

# VISCOSITY & DENSITY SENSOR

## Continuous Monitoring of Viscosity, Density and Temperature

The VISCOSITY & DENSITY SENSOR is a newly developed compact sensor for inline condition monitoring of three parameters: viscosity, mass density and temperature. Accurate continuous simultaneous measurement of viscosity and density enables optimization of lubrication of various engine parts, minimization of wear and increase of engine efficiency. The VISCOSITY & DENSITY SENSOR is designed as a screw-in and immersion sensor with outstanding performance achieved by combining a resonator evaluation technology with a robust and reliable quartz crystal tuning fork resonator. The wide-range of application areas of the SENSOR include lube and hydraulic oil condition monitoring, fuel quality control, analysis of process media and monitoring of mixing processes.

### Technical Features:



- Measuring range:
  - Kinematic viscosity: 1 – 400 mm<sup>2</sup>/s  
(on request: 1 - 650 mm<sup>2</sup>/s)
  - Mass density: 0.5 – 1.5 g/cm<sup>3</sup>
  - Temperature: -40°C to +125°C
- Accuracy:
  - Kinematic viscosity: +/- 1 mm<sup>2</sup>/s
  - Mass density: +/- 0.2%
  - Temperature: +/- 0.1°C
- Voltage: 9 - 24 VDC
- Max. fluid pressure: 50 bar
- Protection class: IP 67
- Interface: Modbus RTU (on request: CANopen)  
two programmable 4 - 20 mA outputs
- Fluid compatibility: mineral and synthetic oils  
(further approvals on request)

The VISCOSITY & DENSITY SENSOR features extended viscosity range, increased accuracy and high sampling rates. Due to the high measurement rate, excellent data quality can be obtained even in unsteady environmental conditions (pressure, temperature, flow, vibration). The SENSOR offers digital and configurable analog interfaces for easy and cost-effective integration into existing environments. As the measured parameters are continuously processed and stored, it is easy to evaluate the relevant values and recognize any potentially occurring deviations from standard specifications. High-sensitivity and long-term stability of the sensor system allow individual setting of a lower warning threshold to provide proper corrective actions at an early stage. Therefore, the costs of maintenance can be decreased and maintenance and oil change intervals could be prolonged. The VISCOSITY & DENSITY SENSOR helps to remain confident about the condition of oil all the time.