

# HUMIDITY SENSOR STANDARD

## Continuous Water-in-Oil Monitoring

Excessive amounts of water in hydraulic fluids and lubricants can constitute a substantial threat to normal functioning of the engine components, e.g. causing the decreased operating performance of the auxiliary diesel. In this respect, continuous monitoring of the content of water in oil with the help of the HUMIDITY SENSOR enables efficient tracking of any occurring changes in the real time mode. Additionally to laboratory analyses that are aimed to determine the absolute content of water measured in ppm (parts per million), the HUMIDITY SENSOR STANDARD is intended to define the relative humidity value, i.e. to detect the presence of free or dissolved water in oil.



### Technical Features:

- Measuring range: 0 – 100% (rel. humidity)
- Temperature range: -20°C to +85°C
- Voltage: 9 - 33 VDC
- Max. fluid pressure: 10 bar
- Protection class: IP 67

As soon as the HUMIDITY SENSOR STANDARD is installed, it starts measuring the degree of oil saturation with water on a continuous basis. The obtained humidity value is processed to the special display unit DATALOGGER. The concentration of water is calculated in % ranging from 0 % (no water detected) to 100 % (complete saturation/ existence of free water).

Opposite to the necessity of determining the saturation limit of different oil types, for instance, comparatively low water absorption capability of mineral oils or to the contrary relatively high for ester oils, the sensor technology does not require this value for assessing the concentration of water in oil under examination.

With regard to unsaturated ester oils the use of the HUMIDITY SENSOR STANDARD is considered essential. As the measuring method of portable test devices implies the use of a reagent, it is not suitable for unsaturated esters due to the occurring reaction.

When measuring relative humidity, current temperature of oil affects the dissolving capability. So, for example, warm oil can dissolve more water than cold one and, consequently, in case of no further water supply its relative humidity increases. On the other hand, hot, relatively dry oil may suddenly contain free water if the ambient temperature cools down.

Irrespective of oil type and temperature, the HUMIDITY SENSOR STANDARD enables accurate real time measurement of humidity value providing immediate information whether the parameter is within the normal ranges or not. The sensor is ideal to use for small diameter pipes because of its depth of immersion of 29 mm, only.