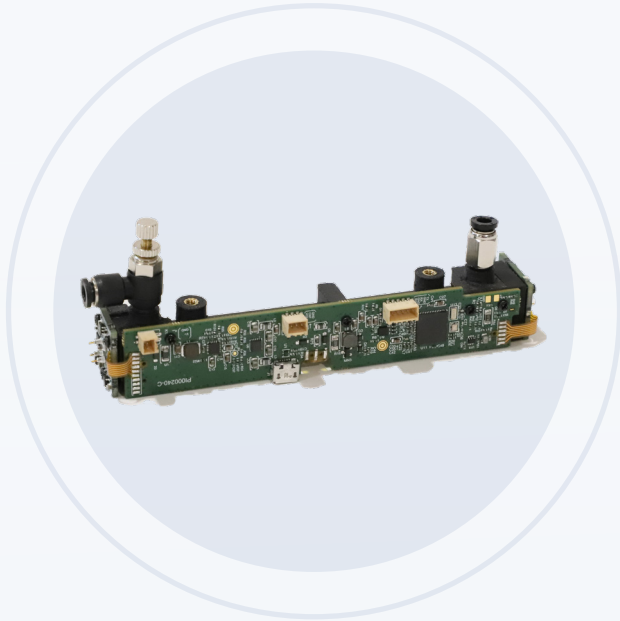


CO000025 - OCIEngine PRO CO₂ NDIR GAS SENSOR

OCIEngine PRO is an **infrared spectrometer that measures carbon dioxide (CO₂) in air.**

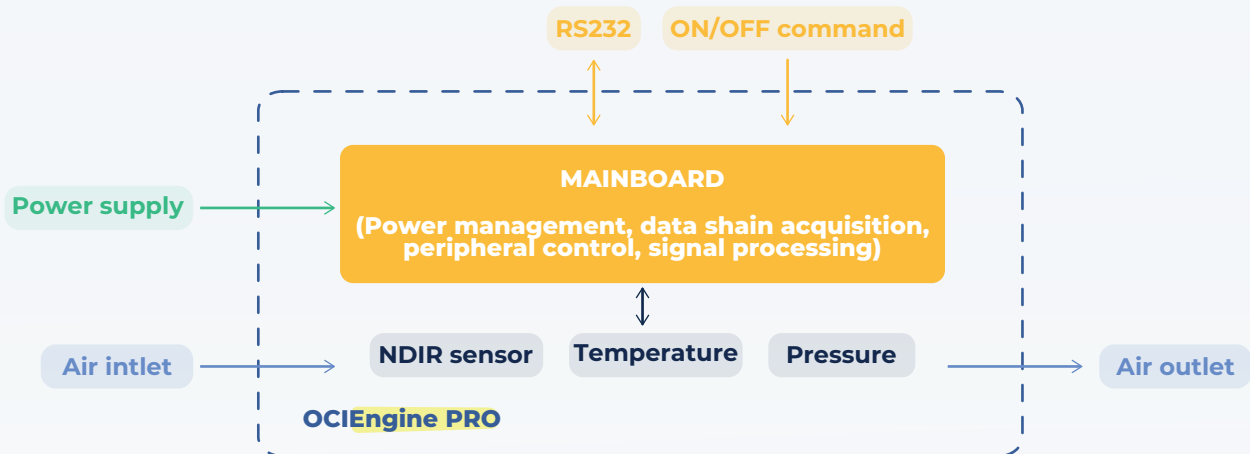
Infrared radiation passes through the sensor's measuring cuvette. When air is introduced into the cuvette, the molecules of interest absorb part of the radiation, reducing the intensity of the optical signal. The concentration of the gas can then be deduced according to Beer-Lambert's law.



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



Technical specifications

CARBON DIOXIDE DETECTION (Test conditions: 23°C, 50%RH, 1013 mbar)

Unit of measurement	%
Measurement range	From 0 to 10%
Repeatability (3 σ)	0.5% Full Scale+ 1% reading
Linearity error	1% reading
Long term drift (span)	1% reading
Pressure effect	0.05% reading /mbar
Temperature effect	0.1% reading / K
Detection limit (3 σ)	0.5% full scale
Cross sensitivity	Consult manufacturer

SAMPLING CHARACTERISTICS

Sampling period	125 ms
Response time	1s ($\tau=63\%$), at a flow rate of 1 L/min
Pressure range	Minimal relative pressure at measuring cell inlet port: 0.3 millibars Maximal relative pressure at measuring cell inlet port: 10 millibars
Flow rate range	From 0,1 to 1,5 L/min

ENVIRONMENTAL CONDITIONS

Operating conditions	From 0°C to 40°C for breath analysis From -20°C to 70°C for other applications
Storage	From -20°C to 70°C
Typical starting time at 23°C	1 minute (30 minutes at full specifications)
Humidity	< 100% relative humidity (RH), not condensing

ELECTRICAL CHARACTERISTICS

Supply voltage	3,5 VDC min 5,5 VDC max
Input current	1,5A max
Communication interface	RS232 protocol: Voltage level: $\pm 5,5V$; 3 wires mode x3 Pico-SPOX MOLEX connector (2, 3 and 5 contacts)

MECHANICAL CHARACTERISTICS

Dimensions	125 x 30 x 22mm
Weight	~20 g
External casing	Plastic
Fixing parts	2 tapped holes for M3 fixing. Length max=5mm

