

# Thermo Scientific Sarasota SG901

## Specific Gravity Analyzers

The advanced Thermo Scientific™ Sarasota SG901 specific gravity analyzer reliably measures gas specific gravity/relative density (SG) or molecular weight (MW) of wet or dry gas. Redesigned to house all electronics within the stainless steel enclosure, this advanced analyzer offers rapid response to ensure process optimization and environmental compliance.



### Features

- Accurate to 0.2% reading above 0.5 SG at reference conditions
- User selectable reference conditions
- Integral sample conditioning
- Options to suit dry or wet gas applications
- Hazardous area use
- Rugged construction for harsh environments
- No on-site calibration required

### Applications

- Gas blending control
- Standard volume flow control
- Refinery fuel gas monitoring (CV estimate)
- Oven/furnace gas monitoring (CV estimate)
- Flare control systems (MW monitoring)

Gas specific gravity (SG) measurement applications such as fuel gas monitoring and energy determination require continuous, high accuracy measurements to ensure maximum efficiency and minimum waste. Fast response is critical to ensure effective burner, furnace or flare gas monitoring and control.

The Thermo Scientific Sarasota SG901 specific gravity analyzer is recommended in applications where specific gravity (SG) or molecular weight (MW) can be used to infer density elsewhere in the plant, and where the gas is dirty or wet and requires filtering prior to the measurement.

The Sarasota SG901 is available in three standard configurations to suit the application—the basic system, a dry gas system, and a wet gas system. Specific configuration requirements may also be accommodated within the systems if needed.



Housed in a stainless steel enclosure, the basic Sarasota SG901 system comprises a Thermo Scientific Sarasota FD900 gas density assembly, temperature element, and flow control valve. All components are binterconnected by 6.35 mm (0.25") stainless steel tubing. The basic system is ideal for applications where the analyzer is used in conjunction with an existing gas conditioning system that provides a clean, dry sample at a pressure below 4 bar A (58 psia).

In applications where the gas is always above its dew point at ambient conditions, but the sample is not filtered and the pressure not controlled, a specific 'dry gas' configuration is available. This is similar to the basic system, but with an inlet pressure regulator, particulate filter, safety vent, calibration point, sample flowmeter, flow control needle valve, and isolation valves.

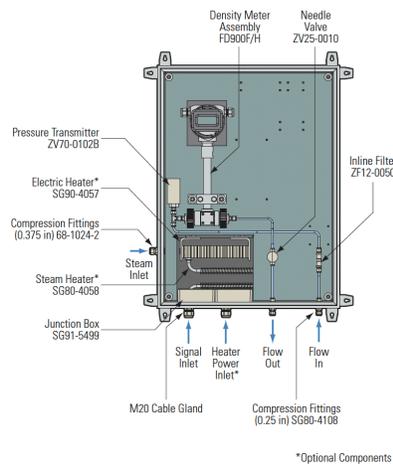
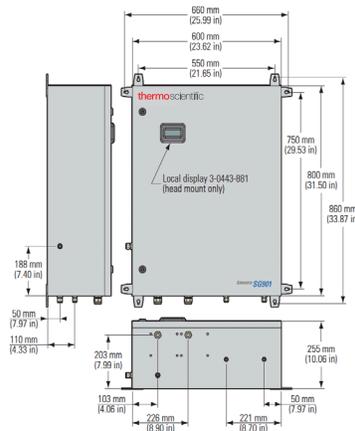
Gas streams with a possibility of significant moisture content that may drop below their dew point for very short periods require the 'wet gas' system. Based on the 'dry gas' system, the 'wet gas' system includes a coalescing filter and auto drain.

To maintain the measurement system above the gas dew points and to give additional repeatability, an optional steam or electric heater may be mounted within the enclosure.

Signal outputs from the transducers may be fed to a Thermo Scientific™ Sarasota CM515 control room mounted density converter.

Alternatively, the Thermo Scientific™ Sarasota HME900 field-mounted density converter option provides a direct HART® compatible output.

Designed for harsh environments, the Sarasota SG901 requires minimal maintenance. Regular maintenance should be scheduled based on the operating conditions to ensure maximum uptime.



## Ordering information

### Sarasota SG901 Gravity Analyzer

#### MODEL NUMBER

**SG901F** = Thermo Scientific Sarasota SG901 Specific Gravity Analyzer (basic frequency output unit; no local display)

**SG901H** = Thermo Scientific Sarasota SG901 Specific Gravity Analyzer with Smart Headmounted Electronics (includes local display)

#### A. SYSTEM TYPE

B = Basic system

D = Dry gas—adds inlet sample pressure regulator, dry particulate filter, flow indicator, flow control valve, system isolation valves and manual valve for calibration/validation gases (Note: gas must be above its dew point)

W = Wet gas—adds coalescing filter with auto-drain (Note: used to remove occasional moisture contamination)

