



19120136 A03

This brochure is subject to change without prior notice.
Copyright © Shenzhen Inovance Technology Co., Ltd.

Shenzhen Inovance Technology Co., Ltd.
Shenzhen Inovance Technology Co., Ltd.
www.inovance.com

Suzhou Inovance Technology Co., Ltd.
Suzhou Inovance Technology Co., Ltd.
www.inovance.com

Add.:Inovance Headquarters Tower, High-tech Industrial Park, Guanlan
Street, Longhua New District, Shenzhen
Tel.: +86-755-2979 9595 Fax:+86-755-2961 9897
Customer service: 4000-300124

Add.:No. 16 Youxiang Road, Yuexi Town, Wuzhong District, Suzhou
Tel.: +86-512-6637 6666 Fax:+86-512-6285 6720
Customer service: 4000-300124

Inovance Battery Simulator

High Efficiency, High Precision, Multi-functional



About us

Shenzhen Inovance Technology Co., Ltd. (stock code: SZ.300124) is founded in 2003 and has a current stock market value of about RMB 160 billion. Inovance is the key force in developing industrial automation and drive technologies in China and a provider of optical-mechatronicshydraulic-pneumatic integrated solutions covering drive, control, motor, and precision machineeries.

Inovance achieves an annual revenue of RMB 17.945 billion and an operating profit of RMB 3.573 billion in 2021, which grew by 56% and 70% respectively on yoy basis. Headquartered in Shenzhen, Inovance has established multiple production bases in Suzhou, Changzhou, Yueyang, and Nanjing, as well as subsidiaries, resident offices, and service centers in over 20 countries and regions worldwide. As of 2021, Inovance has obtained 2,186 patents and software copyrights. Through continuous investment in R&D, Inovance has enhanced its technical strength in such fields as motor and drive control, industrial control software, electric drive assembly for new energy vehicles, digitalization, and industrial robots.

Inovance is dedicated to the development of core technologies in motor drive and control, power electronics, and industrial Internet communication, with business covering industrial automation, elevator electrical assessories, new energy vehicles, industrial robots, and rail transit. Inovance aims to provide integrated solutions and industry-tailored products based on various industry needs, creating continuous values for customers. The core technologies of Inovance not only covers the information layer, control layer, drive layer, execution layer, and perception layer, but also covers such fields as industrial automation, elevator, new energy vehicle, and trail transit, including:

- ① high performance vector control technology, servo control technology, and high-power IGCT drive technology in the drive layer;
- ② small- to large-scale PLC technology, CNC control technology, robot control technology, and high-speed bus technology in the control layer;
- ③ high-performance servo motor technology, high-efficiency motor technology, high-speed motor and magnetic levitation bearing technology, high-precision encoder design and process technology, precision transmission machine design and process technology, and image recognition technology in the execution layer;
- ④ industrial Internet, edge computing, industrial AI technology in the information layer; and
- ⑤ process technologies in industries including new energy vehicle, elevator, air contioner, air compressor, 3C manufacturing, lithium battery, silicon, crane, injection molding machine, textile, metal product, printing, and packaging.

Inovance has been listed into "CCTV Top 10 Socially Responsible Corporate in Top 50 Listed Companies in China" in 2017, "National Enterprise Technology Center" in 2021, "First Batch of Postdoctoral Workstation in Shenzhen", "Top 100 Innovative Enterprise In Jiangsu", "First Batch of Key R&D Projects in Intelligent Robot in China", and "New Energy Vehicle Power Assembly Engineering Center in Jiangsu".

