



## 250 SERIES

DM-250.2N - Density Meter

DM-250.2L - Density & Level

VM-250.2N - Viscosity Meter

VDM-250.2N - Density & Viscosity



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**Portable Submersible Density Meter**

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**DM-250.2N & DM-250.2L**

***IN PROCESS TO EXCELLENCE***

# DM-250.2N OVERVIEW

## Principle of Determination

### Density and Viscosity

Density and 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 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 density, dynamic 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.

## Easy Measurement Visualization



Density and Temperature



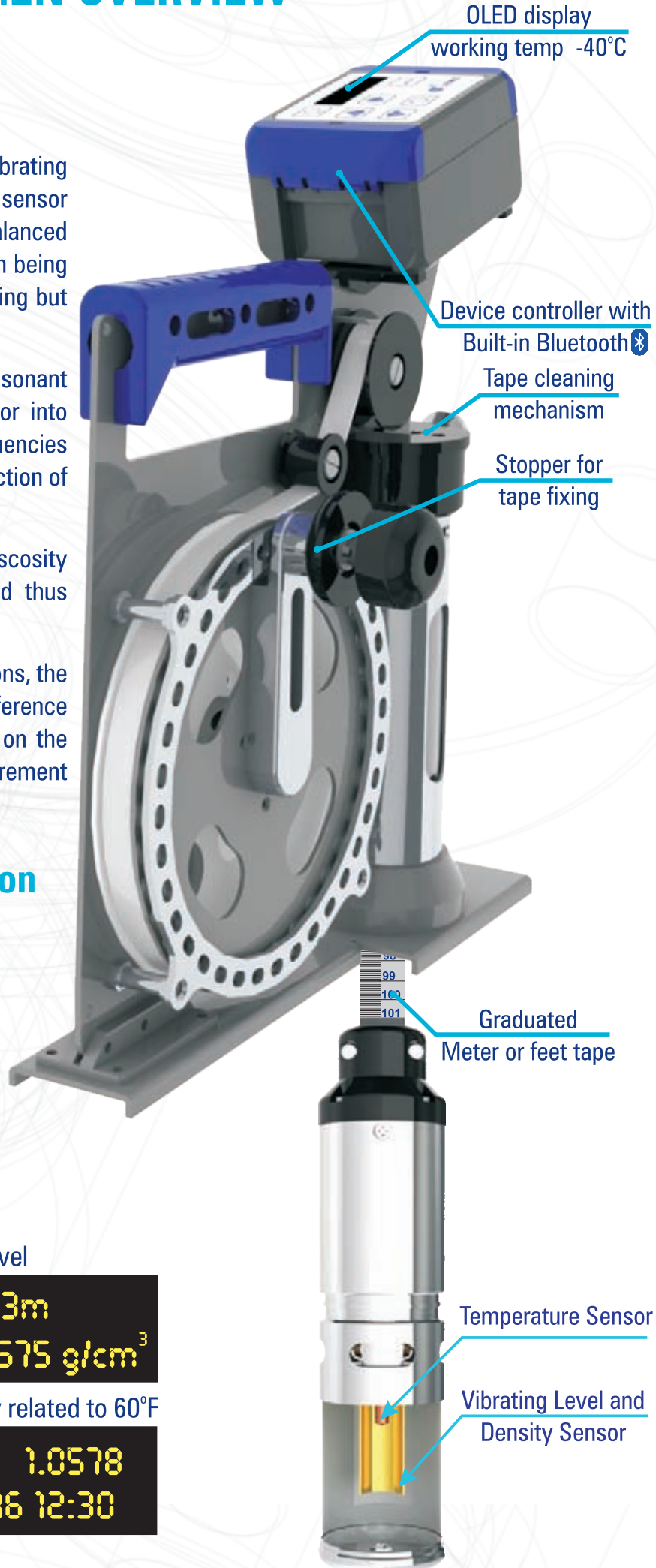
Referred Density to 20°C



Level



Specific Gravity related to 60°F

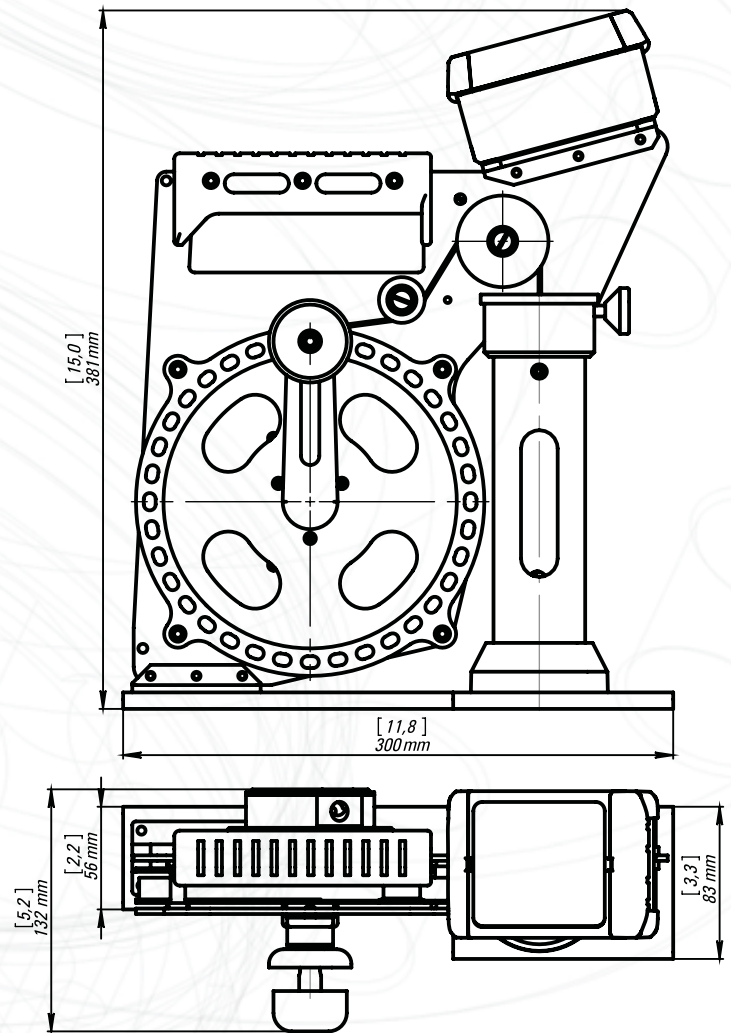




The portable density meter DM-250.2N is designed for density and level measurements of any pure liquids directly in tanks, without sampling, at the depth up to **30 meters**.



## Dimensions

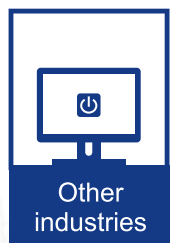


## Advantages

- Direct density measurement
- Record spot density and average per tank
- Automatic temperature compensation
- No sampling required
- ATEX, IEC Hazloc certification
- Safe operation, low maintenance
- At any depths up to 30 meters
- Economical and easy to operate
- Measures highly viscous liquids up to 2000 cP
- Rigid construction for heavy duty outdoor operation
- Local results storage and Bluetooth and USB data transfer

## Applications

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



# Specifications

<b>Measuring range:</b>	
Density	0... 3 g/cm <sup>3</sup> (0... 3000 kg/m <sup>3</sup> )
Density Standard calibration	0.6... 1.2 g/cm <sup>3</sup> (600... 1200 kg/m <sup>3</sup> )
Temperature	-40... +85°C (-40... +185°F)
Level	up to 30 m (100ft.)
