The ProCeas® N2O is a complete pre-calibrated laser infrared spectrometer for measurement of low level of the greenhouse gas N2O in combustion process and pure gas.

The ProCeas® N2O uses the patented OFCEAS (WO 03031949) IR Laser technology for enhanced specificity, selectivity, accuracy and stability (no instrumental response drift.)

The ProCeas® N2O uses a patented low-pressure sampling system (WO 2010058107) enabling low-cost installation thanks to non-heated lines* and reduced maintenance.

The ProCeas® N2O is a complete, reliable, robust, low-cost and easy-to-use solution for the N2O analysis in combustion process and pure gas.

ProCeas® Advantages & Benefits

- **DIRECT MEASUREMENT**
  - No sample pre-treatment
  - OFCEAS technology associated with low pressure sampling enables direct measurement. The low pressure in the sampling system removes any risk for chemicals adsorption/desorption and condensation in the line.

- **NO INTERFERENCE**
  - OFCEAS technology associated with low pressure sampling provides exceptional selectivity, enabling simultaneous multi-component measurement without interferences, regardless of the matrix.

- **NO RE-ZERO; NO DRIFT**
  - The zero information is contained in the signal, enabling automated and intrinsic re-zero of the analyzer.

- **EASE-OF-USE**
  - The ProCeas® is pre-calibrated for your application. Initially packaged in a standard 19" rack, it includes a touch screen interface and on-board PC for local / remote control and real time display / recording of results.

- **EASE-OF-INTEGRATION**
  - The ProCeas® allows digital (Ethernet, RS485, RS232, ModBus), analog and TDR I/O’s.

- **ROBUSTNESS**
  - The ProCeas® contains no optical moving parts and was designed and built strictly for industrial and on-board mobile applications.

- **LOW MAINTENANCE**
  - High MTBF.
  - In addition to containing no moving optical components, the IR sources (telecom type laser) are characterized by MTBF’s of 5 years.

- **CLEAN LINES / FILTERS**
  - The low pressure sampling system enables low flow rates (3-9 L/h) without degrading response time. Accumulation of contaminants lines and filters is greatly reduced.

- **SAFE**
  - ATEX compliant configuration available.

* Requires ambient temperature > 10°C and H2O < 65 % vol
SAMPLING
Flow Rate: 3-9 L/h
Max. Temp.: 600°C
Max. Humidity: H₂O(g) < 65% vol. - Standard
H₂O(g) > 65% vol. - Study Required
Pressure: 1 atm ± 100 mbar @ sampling point
Sampling Line: Ambient Temp. > 10°C et H₂O < 65% vol.
> Simple polytube (no heating)
Ambient Temp. < 10°C et H₂O > 65% vol.
> 80°C heated line

DIMENSIONS
Size: standard 19", 4U rack
550 mm depth
Weight: 20 kg
Options: Wall mounted
ATEX compliant integration

ELECTRONICS
Display/Control: 5.7” diagonal color touch screen
PC OS: Windows® XP®
Software: WinProceas ©

INSTALLATION REQUIREMENTS
Operating Temp.: 15-35°C - Standard
10-40°C - Optional
Power supply: 200 W - 110-220VAC - 50-60Hz
Compressed Air: 1-6 bar (oil free). Not provided.

ANALYTICAL SPECIFICATIONS
Gas Range \(^{a}\) min max LOD \(^{b}\) min max
N₂O 50 ppm 100% 2 ppb 1000 ppm
Optional
CH₄ 50 ppm 100% 1 ppb 1000 ppm
NH₃ 50 ppm 100% 1 ppb 1000 ppm
Response Time <2 seconds
Zero Drift: none

SPECTRA (Examples) - 200 equidistant data points over 0,2 nm

LAYOUT FROM SONIC NOZZLE TO ProCeas ANALYZER

GAS PROCESS
Sonic nozzle 3-9 L/h
2 µm filter/passivated rock wool
Heated line option
Standardized gas + Backflush
Sample 30 to 90 L/h @100 mbar

Polytube 2 PFA 1/4" cores

Remote analog / digital I/O’s option
Standardized gases 1 regulated bar

ProCeas
Air conditioned room

Oil / dust free dry air (6 bar ± 0.5)
- 200 L/h

110/220V 50/60 Hz 3A

Exhaust

Jbus - Modbus RS232 / 485 / ETH outputs
USB ports (keyboard, mouse, data..)

Pump 3-9 L/h @P° Atm