67 offices in China

400 authorized distributors

2500+ sales and service staff

1020 service centers

6 inventory centers

A comprehensive service network to offer timely response to customer demands



Headquarters in Shenzhen

Headquartered in Shenzhen, with multiple subsidiaries in major cities such as Suzhou and Hongkong



Main Business

Industrial Automation

AC drives, servo systems, control systems, industrial vision systems, sensors, high-performance motors, high-precision lead screws, IoT products, and optical and electro-hydraulic integrated solutions



Elevator Electrical Accessories

Integrated elevator controllers (dedicated AC drives), HMIs, door systems, control cabinets, cables, cable harnesses, shaft components, and elevator IoT products



New Energy Vehicle

Inverters, high-performance motors, DC/DC and OBC power supplies, 5-in-1 inverters, electric drive assembly, and power supply assembly



Industrial Robot

Robot control systems, servo systems, vision systems, high-precision lead screws, SCARA robots and 6-axis robots, and integrated solutions



Rail Transit

Traction converters, auxiliary converters, HV boxes, traction motors, and train control and management systems



Inovance Battery Simulator

Inovance battery simulator is a high-precision bidirectional DC power supply system with battery simulation function. It can be used to control the output DC voltage/current and simulate, based on built-in models or user-defined models, the condition where internal resistance and output voltage of the battery pack changes with SoC and temperature, allowing users to perform various experiments on inverters, motors, and power assemblies without configuring physical battery packs.



Features

High efficiency

- ◆ Energy regeneration in full power range without harmonics

High precision

- ◆ High-precision DC voltage/current output

Multi-functional

- ◆ Abundant communication extension capacity, automatic fault level diagnosis, remote line voltage compensation, and insulation monitoring function (optional)
- ◆ Built-in battery simulation function and user-defined battery model (optional)
- ◆ Parallel-d-module extension supported

Function Description

Reducing test time substantially by providing repetitive test results through simulation battery test

Inovance battery simulator can be used as a DC power supply to provide constant-voltage, constant-current, and constant-power output mode. It supports virtual internal resistance setting of the power supply in the constant-voltage output mode, with constant voltage outputted based on fixed internal resistance.

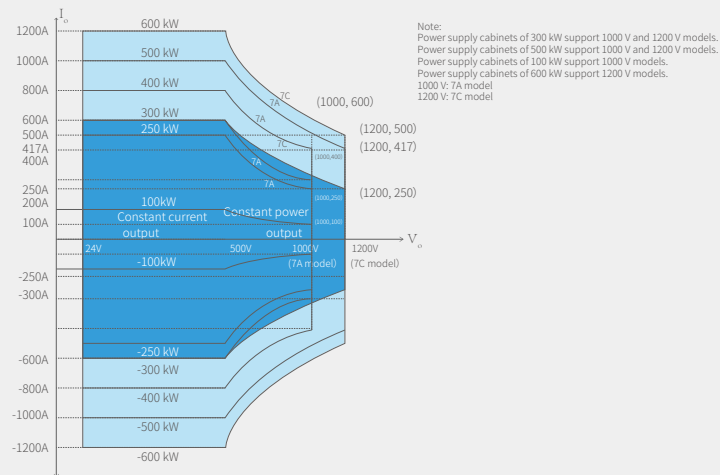
Inovance battery simulator is a bidirectional DC power supply developed based on MD880 platform. In terms of the hardware parts, it is mainly comprised of the isolation step-up transformer, AC-DC AFE, and DCDC converter.

The battery simulator allows users to select the battery type, number of batteries connected in series/parallel, and SoC indicator to simulate battery output characteristics based on built-in battery model or customized battery model.

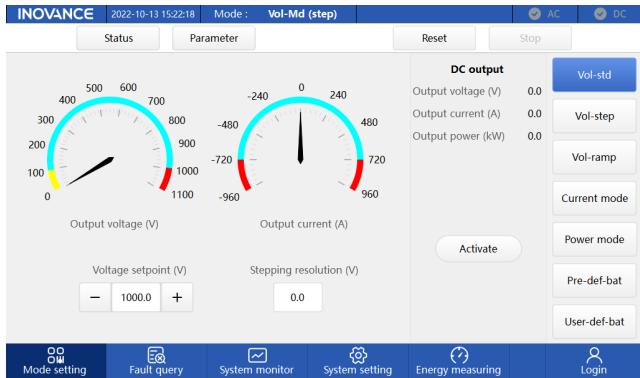
The built-in battery model can simulate open circuit voltage and internal resistance change under different SoC and T conditions, outputting voltage of the battery end based on load current.



