

Hydrogen Analyzer DH1021

Monitor dissolved hydrogen concentration in the primary circuit



The DH1021 is an analyzer for measuring the dissolved hydrogen concentration in the PWR primary circuit, which is based on the principle of hydrogen absorption on palladium.

BENEFITS

- > Permanent measurement with a robust sensor
- > Reduced maintenance and low operating cost
- > Work at high pressure



Monitoring the rate of dissolved hydrogen in the water of the PWR primary circuits is an important operating for reactor safety.

In fact, it makes it possible to ensure that the H₂ concentration is sufficient to limit the phenomenon of water radiolysis and the risks of corrosion of the primary circuit.

as the evolution curves of the H₂ content, the temperature, the characteristics of the sensors. A data logger is integrated on an SD card included in the device.

Filament regeneration is automatic. The DH1021 can now operate in a wide H₂ range, from 0 to 70 cc/kg, in water with low conductivity.

THE SOLUTION

Based on the resistance variations of a Palladium filament immersed in water, the DH1021 analyzer requires no consumables and requires no periodic maintenance.

It operates directly at the pressure of the primary circuit.

PROVEN TECHNOLOGY

Used by EDF since 1974.

The DH1021 model is a major evolution implementing digital technology.

The measurements are displayed on a large color touch screen, the operator can access the realtime evolution of the H₂ concentration as well



Sensor head H₂ DH1021

AVAILABLE OPTIONS

Calibration : ARCYS has developed a primary water sampling device (Phase Separator SPM-1) which is used for the calibration and verification of the proper functioning of the DH1021 Hydrogen Meter.

Options :

- Ultrasonic flow measurement, non-invasive, integrated into the electronic box
- Remote digital indicator
- LoRa communication by radio frequencies



Electronic box DH1021

TECHNICAL SPECIFICATIONS

Measurement characteristics	
Measurement range	0 to 70 Ncm ³ .kg ⁻¹
Accuracy	± 5% or ± 1 cc/kg (the greater of the values) in the sample temperature range of 20 to 35°C
Sample characteristics	
Debit	80 to 250 L/h
Pressure	From 2 to 165 bars rel
Sample temperature	10°C to 50°C
Conductivity	3 < Cond < 100µS.cm ⁻¹
Ambient conditions	
Temperature	0 to 50 °C
Relative humidity	< 95 %
Vibrations	9 Hz to 150 Hz, < 9,8 m.s ⁻²
Material in contact with the sample	Inox 316L and Halar
Outputs	
2 x 4/20 mA (Lin/ Log). Galvanic isolation	
4 x alarm relay (measurement, malfunction, level 1 H2, level 2 H2). 300VDC or 400 VAC, 5A.	
1 x RS232/RS485	
Dielectric	> 100 MΩ. Test voltage : 500 V
Hydraulic in/out	Tubing : 14 mm OD 316L. Thickness : 2,5 mm
Electrical specifications	
Supply	100/240 V, 50-60 Hz
Consumption	< 5 W. Circuit breaker 6A < 40 W in regeneration phase
Physical characteristics	
Protection sign	IP65
Dimensions (L x H x P)	Electronic box : 395 x 280 x 220 mm Sensor : 395 x 355 x 110 mm
Weight	Electronic box : 15 kg Sensor : 10 kg

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