ITECH

YOUR POWER TESTING SOLUTION

SAS1100

solar cell matrix simulation software

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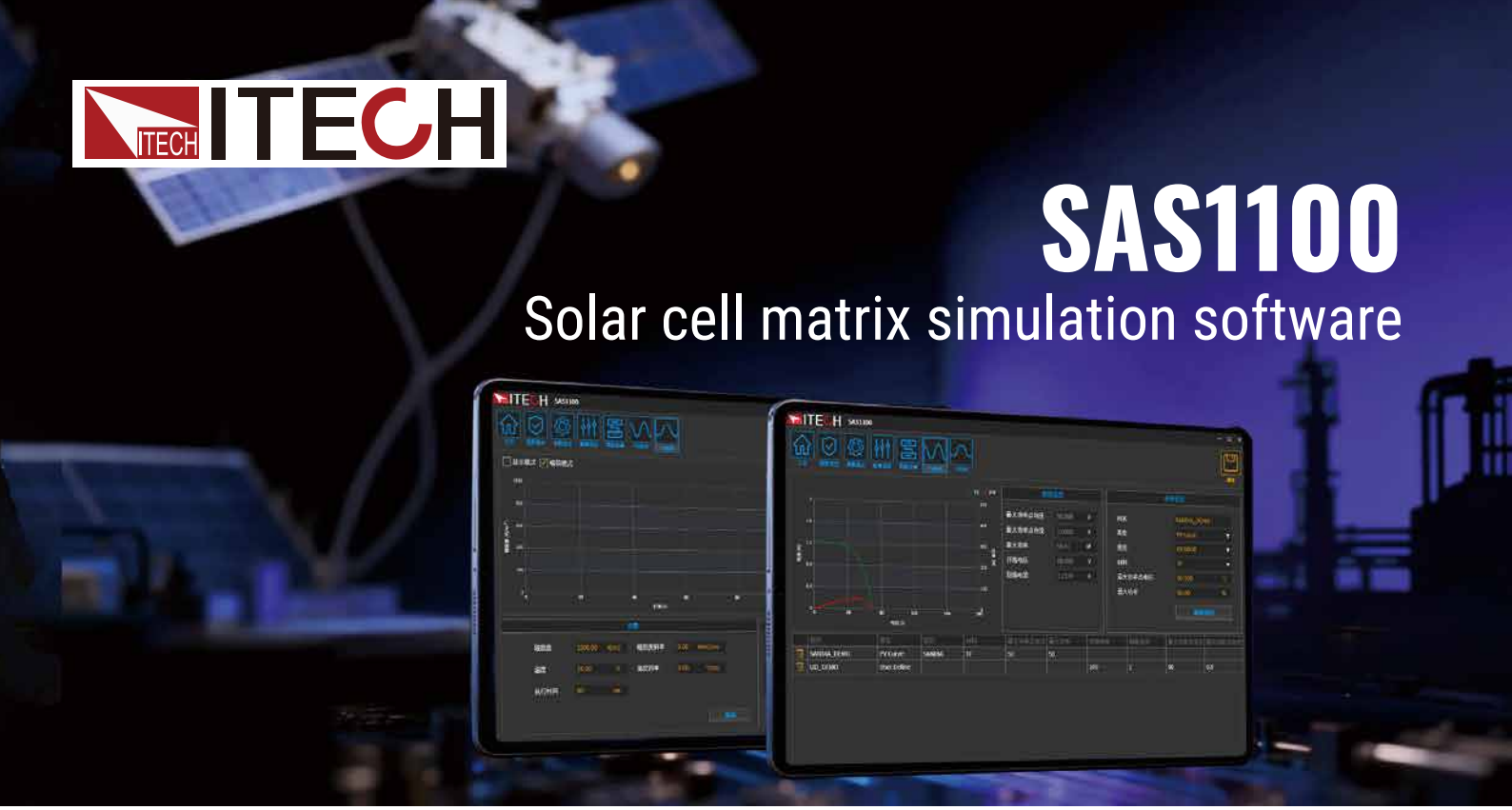

The SAS1100 is a next-generation solar array simulator software designed for photovoltaic R&D and production line testing. It supports centralized control and monitoring of up to 100 channels, providing real-time display of each channel's I-V/P-V curves and MPPT tracking under various irradiance and temperature conditions.

