



## SAGE CLEAR THERMAL MASS FLOW METER FOR GASES PACKED WITH FEATURES – YET AFFORDABLE

### SAGE CLEAR THERMAL MASS FLOW METER FOR GASES

The Sage Clear is an economical Thermal Mass Flow Meter featuring a bright, high contrast, photo-emissive OLED display of Flow Rate, Total and Temperature in a lightweight NEMA 4 indoor/outdoor enclosure. The Flow Rate is also displayed graphically in a horizontal bar graph format. The meter has large, easy-to-access, well marked terminals, for ease of customer wiring. It is powered by 24 VDC (or optionally 115/230 VAC) and includes a built-in power switch. The power dissipation is under 2.5 watts (e.g. under 100 mA at 24 VDC).

The Sage Clear Flow Meter is offered in Integral or Remote Style. The Remote Style has lead-length compensation up to 1000 feet with a NEMA 4 indoor/outdoor Junction Box (has no electronics, just terminals). Specify any standard probe length or flow body size. It has a 4-20 mA output as well as a pulsed output of Totalized Flow (solid state transistor drive). Modbus® compliant RS485 RTU communications are optional.

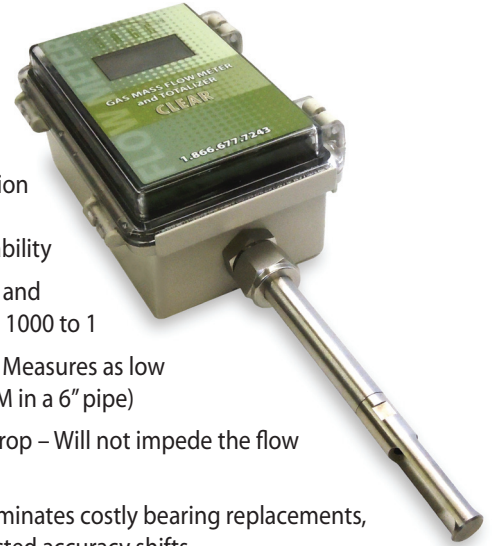
### CONTINUOUS DIAGNOSTICS & FIELD CONFIGURABILITY

Sage Clear has continuous diagnostics. The raw calibration milliwatts (mw) is always displayed in the upper left hand corner of the meter's display. At any time, you can check this reading at a "No Flow" (0 SCFM) condition, and compare the reading to the original reported "No Flow" value noted on the last few lines of the meter's Certificate of Conformance or the Flow Meter's data tag. This In-Situ diagnostic procedure not only checks the sensor performance and the "Live Zero" calibration point, but it also verifies that the sensor is clean. It essentially provides a means to validate that the meter is operating properly, verifies that there is no shift or drift, and eliminates the need for annual factory calibrations. This simple field diagnostic procedure, in addition, verifies that the sensor is free from contamination, even without inspection.

Although Sage Clear is fully configured upon shipment for the pipe and process conditions requested, if field reconfigurability is required, specify the CLEARCOM option as well as the Addresser software.

### MAJOR BENEFITS OF THERMAL MASS FLOW METERS

- Direct Mass Flow – No need for separate temperature or pressure transmitters
- High Accuracy and Repeatability – Precision measurement and extraordinary repeatability
- Turndown of 100 to 1 and resolution as much as 1000 to 1
- Low-End Sensitivity – Measures as low as 5 SFPM (e.g., 1 SCFM in a 6" pipe)
- Negligible Pressure Drop – Will not impede the flow or waste energy
- No Moving Parts – Eliminates costly bearing replacements, and prevents undetected accuracy shifts
- Dirt Insensitive – Provides sustained performance
- Low cost-of-ownership
- Ease of installation and convenient mounting hardware



### SPECIFIC BENEFITS OF THE SAGE CLEAR

- Economical packaging
- High contrast photo-emissive OLED display with numerical Flow Rate, Total and Temperature, as well as Graphical Flow Indicator
- Calibration milliwatts (mw) is continuously displayed, providing for ongoing diagnostics, and In-Situ calibration check
- Photocell activated Screen Saver to extend display life
- Proprietary digital sensor drive circuit provides enhanced signal stability and is unaffected by process temperature & pressure changes
- Powerful state-of-the-art microprocessor technology for high performance mass flow measurement and low cost-of-ownership
- Remote Style has Lead-Length Compensation. Allows remote electronics up to 1000 feet from probe; Junction Box has no circuitry, just terminals (suitable for adverse environments)
- Low power dissipation, under 2.5 Watts (e.g., under 100 mA at 24 VDC)
- Field reconfigurability via optional CLEARCOM and Addresser software
- Modbus® compliant RS485 RTU communications (optional)
- Captive Flow Conditioners for Insertion meter applications, if required

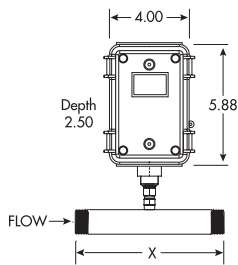
# SAGE CLEAR STYLES AND SPECIFICATIONS

Sage Metering is your source for monitoring, measuring and controlling the gas mass flow in your manufacturing process, building management system 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. Sage provides high quality In-Line and Insertion Thermal Mass Flow Meters for a wide variety of industrial, commercial, and environmental monitoring needs, including carbon credit verification for Greenhouse Gas reduction.

