

Sarasota SG900 Specific Gravity Analyzer

The Sarasota SG900 specific gravity analyzer is designed for the high accuracy measurement of gas specific gravity/relative density (SG) or molecular weight (MW). Used in wet or dry gas applications, the Sarasota SG900 has a key role in energy determination, blending control, standard volume (mass) flow calculation and fuel gas monitoring to ensure process optimization and environmental compliance within the oil and gas, petrochemical, chemical, and power industries.



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 wastage. Fast response is critical to ensure effective burner, furnace or flare gas monitoring and control.

Thermo Electron Corporation's Sarasota SG900 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 SG900 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 weatherproof enclosure, the basic Sarasota SG900 system comprises a Sarasota FD792 gas density assembly, temperature element, and flow control valve. All components are interconnected by 6 mm (0.24 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 psi A).

In applications where the gas is always above its dew point, 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 require the 'wet gas' system which is based on the dry gas system but with the addition of a coalescing filter and auto drain.

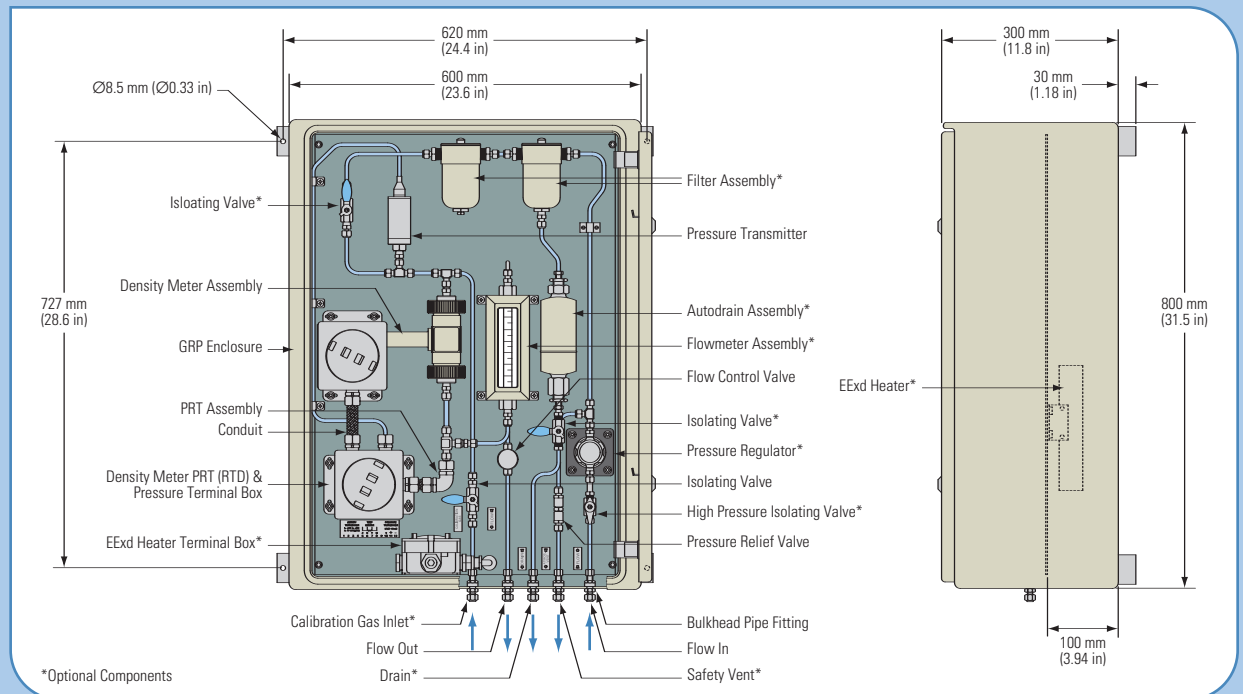
To maintain the measurement system above the gas dew point and to give additional repeatability, an optional steam or electric heater may be mounted within the enclosure.