In addition to real-time monitoring, the SAS1100 offers parameterized and custom I-V curve editing with report export, supports dynamic simulation of irradiance and temperature variations over time, provides a curve library, and supports sequence execution where each curve can be assigned a specific duration and order. These functions enable long-term MPPT performance evaluation and multi-channel parallel testing.

The platform supports cross-series and cross-model integration within a group, and can operate in coordination with IT-N2100, IT6600, IT6000, and IT-M3900 series instruments, comprehensively improving inverter testing efficiency and consistency.

Features

- Supports control of 100-channel solar array simulators
- Compatible with EN50530, SANDIA model, and user-defined parameters
- Static and dynamic MPPT performance testing
- Simulates output characteristics of various solar cells (monocrystalline, polycrystalline, thin-film)
- Simulates I-V curves under different irradiance and temperature conditions
- Graphical software interface for real-time MPPT monitoring of PV inverters
- Automatic I-V curve generation based on Vm, Pm, and regulatory points
- Supports four-point I-V curve configuration
- Configurable device parameters, regulatory settings, and protection thresholds (OV, OC, overpower, etc.)
- Data logging and report export for traceability and analysis
- LIST mode (coming soon)

Advantages of multi-channel control

- Support channel grouping with unified configuration, one-click start/stop for large-scale parallel testing
- Groups can be set or switched anytime before or during testing
- Channels within a group can combine different series and operate synchronously
- Each group can independently configure irradiance, temperature,and protection thresholds

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Typical application

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Observe MPP drift and tracking efficiency under various irradiance and temperature conditions

Inverter startup/protection testing

Combine OVP/OCP/OPP with IT rapid ramp-up/ramp-down scenarios

Consistency and capacity evaluation

Synchronized multi-channel group execution to verify system-level behavior

Fault reproduction scenarios

Reproduce customer site issues by importing historical IT curves/reports

Applicable model list

Series	Product Name	Specification
IT-N2100	PV simulator	80V-150V/800W-1500W
IT-M3600	Bidirectional power supply	60V-600V/200W-800W
IT-M3900PV	PV simulator	150V/1500W-3000W
IT-M3900SAS	PV simulator	85V/2kW-6kW
IT6000B	Regenerative power system	80V-2250V/5kW-2MW

Series	Product Name	Specification
IT6000C	Bidirectional power supply	80V-2250V/5kW-2MW
IT6000PV	PV simulator	80V-2250V/18kW
IT6600C	Bidirectional power supply	600V-2250V/42kW-10MW
IT6600PV	PV simulator	600V-2250V/42kW-10MW
IT6500	DC power supply	80V-1000V/3kW

