



Everything all right?

Optical or Acoustic

Process measurement of liquids

- **Turbidity**
- **Colour**
- **Oil in Water**
- **Water in Oil**
- **Oil on Water**

Process UV- / VIS- / NIR- Photometer

Principle of measurement

UV- & visible Light Absorption:

The emitted light from a pulsed measuring -LED (application specific measuring wavelength typically between 240nm and 720nm) passes the process stream. The decrease / increase in light- energy is affected by the concentration of organic species, benzene, colour or other substances with absorption at the specified wave length. An additional parameter which causes absorption at measuring wave length is turbidity, caused by particles.

NIR- Absorption: (optional)

The light from a pulsed reference NIR -LED (alternates with the measuring -LED) passes through the same path as described above. The decrease in near infrared- energy (typical wavelength 850nm) is mainly caused by particles / turbidity. The Turbidity value will be displayed as a second measuring result.

Dual Beam / Dual Wavelength: (optional)

Alternating absorption measurement at measuring and reference wavelength is used to compensate for turbidity. The absorption at measuring wavelength detects the application specific compounds and the turbidity.

The absorption at reference wavelength detects primary the absorption of turbidity only.

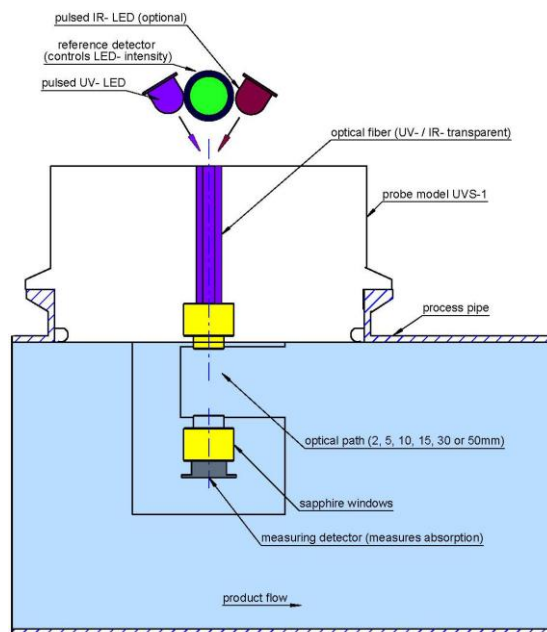
The difference between the two signals provide a turbidity compensation, so the measuring result shows substances which absorb in the specified measurement spectrum only. The absorption caused by turbidity is compensated.

Example colour measurement:

The measuring result will be calculated as follow:

[(colour absorption + turbidity absorption) - turbidity absorption] = colour absorption.

The dual wavelength measurement compensates for turbidity and results UV- / colour- absorption only without being affected by turbidity.



* The reference detector controls the intensity of the pulsed UV- / IR- LED
 ** The measuring detector receives the alternating UV- / IR- absorption signals (IR- absorption is optional)

Take notice: The figure shows the probe 90° turned in the process, this is just for better view. The typical positioning of the probe makes sure that the process stream flows thru the optical path.