LEMIS process®

250 SERIES

DM-250.1N - Density Meter
VM-250.1N - Viscosity Meter
VDM-250.1N - Density & Viscosity

Portable Submersible Viscosity Meter

VM-250.1N

IN PROCESS TO EXCELLENCE

Principle of Determination

Viscosity

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.

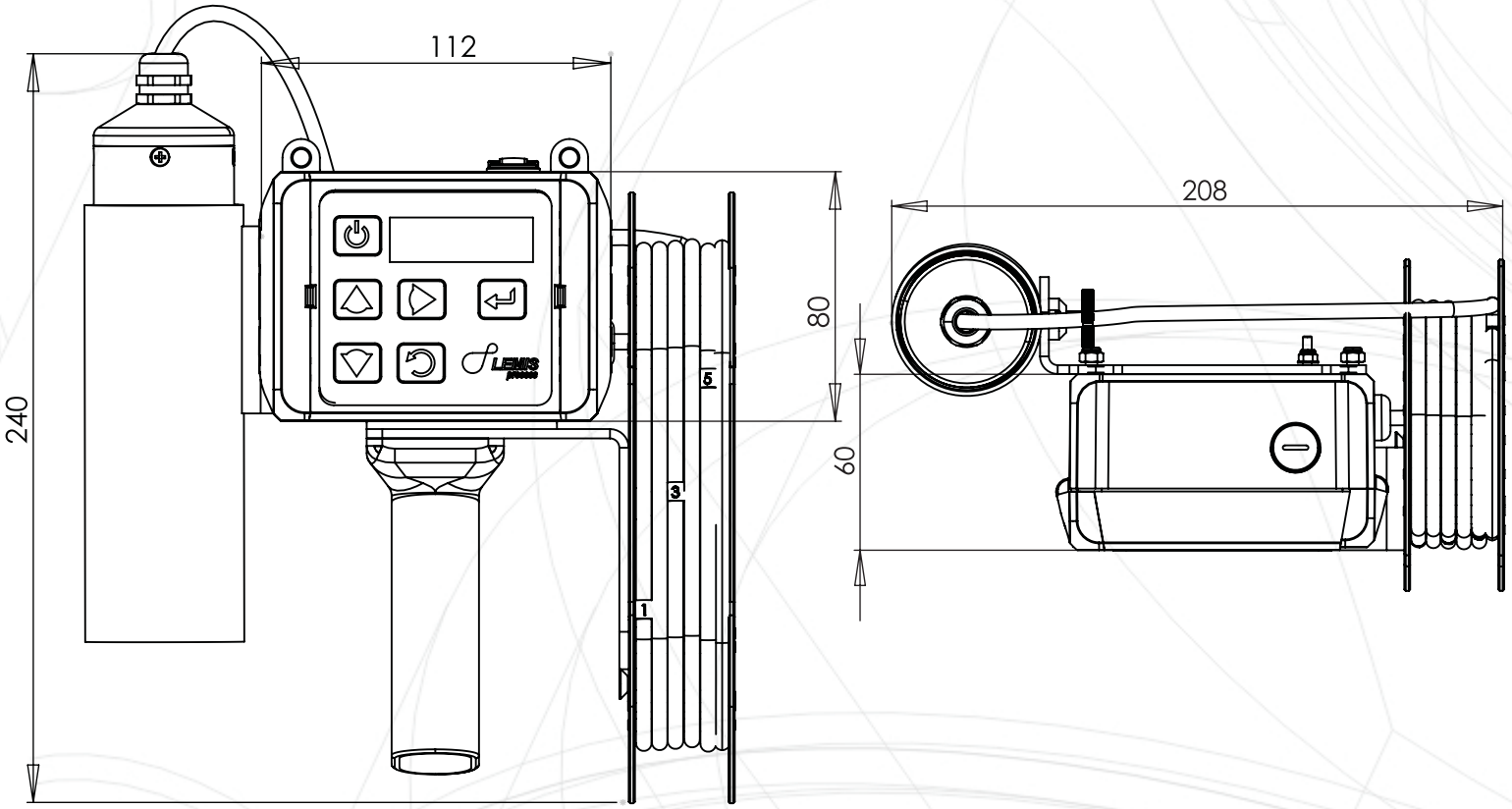
Viscosity is determined using the well established resonant frequency principle. By alternately driving the sensor into vibration at the upper and lower half power (3dB) frequencies the bandwidth can be determined, which is also a function of the dynamic viscosity of the fluid.

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

By using calculations based on the ASTM D341equations, 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.

VM-250.1N Overview

Dimensions



Easy Measurement Visualization

Density and Temperature

Referred Density to 20°C

Referred Density to 15°C

Specific Gravity related to 60°F

Advantages

- Direct viscosity measurement
- Record spot viscosity and average per tank
- Automatic temperature compensation
- No sampling required
- ATEX, IEC Hazloc certifcation
- 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
- Local result storage through Bluetooth and USB data transfer

Applications

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

Specifications

Measuring range:	
Dynamic Vicsosity	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:	
Dynamic viscosity	±0.5% of span
Temperature	±0.1°C (±0.2°F)
Repeatability:	
Viscosity	±0.00015 or ±0.00025 g/cm³ (±0.15 or ±0.25 kg/m³)
Temperature	±0.1°C (±0.2°F)
Supported measuring units	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 x120 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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