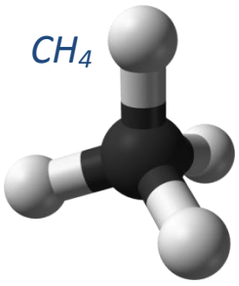
METHANE detection

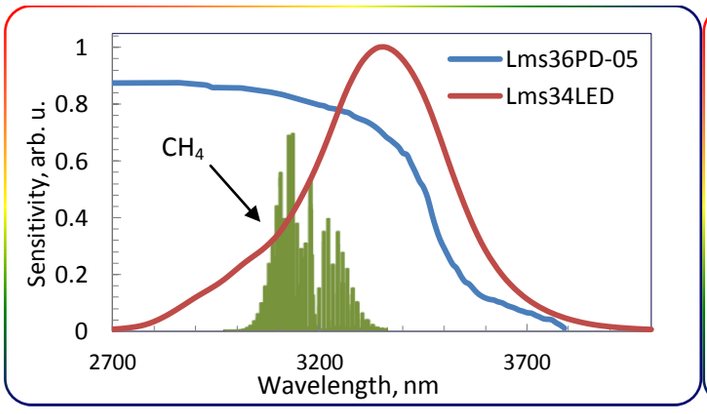


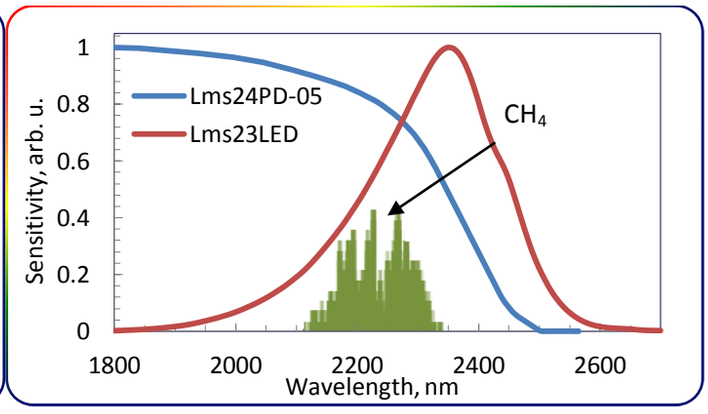
Methane is produced by many **natural** and **human-influenced sources**. There are several different techniques of methane detection. We offer method of mid-infrared optical absorption based on LED-PD optopair.

Methane has the main absorption band at **3200-3400 nm**. Weaker absorption bands that can be used for detection are located around 2300 nm and 1650 nm (the data are taken from HITRAN Catalogue). So, we recommend using:

- for **compact** measuring cells and/or for detection of **low** CH_4 **concentrations**: light emitting diode **Lms34LED** and **Lms36PD** series photodiode;
- for **long-path** measuring cells and/or for **high** CH_4 **concentration** detection: light emitting diode **Lms23LED** and **Lms24PD** series photodiode.

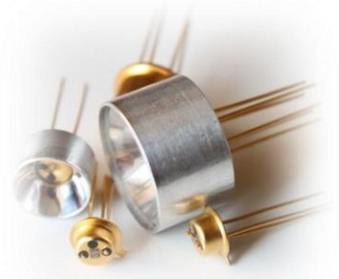
The features of **LEDs** and **PDs** for CH_4 detection:





Advantages of our devices:

- 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 width of CH_4
- **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 methane

For quick start we offer **out-of-the-box** solutions that can be launched with minimal effort – **evaluation systems**:

- Flexible **evaluation kit** with modular design that includes:
  - Light emitting diode Lms34LED (other LED is available) with an LED driver
  - Photodiode Lms36PD (other PD is available) with a preamplifier
  - SDM synchronous detector
- **MDS-3** system with a 3-pass gas chamber that provides optical path about 70-80 mm long and efficient focusing of the LED emission on the PD sensitive area. The system includes:
  - 3-pass optical chamber
  - Light emitting diode Lms34LED with an LED driver
  - Photodiode Lms36PD-05 with a preamplifier
  - SDM synchronous detector
- **NEW MDS-4** methane evaluation system – a low-cost system with “on-board” design that includes a very compact optical cell and electronics for LED power supply and PD signal amplification all-in-one.

MDS-3 optical cell