EVALUATOR C1000-HT

Testing of SOFC/SOEC Single Cells and Short Stacks

EMISSIONS

ELECTRIFICATION

CAV

DATA

- Power range up to 2 kW
- For endurance evaluation and accelerated stress tests of large SOFC/SOEC single cells and short stacks
- Fully automated for safe, reliable and unattended operation in hydrogen safe area
- Various top hat furnace designs including automatic compression load
- Excellent reliability due to inhouse developed controller strategy

HORIBA Automotive

EVALUATOR C1000-HT

The Evaluator C1000-HT is tailored to the needs of complex high temperature single cell and short stack testing and evaluation. The system contains all necessary features for reversible SOFC and SOEC testing including anode humidification, flow and temperature control, protection gas purge and electronic load management.

Combined with our sophisticated TestWork software, this system provides full flexibility for your specific application. Offering a huge variety of different fuel inlet gases such as hydrogen, methane or reformate fuels, the C1000-HT is ideally suited for material researchers, academics and stack developers conducting advanced fuel cell research on single cell and short stacks.

Multiple options such as back-pressure control, active gas pre-heating or hardware-in-the-loop functions can be added to further expand the capabilities of the Evaluator C1000-HT. An unique manifold concept ensures a seamless and air-tight stack adaption making this test station a powerful tool for benchmarking stack modul designs and optimizing production processes.

The integration of several devices from our diagnostic products such as the impedance analyzer allows operators to perform detailed studies of material behavior under real application conditions up to operating temperatures of 1,050 °C. All variants can be equipped with our TrueXessory fixtures allowing reproducible and rapid cell adaptation.

GENERAL FACTS	
STANDARD FUEL FLOW RANGE [NL/MIN]	0.2 to 20
STANDARD AIR FLOW RANGE [NL/MIN]	1 to 100
FOOTPRINT L X W X H, [METER] (INCHES)	2.2 x 1.2 x 2.0 (86" x 47" x 78")
GAS HUMIDITY RANGE	Saturator: Dry (by-pass) to TDP = 95 °C corresponding to 0...85 % steam in humidified gas stream; Steam generator: 0.01 to 50 g/min steam
CLAMSHELL FURNACE	Ø 250 - 350 mm x 250 - 450 mm height (10" - 14" x 10"-18")
ELECTRONIC LOAD	Up to 35 V/1,000 A/2,000 W True-0-Volt-Mode and additional power supply (SOEC mode) upon request
ACTIVE TEST ITEM TEMPERATURE SETTING	Up to 1,050 °C (1,922 °F) by clamshell furnace
SAFETY GAS PURGE	Programmable, separate and independent nitrogen / protection gas purge function for anode and cathode
SAFETY FEATURES	4-level alarming system, emergency stop, hydrogen LEL detector, optional CO detector, enclosure ventilation
DATA LOGGING	SQL data base

OPTIONS
Reformer and desulfurizer for NG, CH4 and biogas operation
Reformate and biogas simulation
Cell voltage monitoring (CVM)
limpedance analysis
TrueXessory-HT (cell fixtures and housings)
Reversible load operation (electrolysis and fuel cell mode)
Compression load control
Automated leakage test
Furnace atmosphere sampling
UPS

SAFETY	
CE CONFORMITY MARKING (ACCORDING TO)	EMC directive 2014/30/EC Low voltage directive 2014/35/EC ATEX directive 2014/34/EC General product safety directive 2001/95/EC Machinery directive 2006/42/EC Pressure equipment directive 2014/68/EC
RISK ASSESSMENT	DIN EN ISO 13849 DIN EN ISO 12100

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