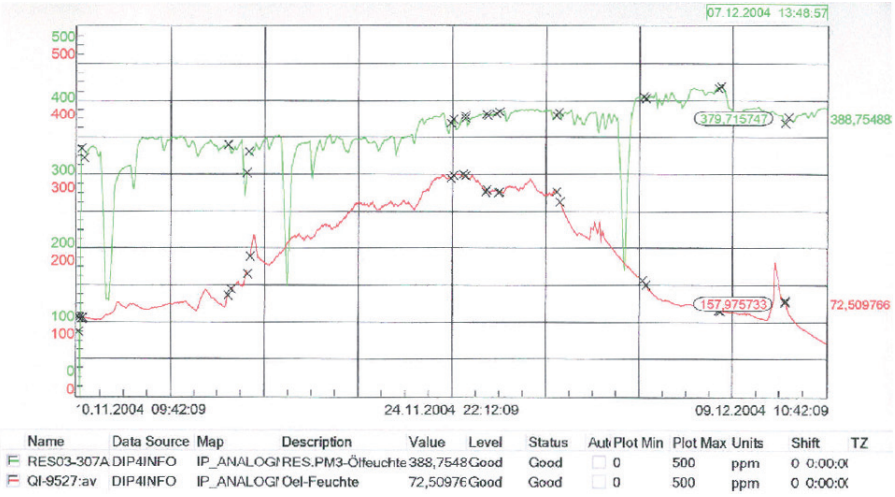
OIL MONITORING IN THE PAPER INDUSTRY

One of the most modern and efficient systems for the production of printing paper is supported by high accuracy humidity measurement from E+E Elektronik.

Previously, titration according to the Karl-Fischer method was the only method for precisely determining the water concentration in oils. Many attempts to automate this method are described in the literature.
The EE36 water activity and temperature measuring transducer EE36 uses a different method. It detects the water content of various oils continuously and online. The method is based on E+E Elektronik capacitative humidity sensors which have long-term stability and resistance to chemicals.

These monitor the moisture content of the oil, e.g. in the hydraulic oil of the pressing section, where the paper strip is dried at high pressure between felt and 4 pressing rollers. Because of this, the hydraulic cylinders of the paper



presses always work with optimum efficiency.
A further application is the measurement of moisture directly in the lubricating oil circuit, where the paper strip is heat-dried further over steam-heated drying cylinders.
By ensuring the correct viscosity and

Lubricating oil circuit

lubrication ability of the oil for the friction and roller bearings of the drying cylinders, costly repairs and the associated interruptions to production can be avoided.

The robust stainless steel measurement sensors are installed in the 8,000 l tanks of the return line in order to obtain a good average value for the quality of the oil.

In addition to measuring the activity of the water and temperature, in this application it was important to calculate the water content in ppm, as the oil supplier states a guideline value for the maximum moisture content of the oil.

The measurement does not depend on the temperature, the pressure, or the age of the oil and therefore does not depend on the operating conditions. As soon as the water content has risen to a critical value, an immediate warning is given via the process control system. Through continuous monitoring of the moisture content

of the oil, maintenance work and continuous oil changes can be optimised, leaks can be detected and breakdowns can be prevented.

As the paper mill produces with the very latest high-performance systems and the products fulfil a very high quality standard, the installation of the moisture measurement contributes significantly to safeguarding these criteria over the long term.

EE36 - cable sensor with GL approval

• Application conditions

Measurement range:	0...1 aw, -40...180°C
Outputs:	0-5V, 0-10V, 4-20mA, 0-20mA
Accuracy:	± 0,01aw; ± 0.2°C

• E+E solution

EE36
Measuring transducer for humidity measurement in oil

A remote sensor and the optional ball valve mounting permit flexible usage. GL certification
for use in the ship industry.