

DM-250.1N - Density Meter

VM-250.1N - Viscosity Meter

VDM-250.1N - Density & Viscosity



Portable Submersible Density & Viscosity Meter

VDM-250.1N



Principle of Determination

Density & Viscosity

Density & viscosity measurements employ the vibrating element sensor. This consists of a compact cylindrical sensor which is vibrated in the hoop mode which delivers balanced drive. This means that the sensor is virtually unique in being capable of being installed not just with a rigid mounting but also suspended on cables or using tape measures.

Density & viscosity are determined using the well established resonant frequency principle. By alternately driving the sensor into vibration at the upper and lower half power (3dB) frequencies the bandwidth can be determined, which is also a function of the dynamic viscosity of the fluid.

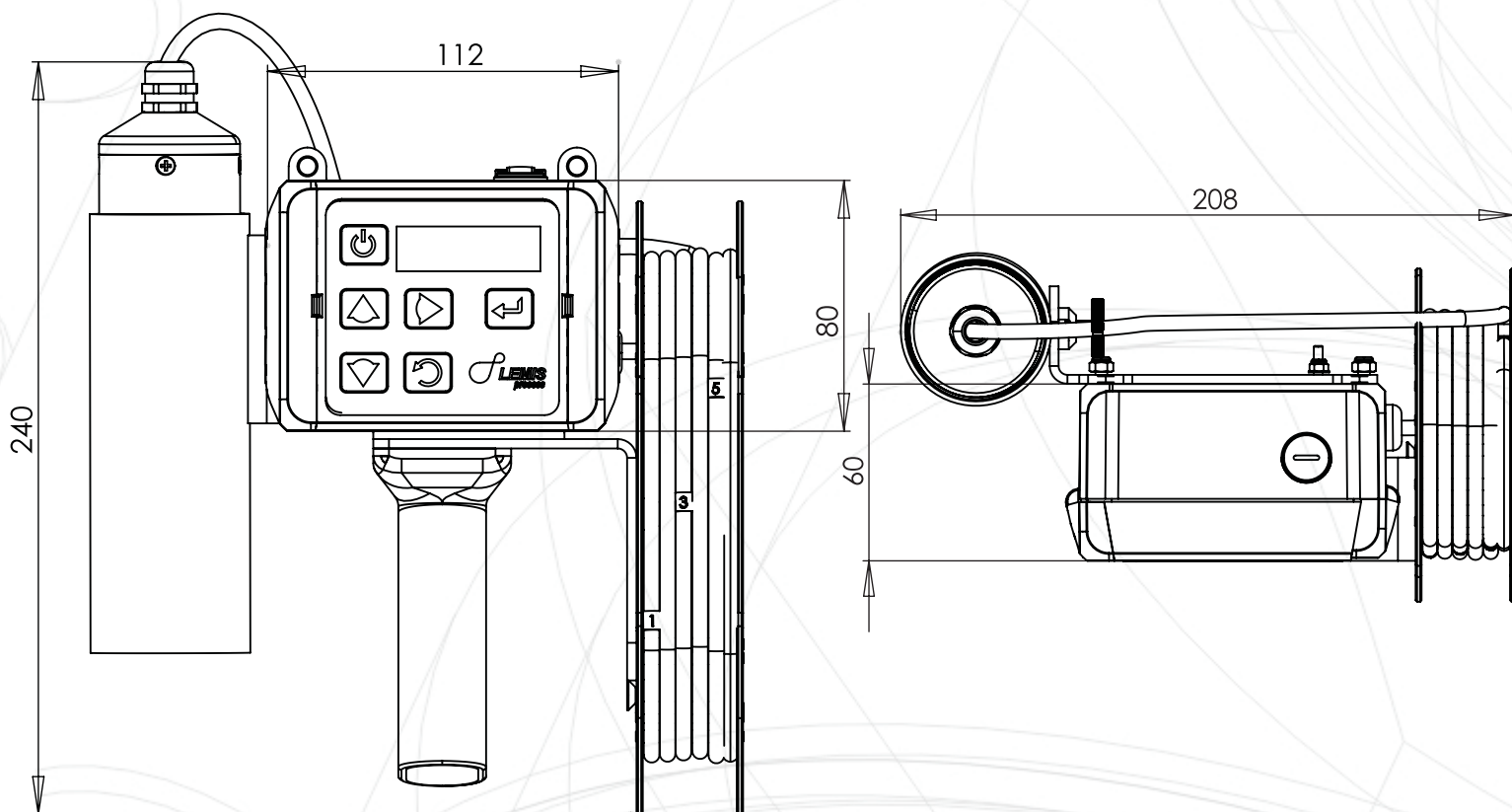
Thus a single sensor will report the dynamic density, viscosity and temperature (from an integral RTD sensor) and thus kinematic viscosity can also be determined.