<b>Accuracy:</b>	
Density	±0.0003 or ±0.0005 g/cm <sup>3</sup> (±0.3 or ±0.5 kg/m <sup>3</sup> )
Temperature	±0.1°C (±0.2°F) or ±0.2°C (±0.4°F)
Level*	±2mm (±0.008")
<b>Repeatability:</b>	
Density	±0.00015 or ±0.00025 g/cm <sup>3</sup> (±0.15 or ±0.25 kg/m <sup>3</sup> )
Temperature	±0.1°C (±0.2°F)
Level*	±1mm (1/16")
<b>Resolution:</b>	
Density	0.0001 g/cm <sup>3</sup> (0.1 kg/m <sup>3</sup> )
Temperature	0.01°C (0.02°F)
Level*	±1mm (1/16")
Supported measuring units	Real Density: g/cm <sup>3</sup> , kg/m <sup>3</sup> , lb/gal, lb/ft <sup>3</sup> ; API; SG Referred Density: at 15°C, 20°C, 60°F; API60; SG60 Tables ASTM D 1250 Alcohol Tables Temperature in °C or °F
Ambient temperature	-40... +50°C (-40... +122°F)
Depth of submersion	Up to 30 meters (100 ft.)
<b>Sensor:</b>	
Type	Vibrating element (Resonance principle)
Material	Stainless steel SS 316 L; NiSpan C; Hastelloy C22
Weather rating	IP68
<b>Hazardous environment Approvals</b>	
Controller	II 2G (1G) Ex ib [ia Ga] IIB T4 Gb
Sensor	II 1G Ex ia IIB T4 Ga
Charging device	USB with IP68 protected connector
Power supply	NiMH 3.6V-2500mAh
Operating time without charging	up to 24 hours
<b>Dimensions, weight:</b>	
Level block with sensor	376 x 300 x 104 mm (14.8 x 11.8 x 4.1 in), 3 kg (6.6 lb)
Temperature compensation	Automatic
Viscosity compensation	Automatic
Data handling	OLED Display (2x12) with backlight Local memory up to 2000 results with date/time stamped Build in Bluetooth and USB for data transfer to printer or PC Optional Windows - based software
Delivery	Delivered in compact carrying case



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



**Options:\*** Available only in **DM-250.2L** version

\*\* Ordered separately

**For more information please visit [www.lemis-process.com](http://www.lemis-process.com)**



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