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PRODUCT SPECIFICATIONS

Sarasota FD910 and FD950 Liquid Density Meters

For use in general industrial and chemical applications

The advanced Thermo Scientific™ Sarasota liquid density meters accurately measure density or density related variables. These online continuous meters provide key information for process monitoring and control, quality control and product interface detection.

Features

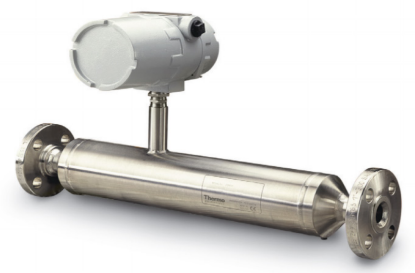
- Measurement at process conditions
- Straight through flow path
- Materials to suit applications
- Compact and lightweight, easy to install
- Hazardous area approvals
- Converter electronics to suit application

Repeatable and accurate

Thermo Scientific Sarasota liquid density meters fulfill demanding application requirements within the oil and gas, petrochemical, and chemical industries. Specific applications include:

- Blending
- Product identification
- Interface detection
- Dilution measurement
- Process/quality control
- SG measurement
- Process efficiency
- Product consistency
- Volumetric to mass flow metering systems

These devices utilize the proven vibrating element design which is widely accepted as the most accurate method of continuous, online density measurement. In fact, our twin tube design is inherently more stable than single tube technology, and an integral, high grade PT100 temperature element within the instrument allows compensation of the density meter for temperature effect and may be used for compensation to reference conditions. Our meters detect any variation of process constituents or final product quality in near real-time to improve productivity, minimize product waste and reduce costs when compared to sampling methods.



Thermo Scientific™ Sarasota FD910 and Sarasota FD950 Liquid Density Meters

Compact and easy-to-install

Compact and lightweight, the density meters tolerate significant plant vibration and can be installed directly into existing pipe work without the need for upstream flow conditioning or instrument supports. Installation is quick and simple with minimal pipeline disturbance or process down-time. The straight-through sensor offers an unobstructed flow path to ensure minimal pressure drop and higher flow rates to keep your products moving at optimal speed.

Durable and functional

A choice of sensor materials is offered for wetted parts, including Hastelloy® C276 for improved corrosion resistance and stainless steel for general industrial use. With hazard-ous area approvals and secondary con-tainment on all models, these instruments withstand tough industrial environments to ensure a significant return on investment.

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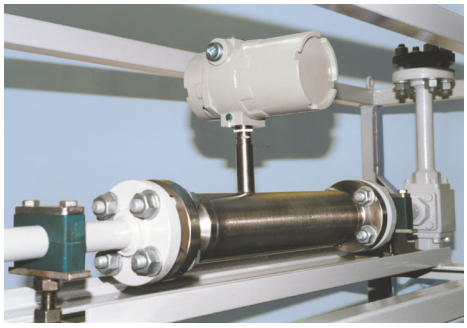
The Sarasota FD910 for Industrial Applications

The Sarasota FD910 meets the demands of general process monitoring and control applications across a vast number of industries. With its stainless steel construction, the Sarasota FD910 industrial density meter is best suited to those general process applications that do not require the specialist materials offered by the other models in the range.

The Sarasota FD950 for Chemical Applications

The wetted parts of the Sarasota FD950 are made of Hastelloy C276 making it the most corrosion resistant option of the range. It is ideal for aggressive applications in the petrochemical, chemical, and pharmaceutical industries.



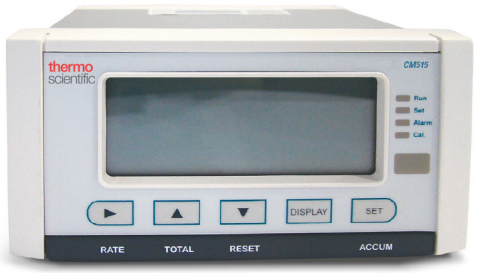
Calibration and service

Calibration of the Sarasota liquid density meters is conducted in-house on a calibration rig that is traceable to national standards. Supporting documentation is available including a traceable equipment list. For most applications, installation is straightforward, on-site calibrations are generally unnecessary and the instruments are usually maintenance free. However, our dedicated service team offers commissioning, maintenance and repair services for our liquid density meters and associated electronics. On-site visits, in-house repairs and maintenance contracts can be arranged as required.

