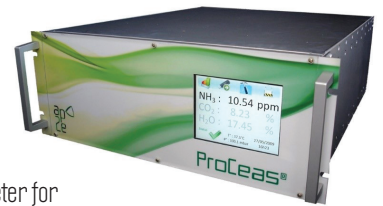


On-line monitoring

# ProCeas<sup>®</sup> H<sub>2</sub>O LNG analyzer

## Low level Detection of H<sub>2</sub>O in liquified natural gas<sup>\*\*</sup>



## ProCeas<sup>®</sup>

- No sample pre-treatment
- No Heated Lines\*
- Multi-Components
- Pre-Calibrated
- No interference
- No Drift

◊ **The ProCeas<sup>®</sup> H<sub>2</sub>O** is a complete pre-calibrated laser infrared spectrometer for low level detection of H<sub>2</sub>O in LNG.

◊ **The ProCeas<sup>®</sup> H<sub>2</sub>O** uses the patented OFCEAS (WO 03031949) IR Laser technology for enhanced specificity, selectivity, accuracy and stability (no instrumental response drift.)

◊ **The ProCeas<sup>®</sup> H<sub>2</sub>O** uses a patented low-pressure sampling system (WO 2010058107) enabling low-cost installation thank to non-heated lines\* and reduced maintenance.

◊ **The ProCeas<sup>®</sup> H<sub>2</sub>O** purity is a complete, reliable, robust, low-cost and easy-to-use solution for low level detection of H<sub>2</sub>O in LNG.

## ProCeas<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> allows digital (Ethernet, RS485, RS232, ModBus), analog and TDR I/O's.

### ◊ ROBUSTNESS

The ProCeas<sup>®</sup> 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.

** C <sub>1</sub> :	100%
C <sub>2</sub> :	20%
C <sub>3</sub> :	15%
C <sub>4</sub> :	5%
C <sub>5+</sub> :	2%
CO <sub>2</sub> :	20%
H <sub>2</sub> S :	5000ppm

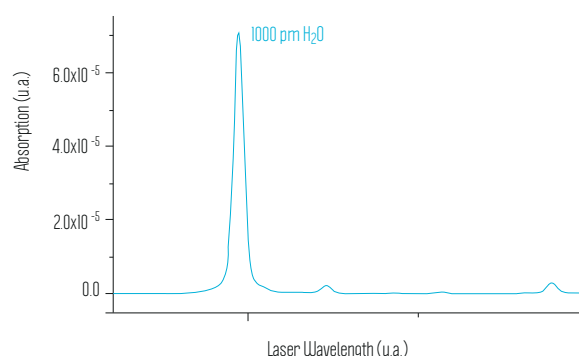
\* Requires ambient temperature > 10°C and H<sub>2</sub>O < 65 % vol

SAMPLING	
Flow Rate :	3-9 L/h
Max. Temp. :	600°C
Max. Humidity :	H <sub>2</sub> O(g) < 65% vol. - Standard H <sub>2</sub> O(g) > 65% vol. - Study Required
Pressure :	1 atm. ± 100 mbar @ sampling point
Sampling Line :	Ambient Temp. > 10°C et H <sub>2</sub> O < 65% vol. > Simple polytube (no heating)  Ambient Temp. < 10°C et H <sub>2</sub> O > 65% vol. > 80°C heated line
DIMENSIONS	
Size :	standard 19", 4U rack.  550 mm depth.
Weight :	20kg
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.

