

For more information, please, visit LEMIS process web site!

www.lemis-process.com



DC-40 SERIES



PROCESS IN-TANK

DENSITY METERS

→ Specific Gravity... → API... → Concentration...

IN PROCESS TO EXCELLENCE



LEMIS process use the proven vibrating element technique which is widely accepted as the most accurate method of continuous online density measurement, LEMIS process engineers made new developments by the introducing unique proprietary design of resonant tube sensor allowing accurate measurement of liquid density. An integral high accuracy Pt-1000 probe continuously monitors liquid temperature allowing temperature compensation and future calculation of reference density, concentration or specific gravity. The technology proves high accuracy of measurement and long term calibration stability even in severe operation conditions. It is insensitive to plant vibration, high variation of temperatures, level, mix or turbulence. A choice of wetted parts materials: from stainless steel for general industrial use, Ni-Span-C for most demanding applications, and Hastelloy for applications where ultimate corrosion resistance is required.



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PROCESS IN-TANK

Density Meters DC-40*

Resonant tube sensor

In process density measurements directly in the tank - up to 30 meters depth - with accuracy $\pm 0.00025 \text{ g/cm}^3$

- Forget Sampling!
- Continuous and repeatable density measurements in the tank.
- They're economical and easy to operate.
- Calibration couldn't be simpler - just use distilled water.
- Select a DC-40 type according to the testing depths you require.
- DC-40 R-type plunges to 6 meters, while DC-40 F-type reports real density and temperature measurements at 30 meter depths in seconds.
- Measures highly viscous liquids up to 1200 cP.
- The received measurements (real density: g/cm, kg/m, lb/gal, lbm/ft, and temperature: °C or °F) are instantly converted to relative density (Specific gravity): 15°C, 20°C, 60°F, API; % of alcohol; BRIX, Baume and other.



ADVANTAGES

- Continuous, online density monitoring at process conditions
- Accurately measures density of liquids with viscosity up to 1200cSt
- Rigorous factory calibration and testing of the transducer
- Can operate in pressurized tanks
- Immersion in the tanks up to 30 meters
- No moving parts, virtually maintenance-free system
- We also can tune system specification for your specific requirements
- Hazardous area approvals
- Insensitive to liquid level, mix or turbulence
- Large offer of standard product configurations and installation available

APPLICATIONS

- Density, temperature and concentration monitoring in storage tanks
- Petroleum products, fuels, lubricants, LPG, LNG
- Concentrations of acids or corrosive chemical
- Food, Dairy & Beverages
- Product identification and consistency
- Concentration and dilution measurement
- Monitoring of reaction end in reactors
- In-tank mixing and blending



*DC-42 series measure both density and viscosity

Specifications

Density operating range	0...2 g/cm ³ (0...2000 kg/m ³)
Accuracy	$\pm 0.00025 \text{ g/cm}^3$ ($\pm 0.25 \text{ kg/m}^3$)
Repeatability	$\pm 0.0001 \text{ g/cm}^3$ ($\pm 0.1 \text{ kg/m}^3$)
Calibration stability (per year)	$< \pm 0.0001 \text{ g/cm}^3$ ($< \pm 0.1 \text{ kg/m}^3$)
Viscosity Effect	Automatically compensated
Temperature Effect	0.005 kg/m ³ /°C automatically compensated
Pressure Effect	negligible
Temperature Measurement	Built-in high accuracy 4-wire PT-1000 DIN 43760 Class A
Process Temperature Range	-200°C to +200°C (-328°F to +392°F)
Installation types	Direct insertion (D-type), Long rigid immersion (R-type) or flexible(F-type)
Process Connections	Large selection of flanges available.
Maximum Operating Pressure	100 bars max for standard installation or flange rating for another installation
Ambient Temperature Range	-40°C to +85°C (-40°F to +185°F)
Weather Rating	IP67 for sensor and IP55 for Terminal box
Sensor	stainless steel 316L; Ni-Span C; Hastelloy C22
Other Wetted Parts	stainless steel 316L or Hastelloy C22
Case finish	stainless steel 316L
Electronics Housing	aluminum, blue epoxy finish
Electrical Connections	Screw terminals; Cable entry: 2 x 3/4 " NPT
Sensor Power Supply	6 - 12 VDC 30 mA (60 mA pick)
Sensor output	Line density and temperature digital signals
Analog output	Up to 3 x isolated 4 - 20 mA, direct or reverse-acting, configurable, customized
Digital output	User choice of signals and protocols: RS485; RS232; Modbus; etc...
Quality Assurance	ISO 9001:2000
Factory Calibration	Calibration certificates supplied as standard
CE mark	Compliant EN 61326 ; EN5011 ; EN 50082-2
Hazardous area	ATEX II 1/2G Ex ia IIB T4 ; IEC Ex ia IIB T4 Ga /Gb ; CCE certificate
Material Traceability	Optional certification available

D-type



F-type



R-type



Calibration of **LEMIS process** density meters is performed in-house according ISO 9001:2000 quality assurance program and by using calibration materials that are traceable to national standards. In-house calibration and testing is performed specified dedicated calibration protocol for every standard model of the sensor. For most applications, on-site calibration is generally not required. **LEMIS process** sensors allows simple, switch-and-go field installation.