

Product Datasheet - Technical Specifications



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EIS MEASUREMENT SYSTEM ALDAS-Mini



Visualizing Dynamic Characteristics of Electrolysis Cells and Fuel Cells

Exploring optimization parameters to minimize EC / FC operational costs



Innovation is electrolysis cell and fuel cell development

ALDAS-Mini

Insights into the internal state of the cell while in operation

Cell impedance measurement during electrolysis or generation

Easy connection and setup

No modifications to the system needed

5 Key Benefits



Compare individual cells under identical conditions

Simultaneous measurement of up to 8 cells in a stack

Delivers consistent, reproducible analysis

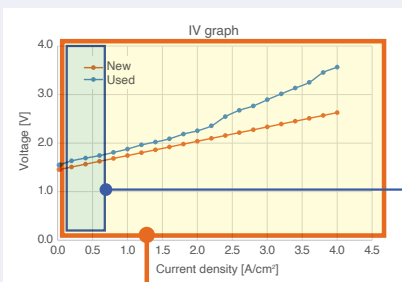
High-precision measurements in noisy environments

One tool for all cell-types

Supports various electrolysis cells (PEMEC, SOEC, AWE, etc.)

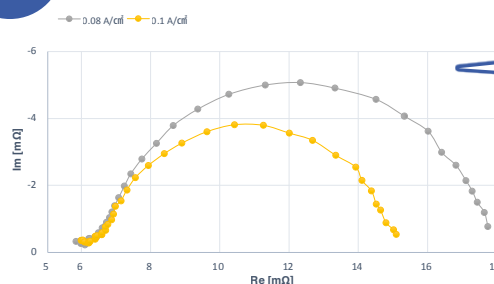
Cell impedance measurement

Accelerate cell development via high-current operational testing



Without ALDAS

Max. 50 A operational current



Only small-scale R&D cells can be measured

Standard FRAs* have limited range

Application examples

- Small electrolysis cell evaluation (1 cm²)
- Research of electrolysis cell materials
- Operation assessment at low-current density

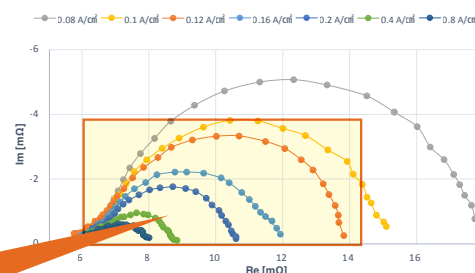
*FRA: Frequency Response Analyzer

With ALDAS

Max. 2000 A electrolysis or load current

Evaluate industrial-scale cells or cell stacks during actual operation

Expand EIS into the high-current region



Application examples

- Large cell evaluation (100 cm²)
- Evaluation of material properties under actual operating conditions
- Analyze cell health throughout its life-cycle to optimize operating conditions

No modifications to the system needed

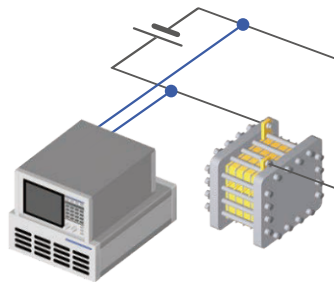
Connect to a system already in use

No modification to your system is needed to set up the ALDAS-Mini.

Unlike conventional booster-equipped FRA devices, the ALDAS-Mini operates seamlessly alongside the cells' DC power supplies and electronic loads.

STEP 1

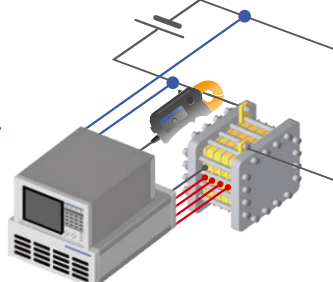
Applied current connection



Connect the SOURCE MODULE to the cell's power source terminal with the SOURCE CABLE. The SOURCE MODULE applies AC current for measurement.

STEP 2

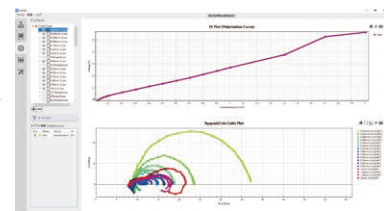
Measurement line connection



Attach the current sensor to measure the current. Then, connect the SENSE CABLE to the cell to measure the voltage (both connected to the SENSE MODULE)

STEP 3

Start measurement



Start the measurement the I-V curve and Nyquist plot will be displayed in real-time during the measurement.

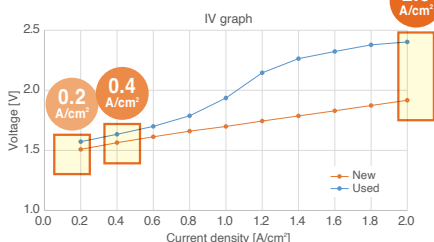


Find what causes degradation with I-V curve and Nyquist plot

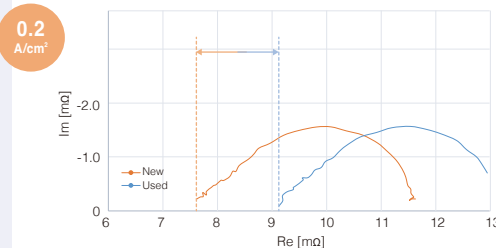
ALDAS simultaneously generates the I-V curve and Nyquist plot, enabling measurement across a wide range of current densities. This means that you can now quantify and compare internal changes in cells of a wide range of currents.