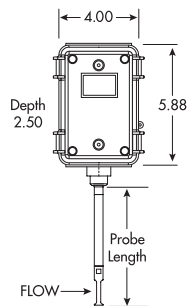
Our experienced application engineers, many of whom have worked in the Thermal Mass Flow marketplace since its inception, will assist you in choosing the proper gas Flow Meter for your application – and they will be pleased to offer installation guidance to assure that the meter(s) selected will perform as accurately as possible. Additionally, our Service Staff stand ready to support you with any after-sale assistance that you may require.

## SIA SERIES – INTEGRAL

### IN-LINE STYLE



### INSERTION STYLE



#### STYLE

Integral In-Line Mass Flow Meter

#### SENSOR

Two reference grade Platinum RTD clad in 316SS sheath

#### MATERIAL

Wetted metal components: 316SS

#### ELECTRONICS ENCLOSURE

Integral Mount, NEMA 4 indoor/outdoor enclosure

#### FLOW BODY

316 SS Schedule 40 Flow Bodies sized from 1/4" to 6" long to 4" x 12" long. Male NPT ends standard (Flanges and other options available)

#### FLOW CONDITIONING

Flow Conditioners are built in to In-Line Style Flow Bodies from 1/2" to 4"

#### STYLE

Integral Insertion Mass Flow Meter

#### SENSOR

Two reference grade Platinum RTD clad in 316SS sheath

#### MATERIAL

Wetted metal components: 316SS

#### ELECTRONICS ENCLOSURE

Integral Mount, NEMA 4 indoor/outdoor enclosure

#### PROBE STYLE/LENGTH

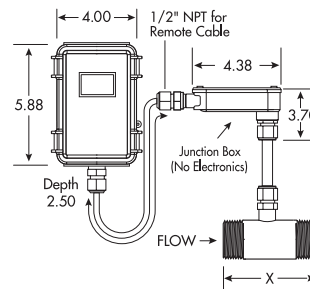
1/2" OD Probe, Lengths 6" to 24"

#### FLOW CONDITIONING

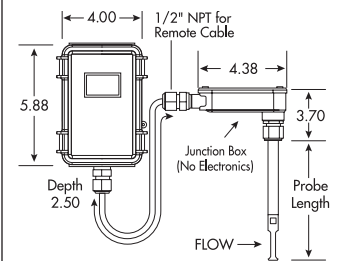
Captive Flow Conditioners available upon request with meter purchase

## SRA SERIES – REMOTE

### IN-LINE STYLE



### INSERTION STYLE



#### STYLE

Remote In-Line Mass Flow Meter

#### SENSOR

Two reference grade Platinum RTD clad in 316SS sheath

#### MATERIAL

Wetted metal components: 316SS

#### PROBE ENCLOSURE

Junction Box is NEMA 4 indoor/outdoor enclosure (no electronics, just terminals)

#### TRANSMITTER ENCLOSURE

Remote mount, NEMA 4 indoor/outdoor enclosure

#### FLOW BODY

316 SS Schedule 40 Flow Bodies sized from 1/4" to 6" long to 4" x 12" long. Male NPT ends standard (Flanges and other options available)

#### CABLE LENGTH

25' Standard (max length 1000')

#### FLOW CONDITIONING

Flow Conditioners are built in to In-Line Style Flow Bodies from 1/2" to 4"

#### STYLE

Remote Insertion Mass Flow Meter

#### SENSOR

Two reference grade Platinum RTD clad in 316SS sheath

#### MATERIAL

Wetted metal components: 316SS

#### PROBE ENCLOSURE

Junction Box is NEMA 4 indoor/outdoor enclosure (no electronics, just terminals)

#### TRANSMITTER ENCLOSURE

Remote mount, NEMA 4 indoor/outdoor enclosure

#### PROBE STYLE/LENGTH

1/2" OD Probe, Lengths 6" to 24"

#### CABLE LENGTH

25' Standard (max length 1000')

#### FLOW CONDITIONING

Captive Flow Conditioners available upon request with meter purchase

## SPECIFICATIONS

#### POWER

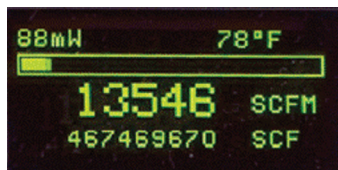
24VDC Standard (115/230VAC optional)

#### POWER DISSIPATION

Less than 2.5 w

#### DISPLAY

High contrast photo-emissive graphical display (Flow Rate, Totalizer, Temperature)



CLOSE-UP OF SAGE CLEAR DISPLAY

#### ELECTRONICS

Microprocessor based

#### TURNDOWN

100 to 1 turndown

#### RESOLUTION

1000 to 1 resolution

#### LOW END SENSITIVITY

5 SFPM

#### FIELD CALIBRATION CHECK

Yes – Digital system allows raw signal validation (milli-watts)

#### COMMUNICATIONS

Optional Modbus® communications

#### FLOW ACCURACY

± 0.5% of Full Scale ± 1% of reading

#### FLOW REPEATABILITY

0.2% repeatability

#### RESPONSE TIME

1 second

#### GAS TEMPERATURE RANGE

–40° TO 200° F Std. (if higher temperature needed, contact Sage)

#### GAS PRESSURE

500 PSIG (if higher pressure needed, contact Sage)

#### FLOW OUTPUT

4 to 20 mA for Rate; 24VDC pulse for Totalized value

#### TEMPERATURE OUTPUT

Not applicable

#### RELAYS

Not applicable

#### OPTIONS\*

Field Reconfigurability:

Specify CLEARCOM;

Full Modbus capability:

Specify MODBUS

\*Addresser Software required



See Sage Metering Product Brochure for additional information and product benefits, or visit us at [www.sagemetering.com](http://www.sagemetering.com)