SAS1100 - 100 Channels • Flexible Grouping

Test example

MPPT tracking efficiency verification of 100-channel power optimizers

Single cabinet configuration

IT-N2100 * 20ch 37U

Total cabinets

5 × 37U

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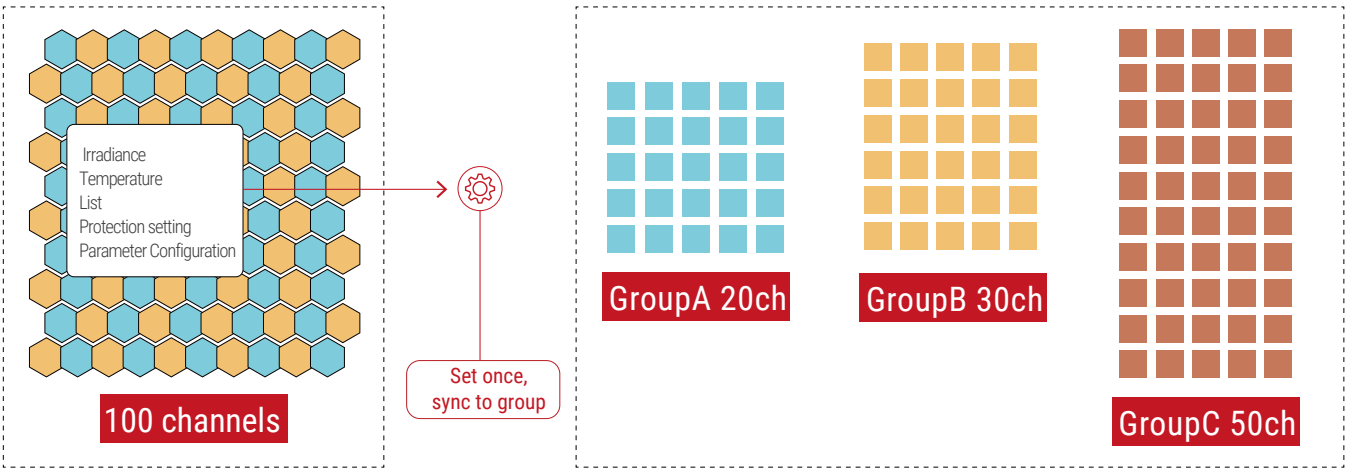
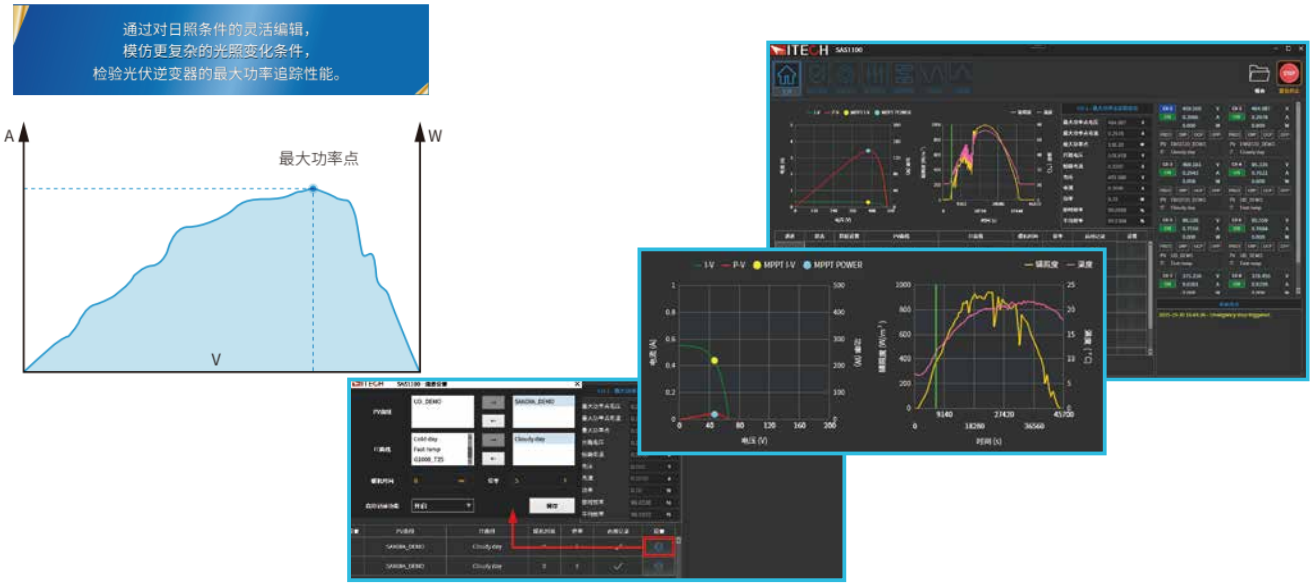
SAS1100 - 100 Channels • Flexible Grouping

SAS1100 supports up to 100 channels and allows flexible grouping (e.g., 20/30/50). It enables group-wide unified configuration—including irradiance, temperature, LIST (sequence), and protection thresholds—with one-click start/stop. The system supports bulk dispatch and synchronized output; within the same group, any setting change on a single channel is automatically synchronized to all channels, significantly improving parallel test efficiency and consistency. In non-grouped mode, each channel can run independently, facilitating individual stations or specialized validations.