Measurement examples

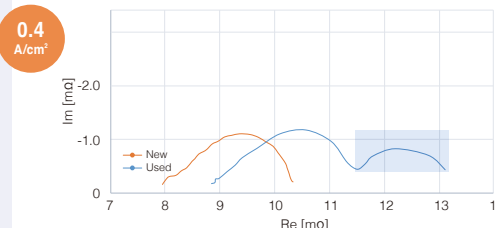
I-V curve characteristics



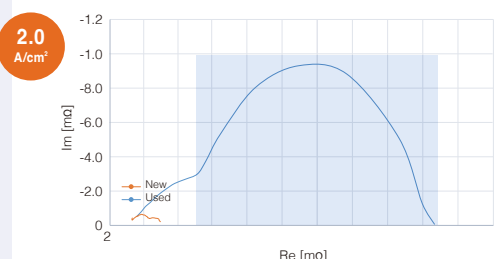
Nyquist plot at various current densities



Indicates cell degradation

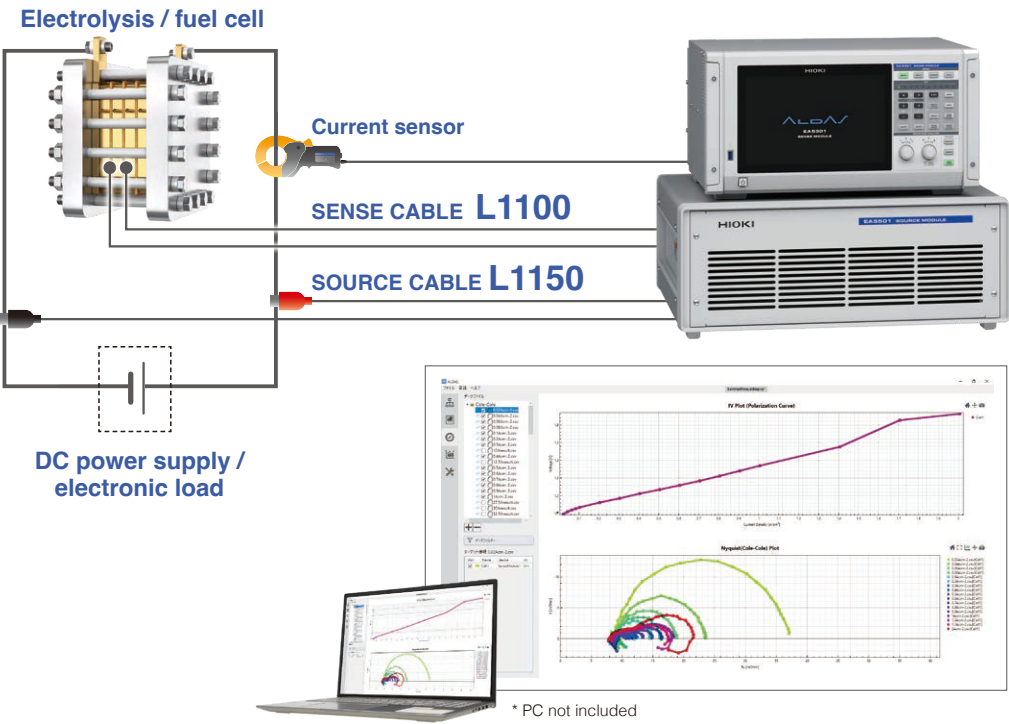


Indicates changes in catalytic activity



Indicates reduced operating efficiency due to mass transfer resistance

System configuration



Specifications

Measurement target	Electrolysis cell, fuel cell, cell stack
Measurement parameters	Impedance (R, X, θ , Z) voltage (V), current (I)
Measurement modes	Logging Mode, EIS Mode
Display modes	Nyquist plot, Bode plot, logging plot
Measurement voltage range	250 mV to 60 V
Measurement current range	100 mA to 500 A (CT6845A) Maximum 2000 A (depending on the combination of sensors)
Max. applied measurement signal	40 Ap-p (at 5 V) Derating applies for voltages above 5 V
Measurement frequency range	10 mHz to 100 kHz
Number of input channels	1 to 8 channels
Dimensions and weight	SENSE Module EA5301 (with 8 channels): approx. 430W × 221H × 361D mm (16.9W × 8.7H × 14.2D in.) (excluding protruding parts), approx. 12.7 kg (28.0 lbs) SOURCE module EA5501: approx. 520W × 197H × 540D mm (20.5W × 7.8H × 21.3D in.) (excluding protruding parts), approx. 27.0 kg (59.5 lbs) (not including cables)
Power supply	100 V to 240 V AC, 50 Hz/60 Hz, 500 VA
PC requirements	OS: Windows 11 Interface: wired LAN

Options

Current sensor	Appearance	Model name	Rated measurement current	Accuracy	Core diameter
Pass-through types		CT6904A	500 A RMS	0.02% rdg.	Φ32 mm
		CT6875A	500 A RMS	0.04% rdg.	Φ36 mm
		CT6873	200 A RMS	0.03% rdg.	Φ24 mm
		CT6872	50 A RMS	0.03% rdg.	Φ24 mm
Clamp types		CT6845A	500 A RMS	0.2% rdg.	Φ50 mm
		CT6847A	2000 Arms	±0.15% rdg.	Φ50 mm
		CT6844A	500 A RMS	0.2% rdg.	Φ20 mm
		CT6843A	200 A RMS	0.2% rdg.	Φ20 mm
		CT6841A	20 A RMS	0.2% rdg.	Φ20 mm

SENSE CABLE L1100



SOURCE CABLE L1150



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