**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 CH₄ concentrations: light emitting diode Lms34LED and Lms36PD series photodiode;
- for long-path measuring cells and/or for high CH₄ concentration detection: light emitting diode Lms23LED and Lms24PD series photodiode.

The features of LEDs and PDs for CH₄ 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 in additional optical filters – LED emission band width is comparable to absorption band width of CH₄
- Low power consumption (<1 mW)
- Short response time (10–50 ns), 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:

- **MDK** and evaluation kit with modular design that include:
  - Light emitting diode Lms34LED-RW (other LED is available) with an LED driver
  - Photodiode Lms36PD-05-RW (other PD is available) with a preamplifier
  - SDM synchronous detector
  - Any additional component(s) can be added by request

- **NEW MDK-c** evaluation kit with modular design that include:
  - LED Lms34LED-CG-R (LED with a special glass covering) with an LED driver
  - Photodiode Lms36PD-05-CG-R (PD with a special glass covering) with a preamplifier
  - SDM synchronous detector
  - Any additional component(s) can be added by request

- **NEW MDS-5** system with a compact optical cell that incorporates an LED and a photodiode with a special glass covering. It includes all the needed circuitry for quick setup: LED driver, photodiode preamplifier, synchronous detector.

- **NEW MDS-4 methane sensor module** – a low-cost “on-board” system with very low power consumption that includes a compact optical cell and electronics for LED power supply and PD signal amplification all-in-one.