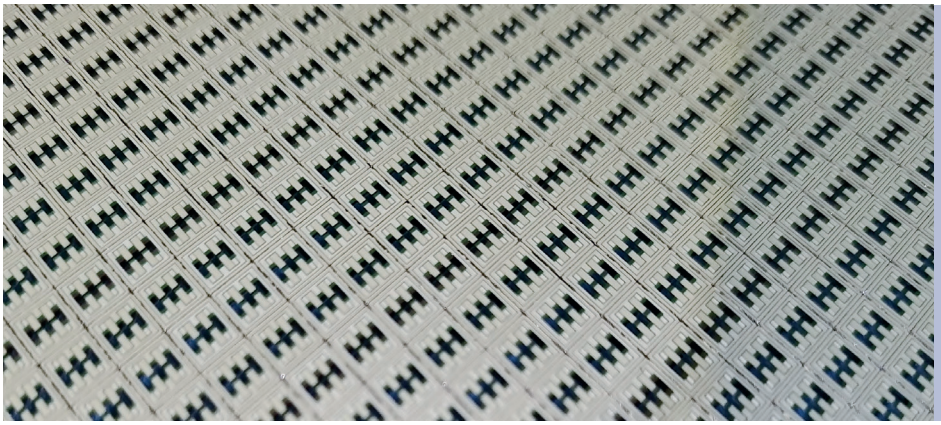
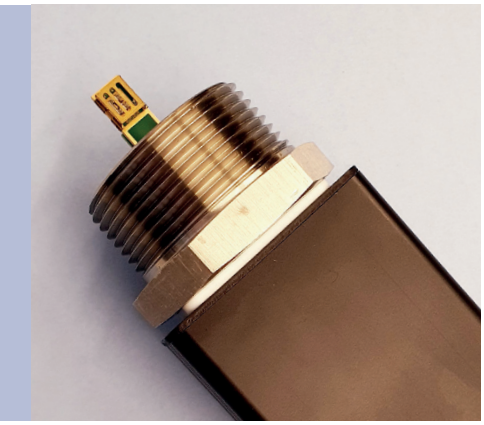
MEMS-BASED FLUID PROPERTY SENSOR





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Description

Fraunhofer ENAS is working in the field of metal-based and piezoelectric MEMS fluid property sensors (FPS) for inline-measurements. These specifically designed FPS operate in a wide temperature range and provide real time fluid property data. Both FPS measure density, viscosity, dielectric constant and temperature of a fluid. Density, viscosity and dielectric constant of a fluid are important parameters used to estimate the quality for example of an oil from engines, fuel systems, SCR systems compressors, transmissions, gear boxes or other liquids, e.g. in medical science or food industry.
State of the art laboratory viscometers are large, expensive, energy consuming and thus not suitable for inline-measurements. Most systems for in-line measurement are bulky and heavy.

Demonstrator

The demonstrator shows a highly miniaturized viscometer based on piezoelectric MEMS technology and embedded fluid measurement algorithms. The calculated fluid properties density and viscosity are obtained within few seconds after direct insertion of the FPS into the fluid under investigation. Integrated electronics with ASIC can be implemented for further system miniaturization.

Technologies and Services

- Feasibility studies and technology consulting
- Consulting during the development phase
  - » Design,
  - » Technology,
  - » Simulation,
  - » Modeling, testing and qualification of fluid property sensors
- Trainings, technology transfer, licensing of FPS
- Process service and prototyping of FPS

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