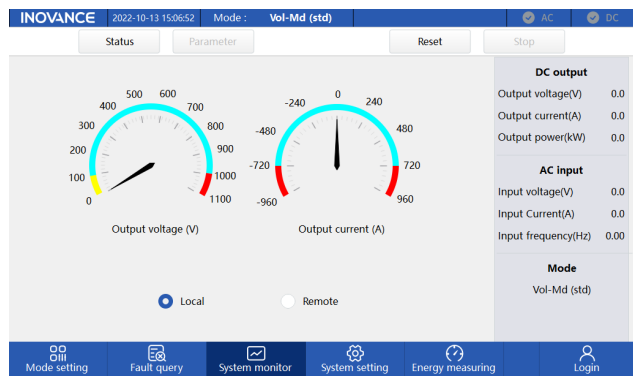
Power Supply Cabinet Output Characteristic Curves



System Interface

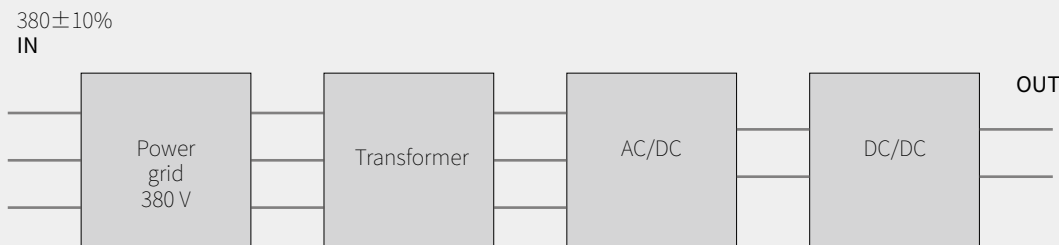


Mode setting



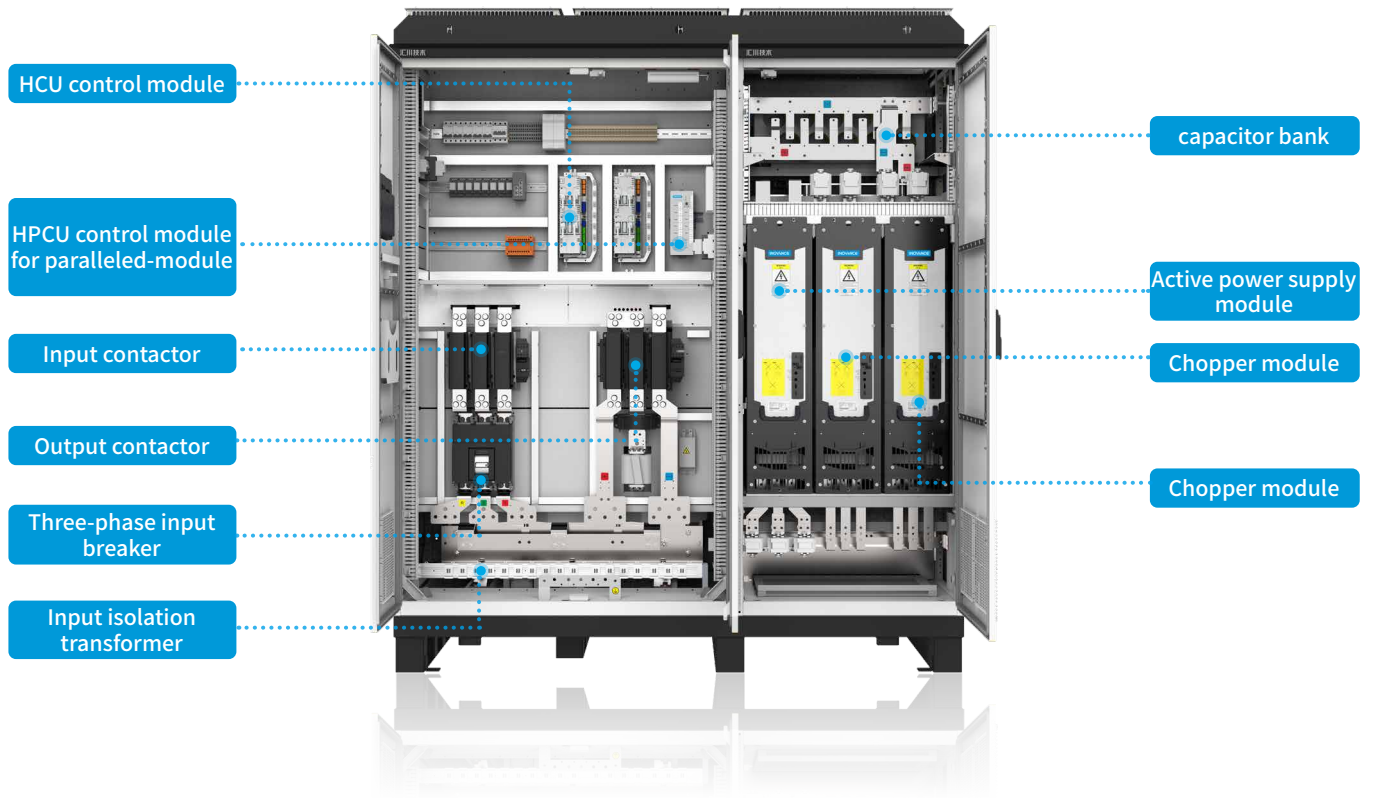
System monitoring interface

Output Topology of Power Supply Cabinet



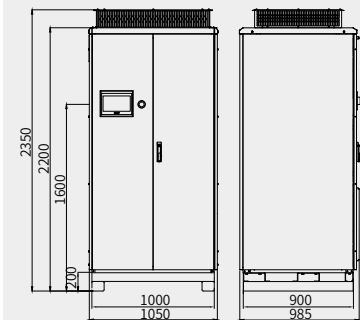
Models of the max. power support output of 24 VDC to 1200 VDC, ± 1200 A.