#### B. SPOOL MATERIAL

Z = Ni-Span C®

Y = FV-520B

#### C. CERTIFICATION

C = CSA, Class 1, Div 1, Groups B, C & D

I = ATEX Intrinsically Safe

#### D. OPTION

E = Explosion-proof electric heater—Exdp Zone 1 IIC T3 (CSA, Class 1, Div I, Groups B, C & D); specify heater voltage 110 VAC / 50-60 HZ or 220 VAC / 50-60 HZ

S = Steam heater (customer to provide dry steam)

N = NACE conformance—all wetted parts suitable for use in sour gas service (NACE specification MR-01-75)

T = Traceable calibration certificate

M = Wetted parts traceability certification to DIN 50049 3.1B

S = Special documentation package including quality plan, ISO9001 certification and quality assurance manual

**Your Order Code: SG901\_\_ -**

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NOTE: Consult with your Thermo Fisher Scientific representative for details of maintenance contracts and additional services including installation, commissioning, re-calibration, service and repair.

## Thermo Scientific™ CM515 Density Converter for SG901 Frequency Version

The Thermo Scientific CM515 density converter provides high integrity calculations of density and density related variables for the SG901 frequency version. The unit derives density at reference conditions and calculates density derived parameters, including process line density, referred density, specific gravity, process gravity and molecular weight. The front panel program selection makes the CM515 compatible with a wide range of density meter pulse outputs, including millivolt signals, reed switches, Namur proximity switches and pulse trains.

To ensure ease-of-use, the front panel displays the current values of the input variables along with the calculations. The backlit LCD display offers a wide viewing angle that ensures clear visibility in the field or control room. Parameters and calibration data can be monitored using either the RS232 or RS485 interface option for an optimal processing solution.



## Thermo Scientific™ Sarasota SG901 Gravity Analyzer

### Functional specifications

Range	0-2 SG; for any other range, consult Thermo Fisher factory calibrated 0-10 kg/m <sup>3</sup>
Accuracy	±0.2% reading above 0.5 SG at reference conditions
Repeatability	±0.02% span
Flow range	Ideally 4 l/min to 20 l/min (0.14 ft <sup>3</sup> /min to 0.7 ft <sup>3</sup> /min)
Temperature coefficient (corrected)	0.01%/°C (0.006%/°F)
Operating temperature	Standard: -20°C to +55°C (-4°F to +131°F) or as limited by gas dew point; for other temperature ranges, consult Thermo Fisher
Sample inlet pressure	Basic system: standard 4 bar A (58 psia); for others to a maximum 20 bar (290 psi) consult Thermo Fisher Dry or wet gas system: 200 bar (2900 psi) maximum
Exhaust pressure	Must be less than 4 bar A (58 psia), and less than the regulated inlet pressure by 0.4 bar A (5.8 psia)
Environmental rating	IP65 (NEMA 4X)

### Physical specifications

Spool materials	Ni-Span C or FV520B
Tubes and fittings materials	Stainless steel (316L /1.4404)
System enclosure materials	Stainless steel
Electronics enclosure materials	Copper free aluminum grey epoxy finish; Plate glass window for headmounted electronics local display option
Temperature measurement	High accuracy 1/3 DIN 4 wire PT100 (RTD)
Dimensions	See dimensional diagrams
Net weight	Up to 60 kg (132 lb) depending on system
Shipping weight	Up to 94 kg (207 lb) depending on system
Shipping dimensions	940 mm × 940 mm × 270 mm (approx 37" × 37" × 27")
Installation configuration	6.35 mm (0.25") tubing compression fitting
Electrical connections	Instruments, IS screw terminals in FD900 terminal box (F & H versions); Heater, screw terminals in ExD enclosure
Power supply	F option: frequency output Density transmitter: 16-28 VDC 10 mA average (peak 18 mA); Pressure transmitter: 9-30 VDC 20 mA H option: headmounted electronics 3 × 13-28 VDC 25 mA
Outputs	F option: frequency output Frequency related to density on 2 wire current modulated loop 6 mA to 18 mA; 4 wire PT100; 4-20 mA pressure H option: headmounted electronics Analog 4-20 mA related to SG, density, or density derived variable; HART protocol

### Compliance/certification

Quality assurance	ISO 9001:2000
CE mark	Compliant
Electromagnetic compatibility (EN 61326:1997)	Compliant
Pressure equipment directive (97/23/EC)	SEP (sound engineering practice)
Safe area use	Optional traceable calibration equipment listing available
BS EN ISO 15156/ NACE MR0175 Conformance	Available as option
ATEX Conformance: T6 Intrinsically Safe (94/9/EC)	Sarasota FD900/F option (frequency output): EEx ia IIC T6 Sarasota FD900/H option (headmounted electronics): EEx ia IIC T4 Pressure transmitter: EEx ia IIC T4 Heater: EExdp IIC T3
Canadian Standards Association (CSA)	Class I, Div 1, Groups B, C & D
Calibration certification	Calibration traceable to national standards. Calibration certificates supplied as standard. Optional traceable calibration equipment listing available.
Materials traceability	Wetted parts traceable to BS EN 10204.3.1.b; Certification available

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