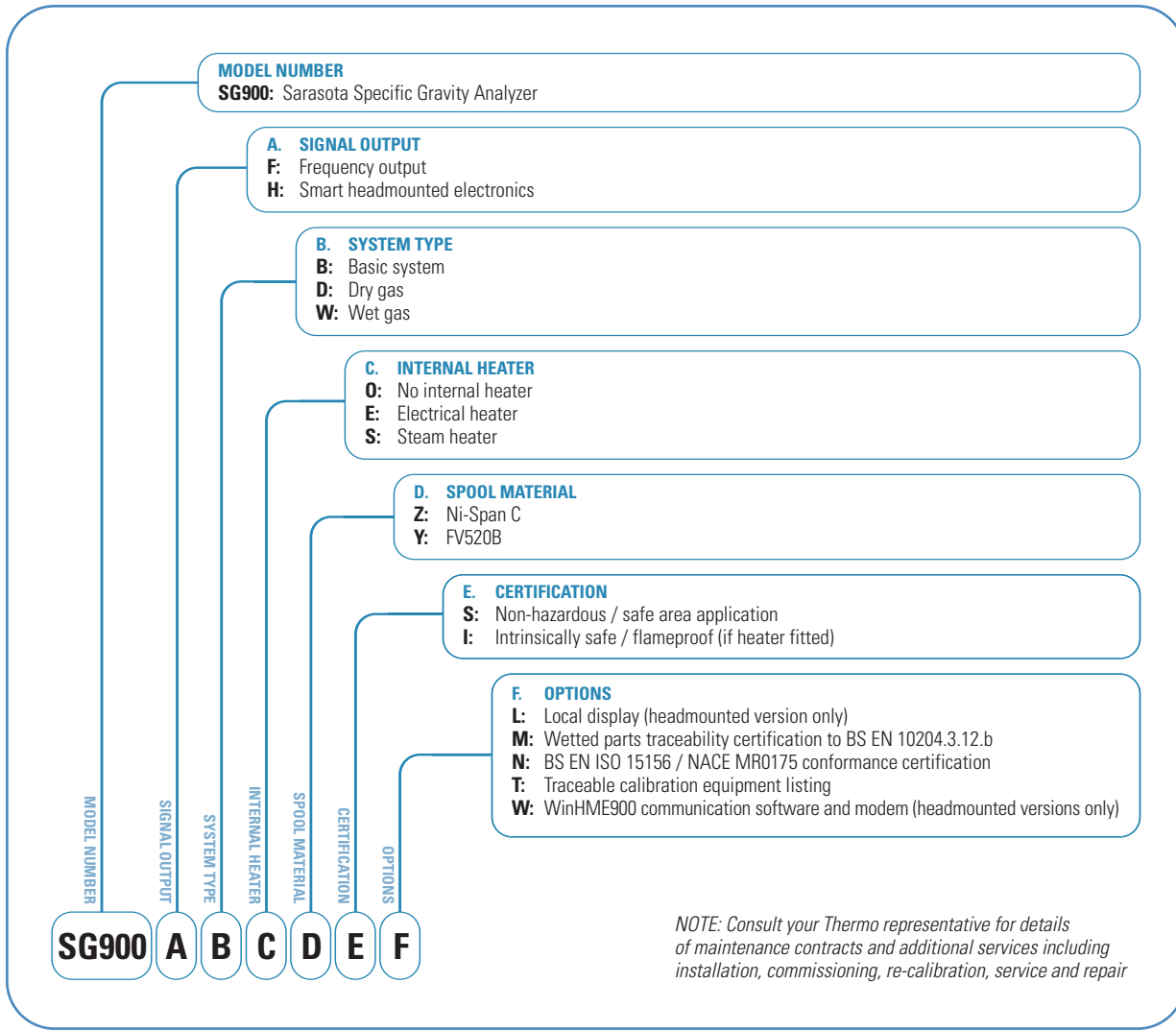
Signal outputs from the transducers may be fed to a Sarasota CM200 control room mounted density converter. Alternatively, the Sarasota HME900 field mounted density converter option provides a direct HART® compatible output.

Designed for use within harsh environments, the Sarasota SG900 requires minimal maintenance. Whilst regular checks on component parts are recommended, the frequency of maintenance depends upon the operating conditions.