Function structure

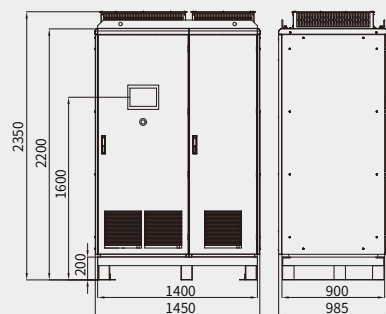


Dimension Drawing

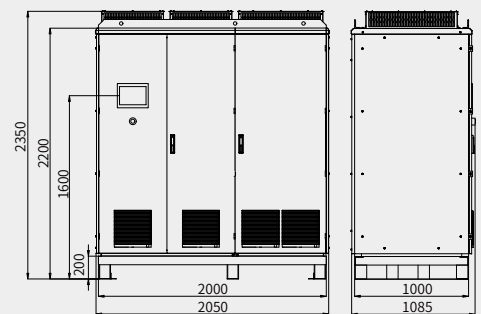
100 kW battery simulator cabinet



300 kW battery simulator cabinet



500 kW battery simulator cabinet



Technical Data

Item	Specifications
Input voltage	380 VAC $\pm 10\%$
Output voltage range	24 V to 1000 V or 24 V to 1200 V
Response time	≤ 3 ms (response time from increasing from 10% to 90% of rated current, which is required on outputs lower than 1000 V on the low-voltage side); Dynamic switchover time of the load ≥ 1 s
Switchover time	≤ 6 ms (switchover time from switching from +90% to -90% of rated current, which is required on outputs lower than 1000 V on the low-voltage side); Dynamic switchover time of the load ≥ 1 s
Voltage ripple (rms)	0.2%F.S
Regeneration power	Energy regeneration available in full power range
Total current harmonics	$\leq 3\%$
Power factor	> 0.99
Frequency range	50/60 Hz $\pm 5\%$
Operating interface	LCD
Communication	Multiple protocols available: CANopen, PROFIBUS-DP, Profinet, Modbus-RTU, Modbus-TCP, EtherCAT
Current control precision	$\pm 0.1\%$ F.S
Voltage control precision	$\pm 0.1\%$ F.S