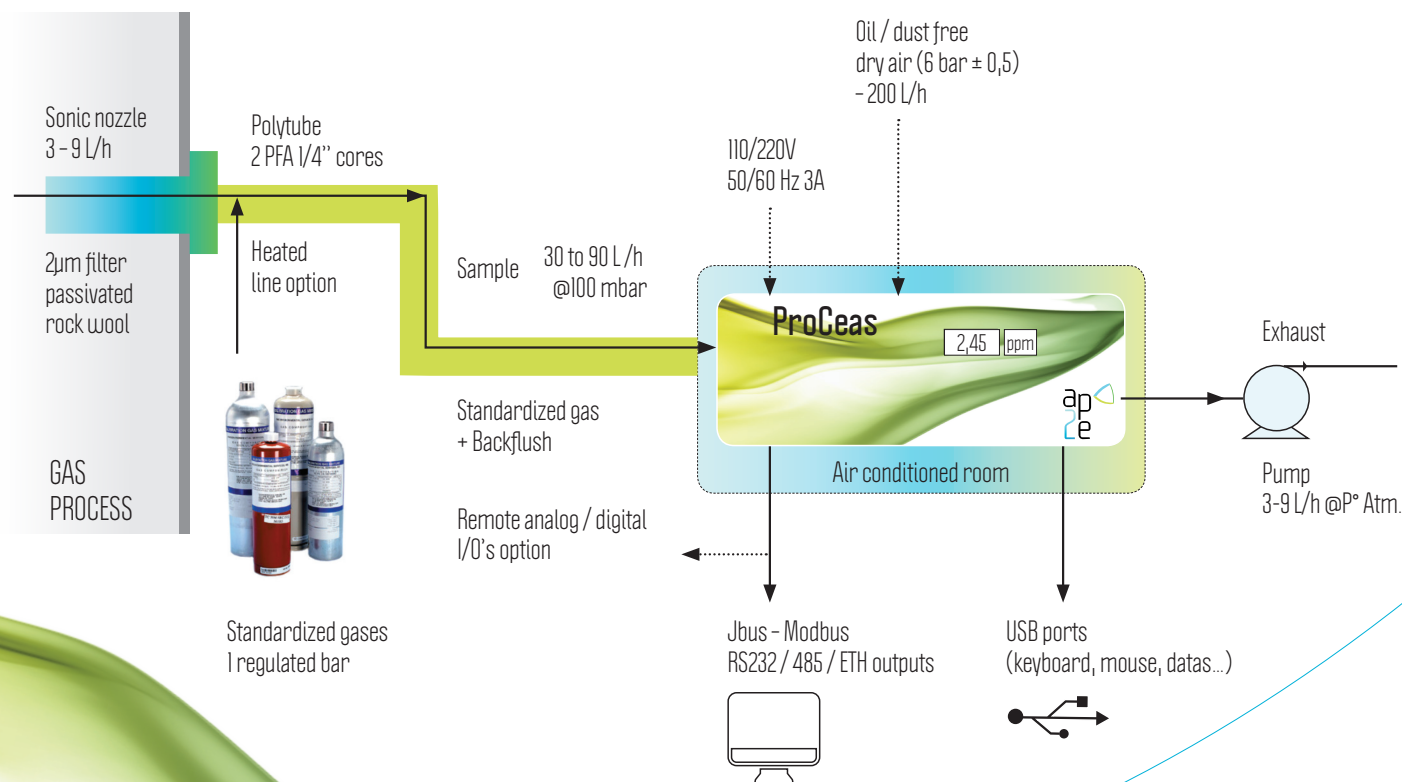
I / O's				
Standard :	Ethernet Protocol; RS 485 RS 232; ModBus.			
Optional :	Analog I/O; TDR I/O. Other I/O's on request			
ANALYTICAL SPÉCIFICATIONS				
Gas	Range <sup>a</sup>		LOD <sup>b</sup>	
	min	max	min	max
H <sub>2</sub> O	1000ppm	100%	5ppb	1000ppm
Response Time	<30 seconds.			
Zero Drift :	none			

<sup>a</sup> adjustable range on request  
<sup>b</sup> limit of detection 3 Sigma

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



## LAYOUT FROM SONIC NOZZLE TO ProCeas ANALYZER



240, rue Louis de Broglie  
Les Méridiens Bât A  
F-13593 Aix-en-Provence Cedex  
Tel : +33 (0)4 42 61 29 40



info@ap2e.com www.ap2e.com