# CO000016 - OCIEngine Ethanol NDIR GAS SENSOR

OCIEngine is an **infrared spectrometer that measures ethanol (C_2H_6O) in air.**
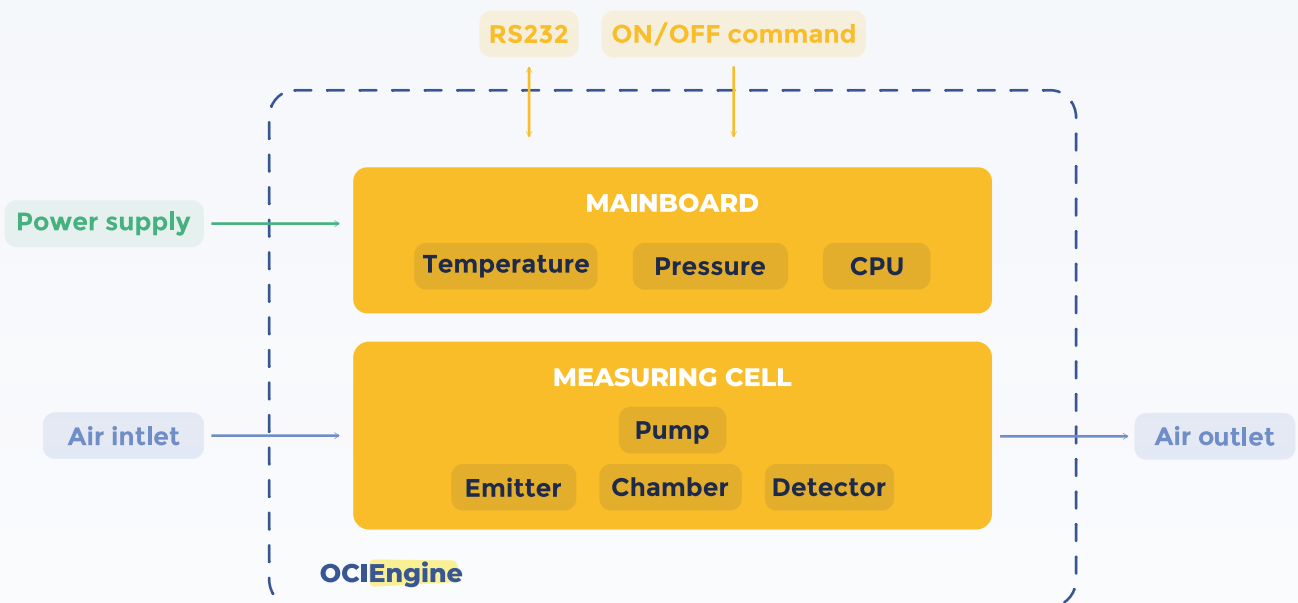
Infrared radiation passes through the sensor's measuring cuvette. When air is introduced into the cuvette, the molecules of interest absorb part of the radiation, reducing the intensity of the optical signal. The concentration of the gas can then be deduced according to Beer-Lambert's law.
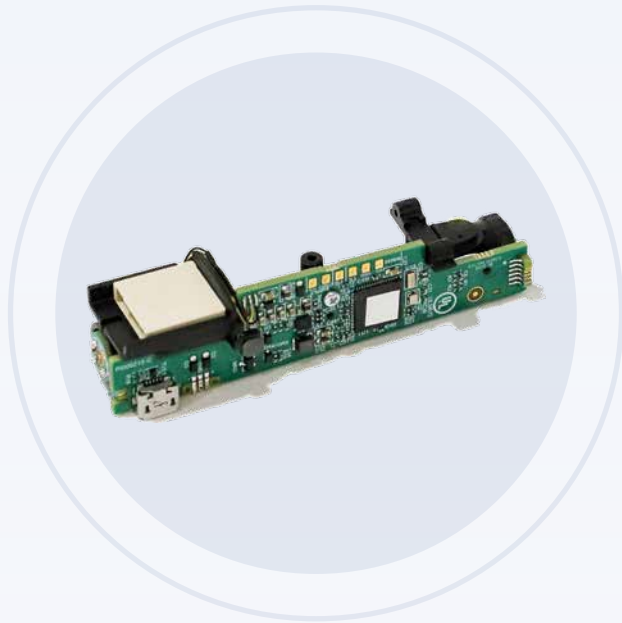
ADVANTAGES

- Thermally stabilized tank for sampling in wet gases
- Fast and consistent measures at all concentrations
- High selectivity with minimal interferences
- Direct flow measurement capability
- Long-term precision and reliability
- Low power consumption
- Compact design for embedded systems

SENSOR ARCHITECTURE

RS232   ON/OFF command

Power supply

MAINBOARD
Temperature   Pressure   CPU

Air intlet

MEASURING CELL
Pump
Emitter   Chamber   Detector

Air outlet

OCIEngine

Technical specifications

ETHANOL DETECTION

Unit of measurement	µg/L for Breath alcohol content (BrAC) in exhaled air (others on resquest : ppm)
Measurement range	From 50 to 4000 µg/L 50 µg/L corresponds to the detection limit of the measuring cell
Measurement accuracy	± 20 µg/L @ 100 µg/L ± 40 µg/L @ 400 µg/L

SAMPLING CHARACTERISTICS FOR EXHALED AIR ANALYSIS APPLICATION

Test duration	4500 ms minimum
Flow rate range	From 0,1 to 1,5 L/min
Air inlet	Minimal relative pressure at measuring cell inlet port: 0.3 millibars Maximal relative pressure at measuring cell inlet port: 10 millibars
Sampling period	125 ms

ENVIRONMENTAL CONDITIONS

Operating conditons - Temperature	From 0°C to 50°C
Storage conditions - Temperature	From -10°C to 70°C
Typical starting time (pre-heating phase)	@ 0°C: 160 s. / @ 10°C: 80 s. / @ 20°C: 60 s. / @ 40°C: 40 s.

ELECTRICAL CHARACTERISTICS

Supply voltage	3,5 VDC min 5,5 VDC max
Input current	1,5A max
Communication interface	RS232 protocol (other on request) Solder pad connection (recommended cable sections : ≤0.13 mm² AWG ≥ 26)

MECHANICAL CHARACTERISTICS

Dimensions	21 x 21 x 80 mm
Weight	17 g
External plastic casing	ABS PC-UL94V0
Fixing parts	3 apertures (Ø 1.6 mm) compatible with self-tapping screws (1.8 mm recommended) to fix the OCIEngine sensor