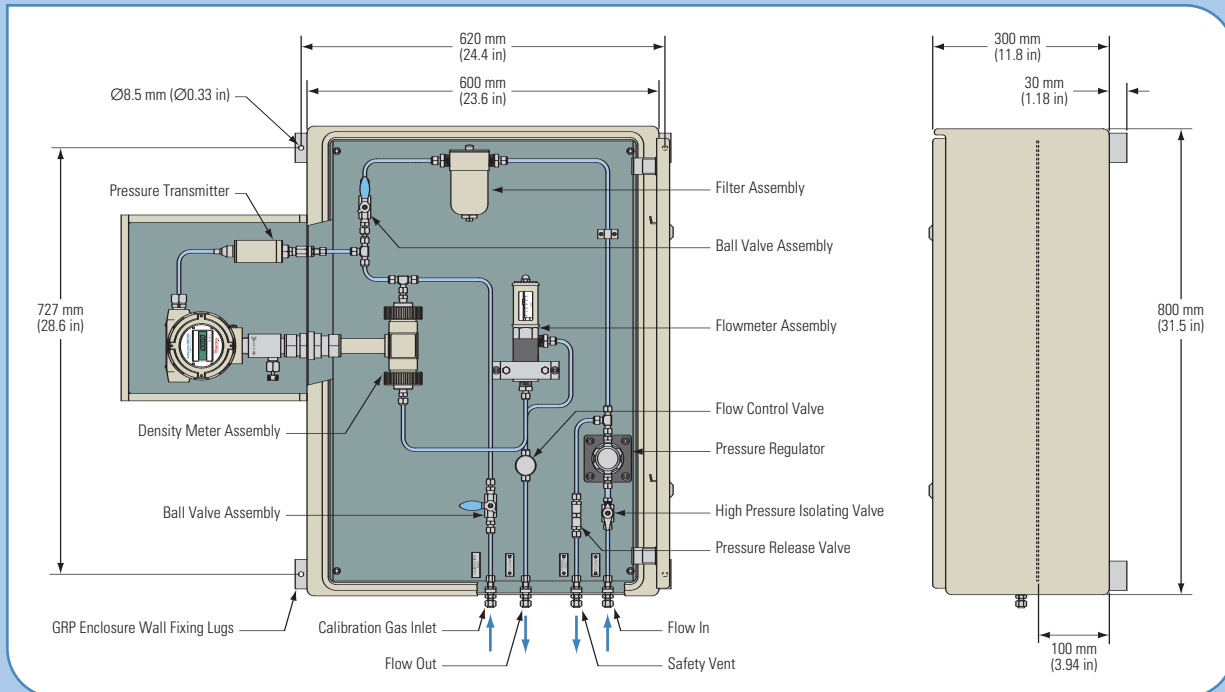


Sarasota SG900 Specific Gravity Analyzer — Dimensional Diagram





Sarasota SG900 Specific Gravity Analyzer with Sarasota HME900 Density Converter — Dimensional Diagram



Sarasota SG900 Specific Gravity Analyzer

Specification		
Functional Specifications		
Range	0-2 SG; for any other range, consult Thermo	
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 ³ /min to 0.7 ft ³ /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 dewpoint; for other temperature ranges, consult Thermo	
Sample Inlet Pressure	Basic system: standard 4 bar A (58 psi A); for others to a maximum 20 bar (290 psi) consult Thermo Dry or wet gas system: 200 bar (2900 psi) maximum	
Exhaust Pressure	Must be less than 4 bar A (58 psi A), and less than the regulated inlet pressure by 0.4 bar A (5.8 psi A)	
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	Standard: GRP; for other available materials consult Thermo	
Electronics Enclosure Materials	Copper free aluminium 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 mm (0.24 in) tubing compression fitting	
Electrical Connections	Screw terminals	
Power Supply	F option: frequency output H option: headmounted electronics	Density transmitter: 16-28 VDC 10 mA average (peak 18 mA); Pressure transmitter: 9-30 VDC 20 mA 3 x 13-28 VDC 25 mA
Outputs	F option: frequency output 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 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	As standard	
BS EN ISO 15156 / NACE MR0175 Conformance	Available as option	
ATEX Conformance: Intrinsically Safe (94/9/EC)	Sarasota FD792/F option (frequency output): EEx ia IIC T6 Sarasota FD792/H option (headmounted electronics): EEx ia IIC T4 Pressure transmitter: EEx ia IIC T4 Heater: EExdm IIC T3/T4 (T rating dependant on heater power)	
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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