Static & Dynamic MPPT Performance Test

For scenarios such as microinverters and power optimizers that require real-time maximum power point tracking, the SAS1100 not only simulates photovoltaic array I-V curves but also supports the simulation of irradiance and temperature variation curves to create static and dynamic test conditions.The SAS1100 enables Static/Dynamic MPPT performance verification in accordance with EN50530 and Sandia standards, combined with user-defined parameters (Voc, Isc, Vmp, Imp). It provides real-time display of I-V/P-V curves and MPPT trajectories, and continuously records and exports reports of key parameters such as instantaneous and average MPPT efficiency and maximum power point current (Imp), facilitating performance comparison and compliance evaluation. During operation, detailed test results can be viewed per channel in real time.



PV & IT Curve Library

SAS1100 offers visual PV and IT curve editing with library management. Frequently used PV curves (I-V / P-V) and IT curves (irradiance/temperature-time) can be prebuilt and named by DUT range or test requirements for one-click recall and batch assignment to specific channels or groups. PV curves support both PV Curve (standard/material-based) and User Define modes, generating curves and key data from parameters such as Voc, Isc, Vmp, and Imp. IT curves are configured by segments with target values, ramp rates, and durations, updating in real time with automatic transitions. Combined with PV settings, this enhances consistency and efficiency in Static/Dynamic MPPT verification and multi-channel batch testing.

Protection Functions

SAS1100 supports three types of hardware and software protection for selected channels — Over Voltage (OVP), Over Current (OCP), and Over Power (OPP).Each protection type can be independently enabled, configured with thresholds and response delays, and applied in batches to specified channels or groups.When an abnormal condition is triggered, the system can automatically stop operation and log alarms, ensuring safety and consistency during long-term parallel testing.

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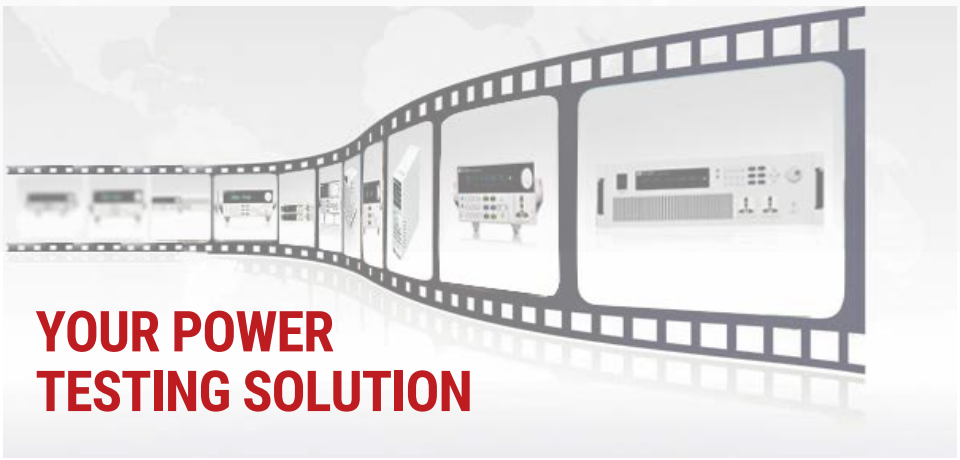
Parameter Setting Function

Here's a precise and professional English translation suitable for an official datasheet or software description:
In SAS1100, reference irradiance/temperature and related parameters for EN50530, Sandia, or user-defined models (β/γ, etc.) can be configured as system-level benchmarks. These benchmarks are used for:

- PV curve generation and temperature/irradiance-based correction;
- MPPT target calculation (e.g., Vmp/Imp/Pmp estimation and comparison);
- Consistency alignment across multiple channels or groups under a unified reference.
- After parameter updates, all related pages and recalculated curves take effect based on the latest benchmarks, ensuring comparability and traceability across different conditions and DUT models.

Data Reports Function

The SAS1100 continuously collects key parameters such as voltage, current, power, efficiency, irradiance, and temperature for each channel during PV/IT curve execution, and exports them in CSV reports. Reports can be archived by date and queried by channel or curve, facilitating comparison, compliance documentation, and issue traceability.



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This information is subject to change without notice.For more information, please contact ITECH.

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