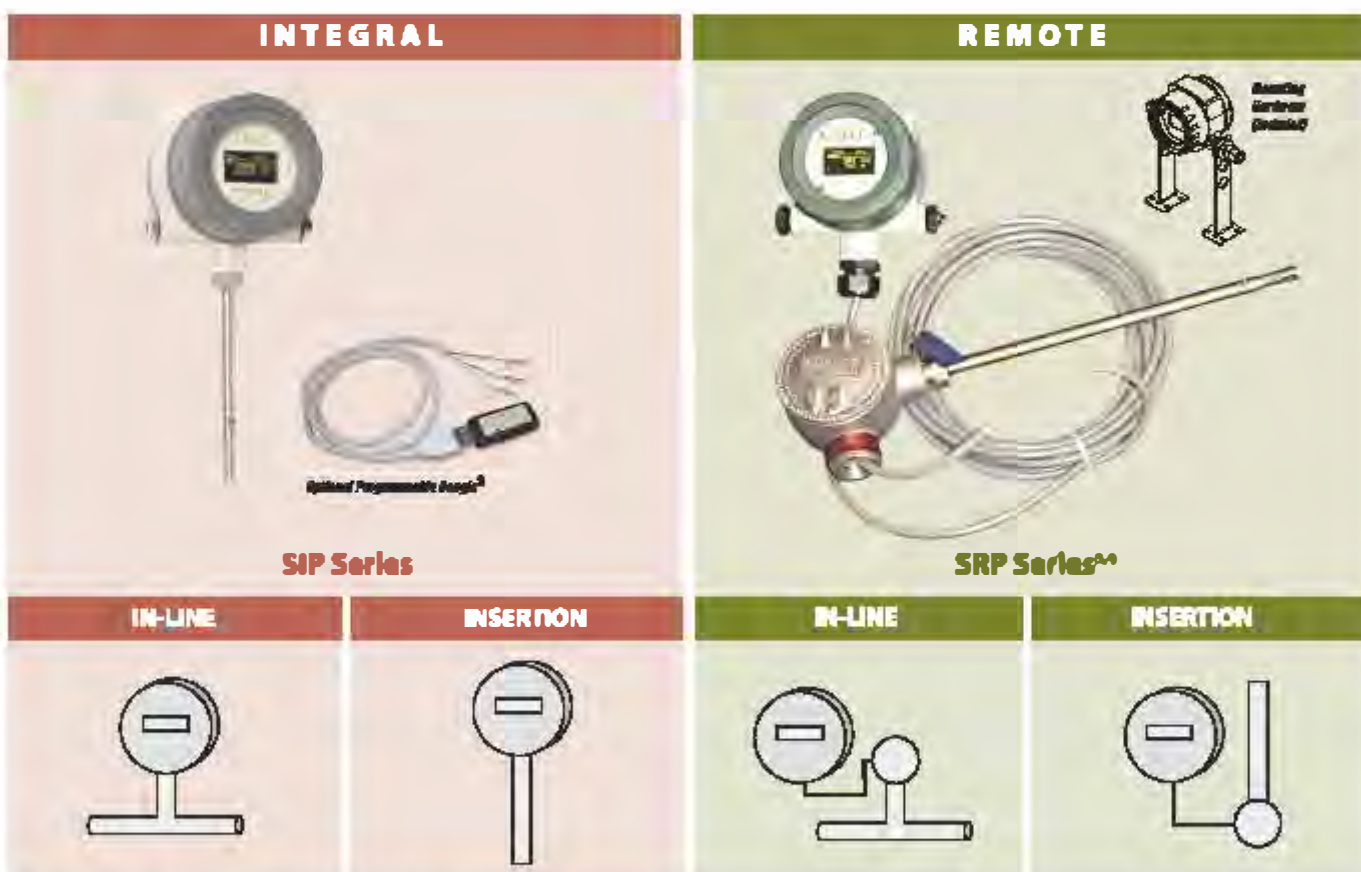
long) suitable for insertion into the center of pipes from 1-1/2" to 24". Mounting hardware choices (such as Isolation Valve Assemblies, Compression Fittings and Flange Mounts) are optionally available.

The Flow Element (Integral and Remote, In-line Style) consists of a choice of 316 Stainless Steel Schedule 40 Flow Bodies sized from 1/4" x 6" long to 4" x 12" long. Male NPT ends are standard, with Flanged end, tube, or butt weld optionally available. Note 3" and 4" Flow Bodies have flanged ends as standard.

Calibration is NIST traceable, and covers a wide variety of gas calibrations. Sage Prime™ can measure gas flow up to 450°F (-40°F to 200°F standard, up to 450°F optional on Remote, Insertion Styles) at pressures up to 500 PSIG (1000 PSIG, optional).

Calibration Self Check Flow Meter has built in diagnostics—a display of the calibration milliwatts (mW) can be used to check the sensor's operation by being compared to the original reported "zero flow" value noted on last few lines of meter's Certificate of Conformance.

Accuracy is $\pm 0.5\%$ of Full Scale $\pm 1\%$ of reading with a turn-down of 100 to 1 and resolution as much as 1000 to 1. Higher accuracy available with lower turn-down (contact Sage). Repeatability of 0.2%. The Flow Meter is Sage Metering, Inc. SIP Series (Integral Style) or SRP (Remote Style), with the trade name Sage Prime™.



¹ Sage Prime™ is now CE Certified (see www.sagemetering.com/Products/Product Approvals, Contact Sage for other approvals)

² Sage Prime™ Field Programmable (patent pending) "Droptail" for field modifications or resetting of integrator now available (contact Sage for details)

³ Remote Mounting Brackets Included (see drawing here).

⁴ On the Remote Style, the Flow Element's Junction Box is Explosion Proof (Class I, Div 1, Groups C, D), and does not have any electronics—only a wiring terminal block. The Flow Element will be connected to the Electronics Enclosure by 25 feet of heat-shrink compensated cable. The cable (6-conductor) can be lengthened or shortened without affecting accuracy (max loop resistance 70 ohms over 1000 feet).