By using calculations based on the ASTM D341 equations, the kinematic viscosity can be calculated at a reference temperature. Base density can be calculated based on the methods defined in the Manual of Petroleum Measurement Standards.

VDM-250.1N Overview



Dimensions

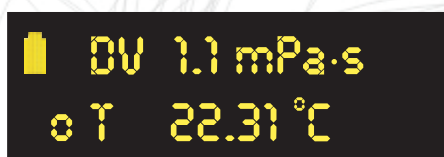


Easy Measurement Visualization

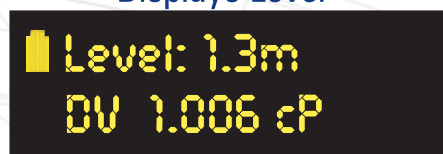
Displays Viscosity and Temperature



Displays Different Viscosity units



Displays Level



Displays Date of measurement

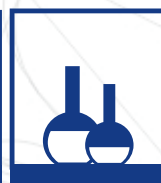


Advantages

- Direct density and viscosity measurement
- Record spot density, viscosity and average per tank
- Automatic temperature compensation
- No sampling required
- ATEX, IEC Hazloc certification
- Safe operation, low maintenance
- At any depths up to 6 meters
- Economical and easy to operate
- Measures highly viscous liquids up to 2000 cP
- Rigid construction for heavy duty outdoor operation

Applications

- Petroleum industry
- Ethanol production
- Food & Beverages
- Chemical industry
- Cosmetic industries
- Pharmaceutical industry



Specifications

Measuring range:

Density	0... 3 g/cm ³ (0... 3000 kg/m ³)
Density Standard calibration	0.6... 1.2g/cm ³ (600... 1200 kg/m ³)
Dynamic Viscosity	Up to 2000 mPa·s(cP)
Viscosity calibration	0,1-100 mPa·s(cP) 1-1000 mPa·s(cP) 1-2000 mPa·s(cP)
Temperature	-40... +85°C (-40... +185°F)

Accuracy:

Density	±0.0003 or ±0.0005 g/cm ³ (±0.3 or ±0.5 kg/m ³)
Dynamic viscosity	±1% of span
Temperature	±0.1°C (±0.2°F) or ±0.2°C (±0.4°F)

Repeatability:

Density	±0.00015 or ±0.00025 g/cm ³ (±0.15 or ±0.25 kg/m ³)
Viscosity	±0.5% of span
Temperature	±0.1°C (±0.2°F)

Supported measuring units

Real Density: g/cm³, kg/m³, lb/gal, lb/ft³; API; SG
 Referred Density: at 15°C, 20°C, 60°F; API60; SG60
 Dynamic Viscosity: mPa·s; cP
 Kinematic Viscosity: mm²/s; cSt
 Tables ASTM D 1250
 Alcohol Tables
 Temperature in °C or °F

Ambient temperature -40... +50°C (-40... +122°F)

Depth of submersion Depends from cable length

Sensor:

Type	Vibrating element (Resonance principle)
Material	Stainless steel SS 316 L; NiSpan C; Hastelloy C22

Hazardous environment Approvals

Controller	II 2G (1G) Ex ib [ia Ga] IIB T4 Gb
Sensor	II 1G Ex ia IIB T4 Ga

Electronic box:

Material	Antistatic Polyamide base
Power supply	NiMH 3.6V-2500 mAh rechargeable battery
Operating time without charging	up to 24 hours

Dimensions, weight:

Controller	240 x 208 x 120 mm (9.4 x 8.2 x 4.7")
Sensor	210 x ø45 mm (8.2 x ø1.7 in), 1 kg (2.2 lb)
Temperature compensation	Automatic
Viscosity compensation	Automatic
Data handling	OLED Display (2x12) with backlight Local memory up to 3000 results Build in Bluetooth for data transfer to printer or PC
Delivery	Delivered in compact carrying case

* Option



Multifunctional software allows to view results in a convenient user-friendly form;
Compatible for a Windows 7/8/10*



Immediate printout of the measurements by Bluetooth
No need for PC*



Delivered in compact carrying case

For more information please visit www.lemis-process.com



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