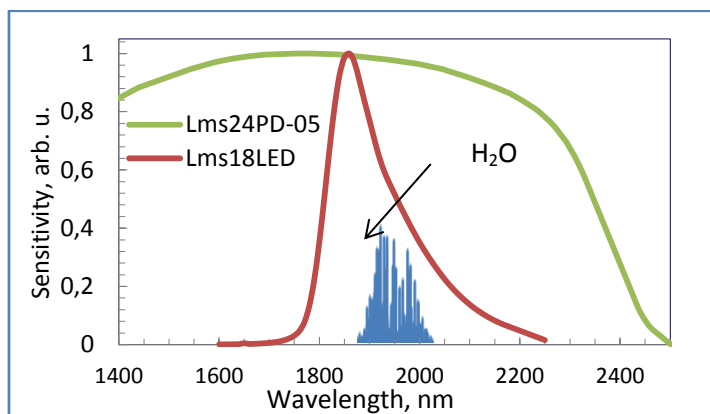




**Moisture** is presence of water in different substances. **Moisture** measurement is critical because it may affect the business cost of the product and the health and safety of the personnel. There are several different techniques of **water** detection. We offer method of **optical absorption** based on **mid-infrared** LED-PD optopair.

Water has the main absorption band at **1800–1950 nm** (the data are taken from HITRAN Catalogue). We recommend using **Lms18LED** or **Lms19LED** LEDs and **Lms24PD** series photodiode.

The spectra of an **LED** and a **PD** for H<sub>2</sub>O detection:

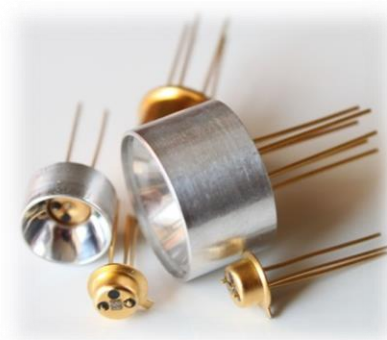


Our devices can be applied in the following **areas**:

- ▶ Medical applications (respiratory equipment, sterilizers, incubators, pharmaceutical processing)
- ▶ Paper and textile production
- ▶ Agriculture (plantation protection, soil moisture monitoring)
- ▶ Food processing
- ▶ Semiconductor industry (moisture measurement during technological processes)
- ▶ Domestic applications

**Advantages** of our devices:

- **Non-destructive** analysis
- Possibility to arrange a **compact design** of an optical cell thanks to compact size of the LED chip – **0.35 × 0.35 mm**
- No need of using additional optical filters – LED emission band width is comparable to absorption band widths of analysed substances
- **Low power consumption** (<1 mW)
- **Short response time** (10–50 ns)
- Possibility to achieve modulation **ranges** of up to **100 MHz**
- Operation temperatures up to +150°C
- **Lifetime** of **80 000 hours**



LED-PD based **evaluation systems** for **moisture measurement**

- **NEW LA-1t LED analyser** – a device oriented for the initial experiments with different liquid (and other) substances, enables defining the absorption properties of the analyzed sample in the spectral range 1.3 – 2.3 μm.

LLA's optical module includes:

- **8-element LED array** with peak emission wavelengths about 1.3, 1.4, 1.6, 1.7, 1.9, 2.1, 2.2 and 2.3 μm;
- **Wideband photodiode** with a cut-off wavelength about 2.4 μm and 2 mm sensitive area diameter.
- **ZigBee/Bluetooth** wireless data transmission module for **fast data transfer** to a data **control center**
- Battery power supply for **autonomous operation**



LA-1t LED analyser