

# Oil Performance Monitor

For monitoring oil and lubricant deterioration



- continuous, reactionless in-line measurement
- viscosity: 1 to 1.500 mPas ( $\pm 1\%$ )
- rel. permittivity: 1 to 100 ( $\pm 0,05$ )
- specific electr. resistance: 1 to 10 M $\Omega$ m
- temperature:  $-30\text{ }^{\circ}\text{C}$  to  $+150\text{ }^{\circ}\text{C}$
- installation in place of oil drain plug possible
- independent of fluid movement
- unsusceptible to interference
- self cleansing effect
- diverse normed interfaces for process integration

Monitoring the deterioration of lubricants gains more and more relevance with regard to design of gearing and internal combustion engines as well as in operation of those aggregates. All this in terms of ecological and economical aspects and of parameters as reliability, failure probability and the length of oil change periods.

Novel fuels as biodiesel or ethanol cause greater effect to lubricants used in combustion engines than fuels based on mineral oil. For instance, the fuel entry to the lubricant is significantly higher when using biodiesel, compared to mineral oil diesel.

Important criteria for lubricant deterioration are particle entry, thermal oxidation, chemical conversion and mechanical destruction of high-molecular additives.

Essential quantifiable symptoms of oil deterioration are viscosity alteration, an increase of insoluble contamination (including metallic content) and an alteration of neutralisation ability (total base number "TBN" and total acid number "TAN").

These properties are represented by the values the oil performance monitor measures simultaneously and continuously: the **viscosity**, the **specific electrical conductivity** and the **relative permittivity** (relative dielectric coefficient). The measurement is non-reactive and non-destructive.

An easy to use "traffic light" version (see next page) is available which indicates the current oil quality by three lights: green, yellow and red. The corresponding limits are settable individually by the user.

## Applications:

- oil performance monitoring
- for research and development
- for continuous operation

## More Characteristics:

- wear-free, no moving parts
- small, compact sensor
- fully automated, continuous measurement
- very high reliability
- very short set-up and measuring time

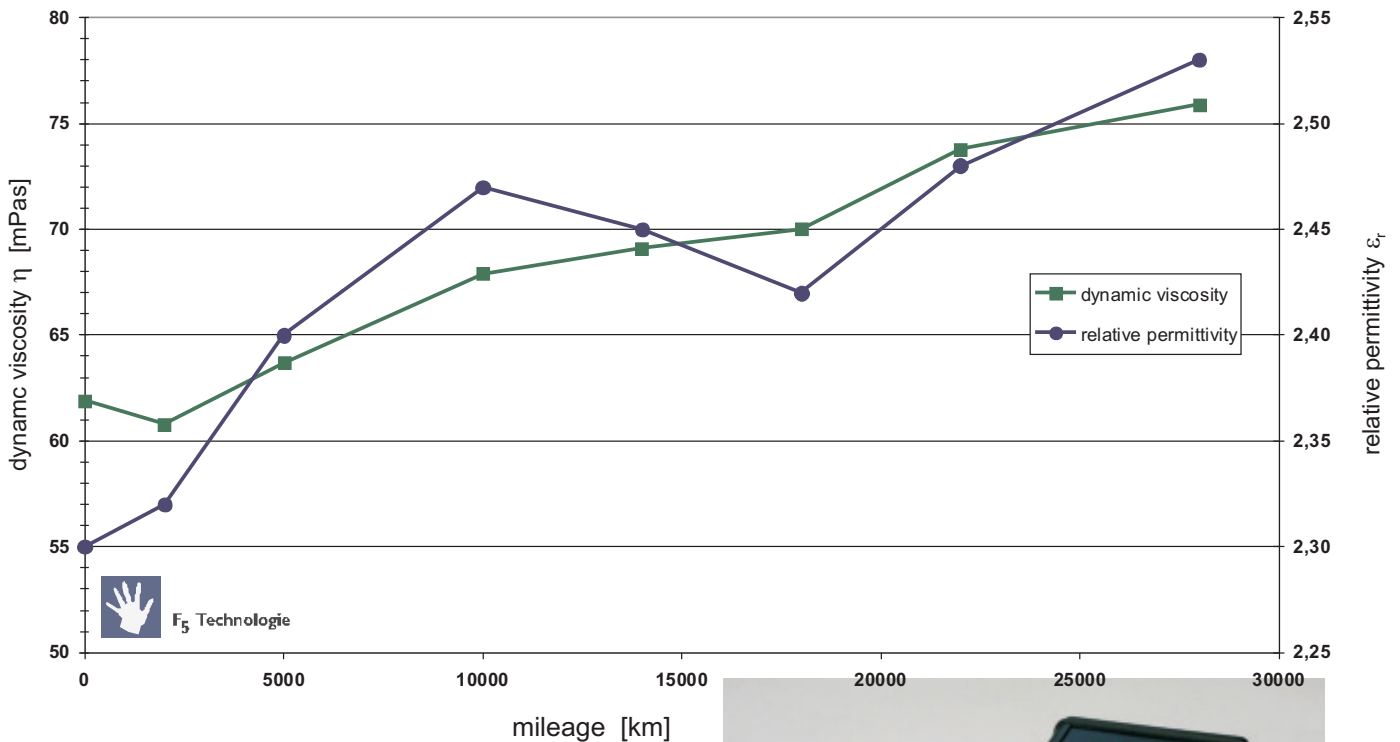


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## Engine Oil Deterioration during Long-run Operation Diesel Truck, SAE 15W40



Sensor module for screwed assembly



"Traffic Light" version for automated machine survey

### Technical Data:

Measuring ranges:	dynamic viscosity: 1 bis 1,500 mPas ( $\pm 1\%$ abs.) relative permittivity: 1 bis 100 ( $\pm 0,05$ ) specific electrical resistance: 1 bis 10 M $\Omega$ m
Temperature range:	-30 °C to +150 °C, resolution/accuracy $\pm 0.1$ K
Reproducibility:	< 1%, easy recalibration
Measuring period:	approx. 15 sec, continuous measurement
Pressure range:	16 bar max (230 psi)
Reproducibility:	1%
Analogue interface:	2x 4..20 mA / 0..10 V
Digital interface:	RS 232, control software for Win9x/NT/2k/XP
Weight control unit:	1.8 kg
Mains power:	8 - 36 VDC
Power consumption:	2 W max
Sensor dimension:	M14x1.5 (passenger car), M16x1.5, M22x1.5 (truck), custom



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