Flowmeter option for DH-1021

The most robust and suitable solution for hardening dissolved hydrogen measurement.

The addition of the non-intrusive flowmeter option to the DH1021 PLC allows continuous reading of the flow rate in the sampling line, management of alarms during non-compliant flow rates and protection of the H_2 sensor by inhibiting regeneration automatically in case of no flow.

BENEFITS

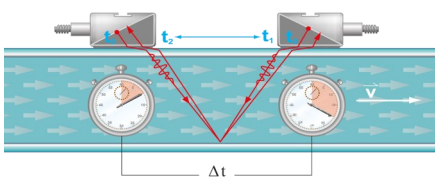
> Flowmeter automaton fully integrated into the DH1021

> Non-intrusive sensors

> Continuous flow measurement on the DH1021 PLC

> Alerts in the event of non-compliant flow and escalation of the fault in the control room

> Suppression of automatic regeneration if no flow



Schematic diagram : flow measurement by ultrasound

GOAL

The reliability of dissolved hydrogen measurement depends on 3 main operating parameters:

- The temperature (measured continuously by the DH1021)
- Pressure (optional)
- And flow

Continuous flow measurement is important since an absence or too low a flow can cause erroneous measurements and the deterioration of the sensor during automatic regenerations.

SOLUTION

The integration of the flow measurement in the DH1021 constitutes the most robust solution and adapted to the hardening of the measurement of dissolved hydrogen.

This qualified integration at the CNPE du Blayais in collaboration with CEIDRE makes it possible to report the flow rate value directly on the DH1021 display, to block automatic regenerations and to report a local flow rate alarm in the event of a flow rate below a threshold value.

Only an integrated solution makes it possible to meet these operating and measurement sustainability constraints. The choice of a non-intrusive measurement technology allows installation and maintenance without any intervention on the existing line.

FUNCTIONING OF THE DH1021 INTEGRATED NON-INTRUSIVE FLOWMETER WORKS

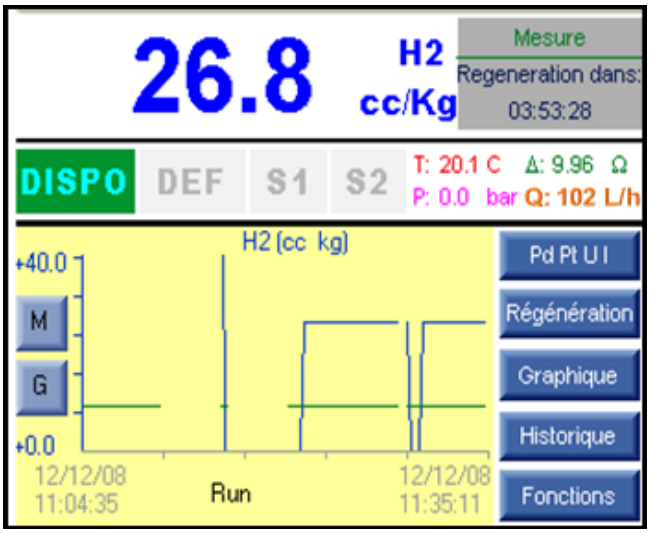
Two sensors are positioned on the dissolved hydrogen measurement sampling line. The sensors are non-intrusive, which avoids the modification of the lineage and the creation of “hot” points:

- The sensors are connected to the DH1021 PLC which an independent computer is integrated in
- The sensors emit and receive ultrasonic signals which make it possible to calculate the flow rate in the sampling line
- The flow rate value is continuously displayed on the screen of the DH1021 controller
- The ultrasonic measurement ensures a value with 5% guaranteed accuracy and without drift over time

TECHNICAL SPECIFICATIONS

Measurement characteristics	
Measurement range	5 to 250L/h
Accuracy	5% relative
Ambient temperature	-10°C to +40°C
Maximum humidity	95%
Protection sign	IP65
Radiation resistance	660Gy (flow sensor)
Supply	20-32V DC, provided by the DH1021
Internal diameter of sample water tubes	10 to 50 mm
Maximum cable lenght between transmitter and flow sensor	On demand
Materials	Stainless steels, ordinary steels, other materials
Sensors dimensions	
Lenght	230 mm
Height	84 mm
Depth	27 mm

DH1021 FLOW MEASUREMENT DISPLAY



IHM DH-1021 with flow option (Q) - ARCYS©

◀ New local flow measurement indicator (L/h)

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**

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