Thermo Scientific Sarasota SG901
Specific Gravity Analyzers

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 interconnected by 6.35 mm (0.25 in) 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).

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)
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.
**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.
Specifications

Thermo Scientific Sarasota SG901

Functional Specifications

Range 0-2 SG; for any other range, consult Thermo Fisher
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 ft³/min to 0.7 ft³/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 x 940 mm x 270 mm (approx 37 in x 37 in x 27 in)
Installation Configuration 6.35 mm (0.25 in) 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: 18-28 VDC 10 mA average (peak 18 mA); Pressure transmitter: 9-30 VDC 20 mA
H option: headmounted electronics
Frequency related to density on 2 wire current modulated loop 6 mA to 18 mA; 4 wire PT100; 4-20 mA pressure
Outputs F option: frequency output
H option: headmounted electronics
Analog 4-20 mA related to SG, density, or density derived variable; HART protocol

Compliance/Certification (pending)

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 As standard
BS EN ISO 15156 / NACE MR0175 Conformance Available as option
ATEX Conformance: 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 IIIC T3
Canadian Standards Association (CSA) Class I, Div 1, Groups B, C & D
Calibration Certification Calibrated 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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