

# StackEIS

StackEIS-12050A-500

High-power EIS Analyzer  
for up to 5 kW H2FC stacks

Version 1.2  
2021-08-08



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## Quick summary

❖ Load configuration	for parallelization with external DC load
❖ Input voltage	10 .. 120 V
❖ Input current	0 .. 500 A (internal+external load)
❖ Internal load	0 .. 50 A, max. 500 W
❖ Cooling	Air
❖ EIS - Impedance spectroscopy	1 mHz .. 100 kHz
❖ EIS amplitude	0 .. 20 A



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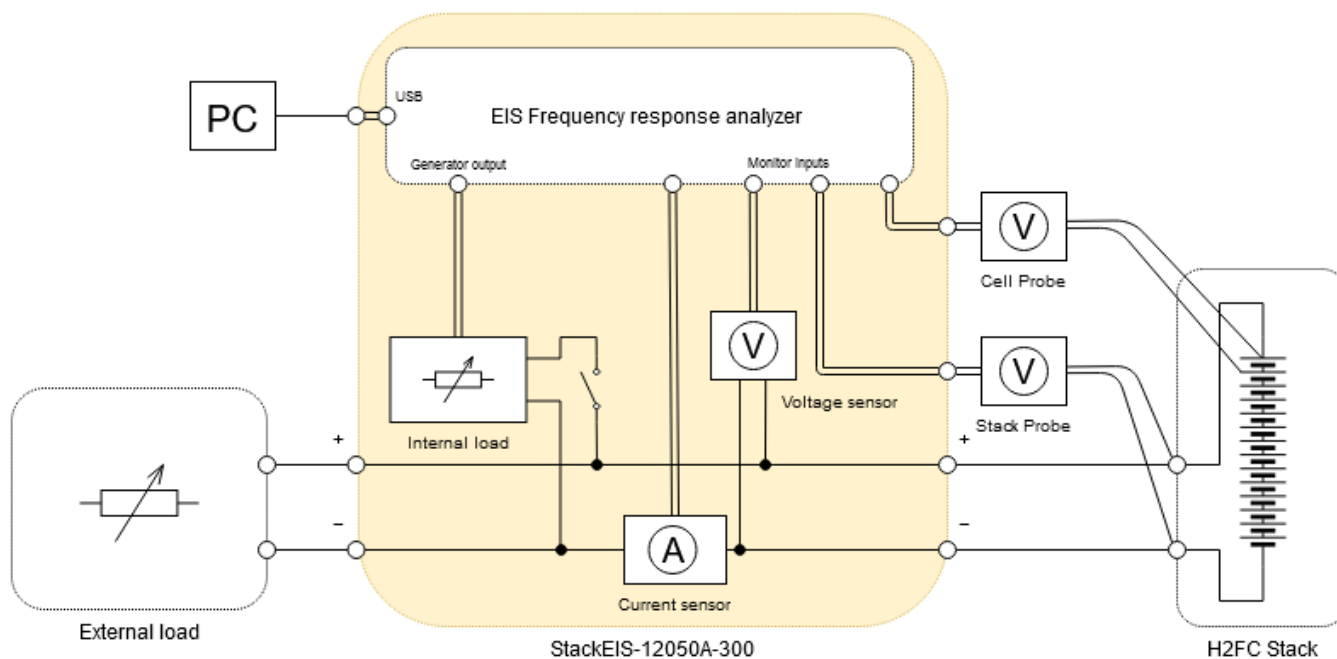
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## StackEIS

**StackEIS** is a precise testing system for **EIS analysis of H<sub>2</sub>FC stacks**. System is designed for cooperation with external DC load which handles most of the stack power. Maximum power dissipation of internal EIS load is **500 W** which allows to measure stacks up to 5 kW.

For EIS acquisition there are two probes. One for whole stack, second for an individual cell. Probes are multiplexed for EIS measurements. DC voltage acquisition is simultaneous.

For EIS analysis of stacks above 5 kW of power, see water-cooled models that can handle more than 1000 A of current and 10 kW of internal power dissipation. For simultaneous EIS acquisition of more/all channels, see **StackEIS-M** produkt family.



*Block scheme and StackEIS system connection*

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## Technical Parameters

Power supply	230V AC / 50..60 Hz
Dimensions	19" rack cabinet, 4U height, 350 mm depth
Protection rating	IP20
Input voltage	10 .. 120 V
Total input current (internal+external load)	0 .. 500 A
Internal load current	0 .. 50 A
Max. internal load power dissipation	500 W
Cooling	Air
Stack electrometer voltage range	-120 V ... +120 V
Sampling	24-bit ADCs, 1 ksps internal, 50 sps filtered sampling 14-bit ADCs, up to 20 Msps for EIS measurements
Measurement resolution	0.001 % of selected range for $\leq 1$ ksps sampling
Accuracy	Voltage $\leq 0.1$ % of range + 0.1 % of reading Current $\leq 0.1$ % of range + 0.5 % of reading
Acquisition methods	constant V, I, open circuit, manual control chronoamperometry, chronopotentiometry linear sweeps, I/V characteristics impedance spectroscopy  programmable sequences of all available methods

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EIS frequency	1 mHz .. 100 kHz
EIS amplitude	up to 20 A for < 1 kHz
Connection	USB 2.0
Additional interfaces and I/Os	E-Stop / Interlock input, digital outputs for alarm status reading
Software	Control software for MS Windows Features: measurement setup and control, data acquisition, scripting, remote control by TCP/IP server for integration with top-level control system