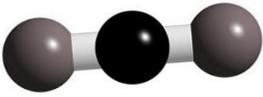


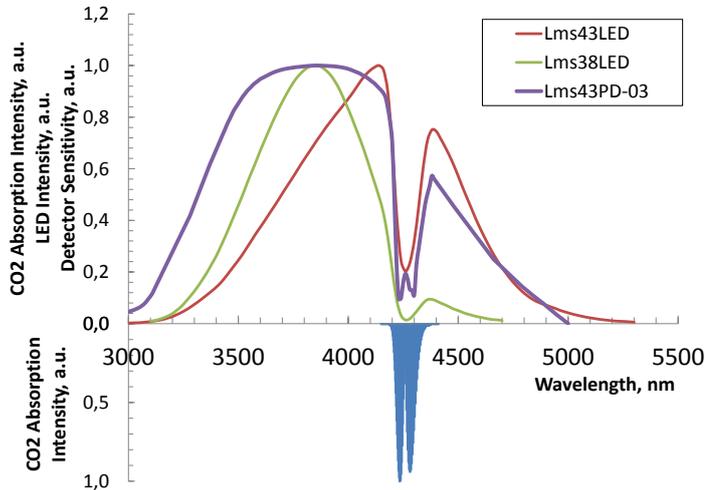
CO₂



Carbon dioxide has a wide range of commercial uses, from the production of lasers to the carbonation of soft drinks. This gas has become a topic of interest because it is classified among the greenhouse gases, gases which impact the Earth's environment when they reach high concentrations in the atmosphere.

Carbon dioxide has the main absorption band at **4200-4300 nm** (the data are taken from HITRAN Catalogue). So, we recommend using light emitting diode **Lms43LED** and **Lms43PD** series photodiode.

Spectra of LEDs and PDs for CO₂ detection:



Range of **applications**:

- HVAC (heating, ventilation, and air conditioning)
- refrigeration and cooling
- foods and beverages (measurement of CO₂ concentration during drinks carbonation, winemaking process, bakery etc.)
- greenhouses (CO₂ emission control)
- pharmacy and other chemical processing (quantification of liquid CO₂ used as solvent)
- automotive industry (combustion control, welding control)

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 bandwidth is comparable to absorption band width of CO₂
- ▶ **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 **carbon dioxide measurement**

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

- **CDK** evaluation kit with modular design that includes:
 - Light emitting diodes Lms43LED-RW (other LED is available) with an LED driver
 - Photodiode Lms43PD-03-RW (other PD is available) with a preamplifier
 - SDM synchronous detector
 - Any additional component(s) can be added by request
- **NEW CDK-c** evaluation kit with modular design that include:
 - LED Lms43LED-CG-R (LED with a special glass covering) with an LED driver
 - Photodiode Lms43PD-03-CG-R (PD with a special glass covering) with a preamplifier
 - SDM synchronous detector
 - Any additional component(s) can be added by request
- **COMING SOON CDS-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.
- **COMING SOON CDS-4 carbon dioxide 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.



New LEDs and PDs with a special glass covering (present in CDK-c/CDS-4/CDS-5)



optical cell included in CDS-4/CDS-5



CDS-4 sensor module prototype