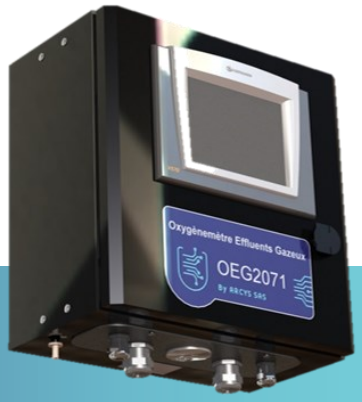
Oxygen-meter OEG2071

Continuous measurement and monitoring gaseous effluents from the TEG circuit



The OEG2071 oxygen meter is used to monitor the risk of oxygen entering the radioactive and hydrogenated gaseous effluents from the TEG circuit of PWR type nuclear power plants. In particular, it is installed in all EDF power plants in France and in CPR1000 power plants in China. The OEG2071 oxygen meter is ATEX certified.

BENEFITS

> Continuous online measurement

> O2 measurement range: 0 to 21% with 0.1% resolution

> Qualified to operate in a hydrogenated and radioactive environment

OPERATING PRINCIPLE

The oxygen level, temperature and pressure are measured and monitored continuously in hydrogenated and radioactive gaseous effluents from the TEG circuit.

The oxygen sensor operates on the principle of an electrochemical cell with a membrane which supplies a current proportional to the oxygen level. This sensor delivers a current proportional to the oxygen content.

Pressure and temperature sensors provide the necessary compensations.

Semi-automatic calibration is performed by injecting an oxygen gas standard. Calibration results are stored.

The calibration process takes into account:

- Previous calibrations
- The acceptance criteria
- Anomaly detection

Two alarms are retransmitted to the control room and warn the operators of a threshold overrun. Stage 2 causes the TEG compressors to stop.

A malfunction alarm is also present to alert operators in the event of too low a flow rate or an abnormal parameter (temperature, pressure, calibration fault).

PROVEN TECHNOLOGY

ARCYS has designed this analyzer especially for PWR type nuclear power plants. The technology used allows:

- Exceptional availability
- The use and operation of measuring plate in an ATEX zone
- Earthquake resistance increased by Safety

This solution is installed by EDF (in 100% of its power plants in France) and has been installed in the CPR1000 power plants in China.

100%

Of french power plants are equipped with the OEG2071 !

OEG2071, MEASUREMENT BOARD + ELECTRONIC BOX :

> Oxygen sensor (principle : Hersch cell)

> Temperature sensor (PT100)

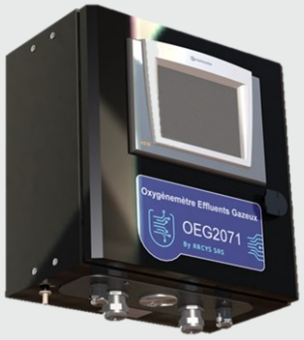
> Pressure sensor (Wheastone bridge)

> Semi-automatic calibration (by injection of a gaseous oxygen standard)

> Flow rate alarm

> Measurement plate equipped with a condensate collection capacity

> RCC-M 3 board



Electronic box OEG2071

Measurement board OEG2071

TECHNICAL SPECIFICATIONS

O_2 sensor performance	
Relative error	< ±5% or ±0.1% vol.
Stability (1 month)	< 5% relative
Repeatability	± 5% or ± 0.1% vol .
Response time (T90)	180s
Linearity	0 to 21% d'O_2
Environment : sample gas	
Operating pressure	0.86 to 4.5 bar (abs)
Operating temperature	20 to 35°C
Speed	80 to 200 L/h
Hygrometry	≈100% RH
Radiological activity	<1 curie/L
Dimensions / weight	
Electronic box	Dimensions : 340 x 300 x 160 mm
	Weight : 6 kg
Measurement board	Dimensions : 1000 x 950 x 272 mm
	Weight : 180 kg (without options)
Ergonomy	
Calibration	Semi-automatic
Interface	Touch screen, dialogue and commands by drop-down menus
Analog output	2 outputs 0-20 mA or 4-20mA configurable

Certifications
ATEX 9419/EC, EN 60079-25 (2004), EN 60079-11 (2007)
Classification : Ex II1/(1) G Ex ia IIC T6 à T9 50°C

ARCYS

14, Place Marcel Dassault—BP 70048—31702 BLAGNAC CEDEX (France)

Tel. : +33(0) 5 34 36 10 00 | **E-mail : sales-team@arcys.fr**

18E60176C - FR | 04/2022 - Photo credit : ©ARCYS