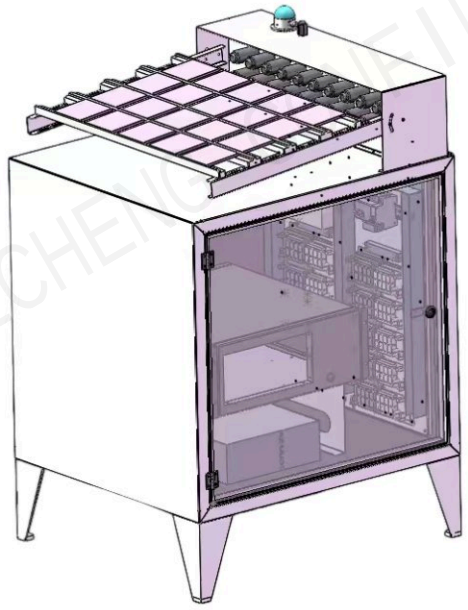
Outdoor Multi-Channel Photovoltaic Module Steady-State Test System



System Introduction

The OT-MCT series is designed for outdoor field testing, providing multi-channel monitoring of power generation performance for small PV modules and devices. Through multi-channel electronic loads with real-time MPPT algorithms and I-V curve testing, the system continuously tracks maximum power point data—measuring voltage, current, and power for each module. It also monitors solar irradiance, module temperature, and ambient humidity in real time, with automatic data saving, labeling, and remote transmission to an indoor host. This enables high-throughput evaluation of outdoor performance under various environmental conditions, providing a powerful tool for PV module development and process reliability screening.

Technical Specifications

Parameter	Value
System Structure	Outdoor unit & indoor host
Compatible Cell Size	100 mm × 100 mm (customizable)
Light Source	Outdoor natural sunlight
Test Channels	Up to 100 channels simultaneous; 8-point sequential scanning per channel (optional)
Test Functions	Real-time MPPT maximum power point tracking; I-V curve forward/reverse sweep testing
Electrical Parameters	Electronic load, max. range 20 V / 1 A; accuracy 0.02% + 0.05% F.S.
Irradiance Monitoring	Real-time irradiance monitoring with cumulative irradiation calculation; 5–10 min per point; accuracy 0.1 W/m²
Temperature Monitoring	−10 °C to 150 °C; accuracy ±1 °C
Humidity Monitoring	15–100 RH%; accuracy ±2 RH%
Outdoor Unit Design	IP67 waterproof cable interfaces; enclosure with waterproofing, heat dissipation, and dehumidification design

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