Thermo Scientific™ Sarasota HME field-mounted density converter.

Density converter electronics

The Sarasota liquid density meters can provide output variables such as specific gravity, % concentration, °Brix, °API, °Baume, line density or referred density, when used in conjunction with a Sarasota density converter. The Thermo Scientific™ Sarasota HME900 integral, field-mounted density converter option provides a direct HART-compatible 4-20 mA output, whereas the Thermo Scientific™ Sarasota CM515 remote, panel-mounted computer provides a local display and a variety of operator selectable outputs that feed into a plant's optimization system.



Thermo Scientific™ Sarasota CM515 panel-mounted density converter.

Sarasota FD910 and Sarasota FD950 Liquid Density Meters

Functional specifications	
Transducer calibration accuracy	Available to ±0.1 kg/m³ (±0.0062 lb/ft³)
Repeatability	0.02 kg/m³ (0.0012 lb/ft³)
Flow range	Vertical installation: 0 l/min to 300 l/min (0 USG/min to 79 USG/min); Horizontal installation: 5 l/min to 300 l/min (1.3 USG/min to 79 USG/min)
Operating density range	0 kg/m³ to 2100 kg/m³ (0 lb/ft³ to 131.1 lb/ft³)
Installation	Vertical installation (standard), horizontal installation (optional); No instrument or pipe work supports required
Pressure effect (corrected)	0.003 kg/m³/bar (0.000013 lb/ft³/psi) note: correction coefficients applied
Temperature effect (corrected)	0.005 kg/m³/°C (0.0002 lb/ft3/°F) note: correction coefficients applied
Density meter dimensions	See dimensional diagrams
Shipping dimensions	590 mm × 390 mm × 290 mm (approx. 24 in × 16 in × 12 in)
Net weight	11 kg (24 lb)
Shipping weight	15 kg (33 lb)
Environmental rating	IP65 (NEMA 4X)
Electrical connections	Screw terminals; Cable entry: 2 × 3/4-in NPT
Temperature measurement	High accuracy 1/3 DIN integral 4-wire PT100
Local Display (H version density meter only)	41/2-digit 7.6 mm (0.3 in) 7-segment LCD display. Resolution 0.1% or 0.01% depending on display variable
Secondary containment	As flange rating to Class 300 then 2.5 times maximum safety flange rating to Class 600
Linearity	<1% relative over a decade change in concentration (typical, application dependent)
Factory calibration range	650 kg/m³ to 1600 kg/m³ (40.58 lb/ft³ to 99.98 lb/ft³)
Ambient temperature range	-20°C to + 60°C (-4°F to + 140°F) ambient
Process temperature range	Sarasota FD910/FD950: -50°C to + 180°C (-58°F to + 356°F)
Output	F option (frequency output): Frequency related to density on 2-wire current modulated loop 6 mA to 18 mA, 4-wire PT100; H option (head mounted electronics): Analog 4-20 mA related to density or density derived variable, HART protocol
Power supply	F option (frequency output): 13-28 VDC 10 mA average (peak 18 mA) H option (head mounted electronics): 2 × 13-28 VDC 25 mA; 4-20 mA current pressure input available
Maximum operating pressure	Sarasota FD910 / FD950: as flange rating

Sarasota FD910 and Sarasota FD950 Liquid Density Meters

Material specifications	
Sensor	Sarasota FD910 stainless steel (316L/1.4404); Sarasota FD950: Hastelloy C276
Other wetted parts	Sarasota FD910 (Class 150, 300)/316L stainless steel (316L/1.4404) Sarasota FD910 (Class 600)/FD950: Hastelloy C276
Case	Stainless steel (316/316L/1.4404)
Electronics housing	Copper free aluminum grey epoxy finish; Plate glass window for local display option
Process connections	
1-in ASME B16.5 RF (raised face)	Sarasota FD910: stainless steel (316 / 316L / 1.4404) – Class 150, 300 or 600 Sarasota FD910: duplex (A 182 Gr.F51) – Class 150, 300 or 600 Sarasota FD950 only: Hastelloy C276 – Class 150, 300 or 600
25-mm BSEN1092 RF (raised face-type B)	Up to maximum PN100
Other Flange Types	Consult Thermo Fisher Sciencific
Compliance/certification	
Quality assurance	ISO 9001:2008
CE mark	Compliant
Electromagnetic compatibility	Compliant (EN 61326:1997) (89/33/EEC)
Pressure equipment directive (97/23/EC)	Category III
Low voltage directive	Compliant (2006 / 95EC)
Safe area use	As standard
BS EN ISO 15156/NACE MR0175 conformance	Compliant on both Sarasota FD910 and Sarasota FD950 only
ATEX conformance: Intrinsically Safe (94/9/EC)	F option (frequency output): Ex II 1 G EEx ia IIC T6 (-20°C < Ta < + 60°C) H option (head mounted electronics): Ex II 1 G EEx ia IIC T4 (-20°C < Ta < + 60°C)
ATEX conformance: Flameproof (94/9/EC)	Ex II 2 G EEx d IIC T4 (Tamb = -20°C to + 60°C) or T3 (Tamb = -20°C to + 60°C) Temperature classification of T4 or T3 for use with maximum process fluid temperature of +115°C or +180°C respectively
Canadian Standards Association (CSA)	Explosion-proof Class 1, Groups B, C and D
Calibration certification	Optional traceable calibration equipment listing available
Material traceability	Material Traceability

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Ordering information

FD910: Sarasota FD910 Industrial Liquid Density Meter FD950: Sarasota FD950 Chemical Liquid Density Meter
A. Signal output
F = Frequency output
H = Smart head mounted electronics
D = 115 VAC 50 Hz
J = 100 VAC 50/60 Hz
B. Transducer accuracy
2 = ±0.25 kg/m^3 (0.016 lb/ft^3)
1 = ±0.1 kg/m^3 (0.0062 lb/ft^3), optional
C. Temperature range
G = -20°C to 120°C (-4°F to 248°F)
H = -50°C to 180°C (-58°F to 356°F)
D. Processing connections
B0 = 1-in ASME B16.5 RF Class 150 stainless steel (only Sarasota FD910)
B1 = 1-in ASME B16.5 RF Class 150 duplex (only Sarasota FD910)
B2 = 1-in ASME B16.5 RF Class 150 hastelloy (only Sarasota FD950)
F0 = 1-in ASME B16.5 RF Class 300 stainless steel (only Sarasota FD910)
F1 = 1-in ASME B16.5 RF Class 300 duplex (only Sarasota FD910)
F2 = 1-in ASME B16.5 RF Class 300 hastelloy (only Sarasota FD950)
A0 = 1-in ASME B16.5 RF Class 600 stainless steel (only Sarasota FD910)
A1 = 1-in ASME B16.5 RF Class 600 duplex (only Sarasota FD910)
A2 = 1-in ASME B16.5 RF Class 600 Hastelloy (only Sarasota FD950)
D = 25-mm BS EN 1092 RF (type B) up to max PN100

E. Certification
S = Non-hazardous/safe area
I = Intrinsically safe
D = Flameproof/explosion proof
C = CSA Class I Div 1, Groups B, C & D
A = Bench mounting and ears/handles, EIA
F. Options
M = Wetted parts traceability certification to BS EN 10204 3 1 b
N = NACE MRO175 conformance certification
T = Traceable calibration equipment listing
W = WinHME900 communications software and modem (head mounted versions only)
T = Traceable calibration equipment listing

This product is manufactured in a plant whose quality management system is ISO 9001 certified.

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