Input protection	Providing protections against overvoltage, overcurrent, phase loss, over-frequency, and under-frequency
Output protection	Providing protections against overvoltage, overtemperature, overcurrent, and internal overtemperature
Emergency stop protection	Preventing components from being damaged with the ability to withstand high back EMF overvoltage and the high-speed fuse installed to the output side
Functions	Capable of simulating the discharge characteristics of ternary lithium batteries, Fe batteries, and Ni-MH batteries and equipped with voltage-stabilizing filter function; Allowing users to set a single battery capacity, number of batteries connected in series/parallel, SoC, and temperature separately, or combine the constant voltage, constant current, constant power, and battery simulation functions through setting; Allowing circuit current to be fed back to the power grid quickly
IP rating	IP23 for the cabinet door; IP21 for top of the cabinet
Cooling mode	Fan-cooled
Ambient temperature	-10°C to + 40°C (The working temperature limit is 50° .)
Ambient humidity	10% to 95% RH (without condensation)

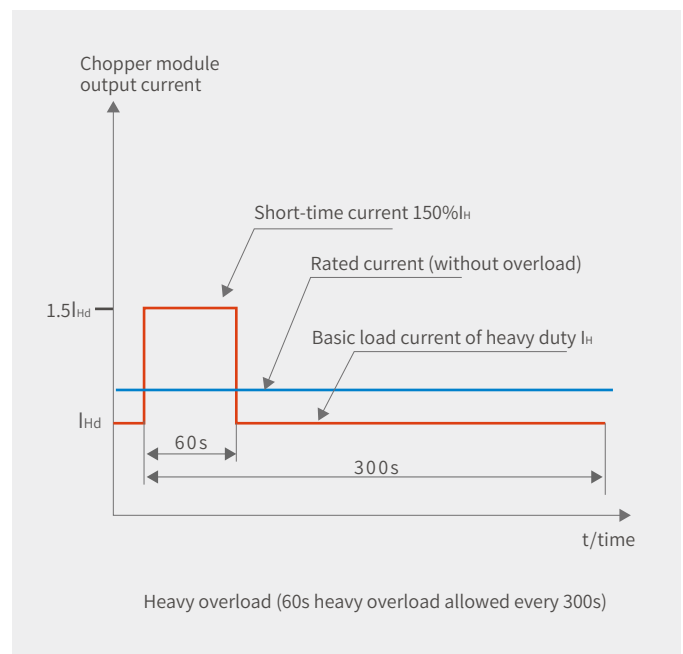
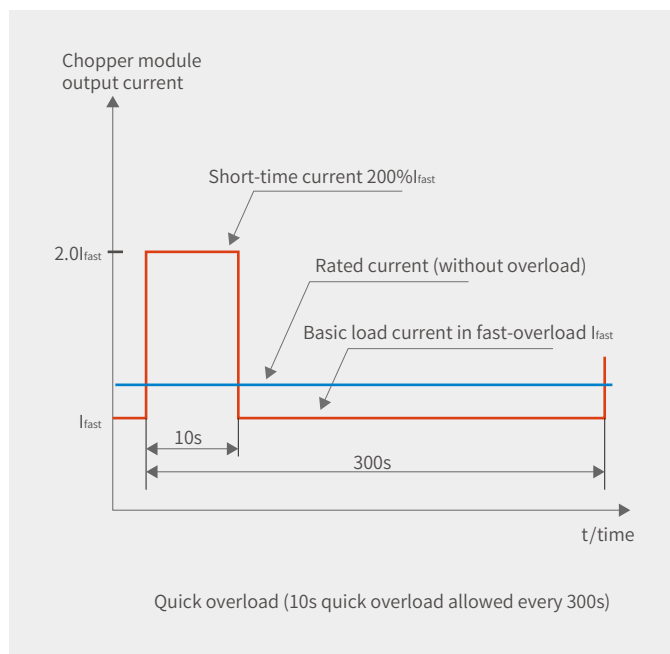
Technical Data

Model	Voltage			Nominal Ratings		Fast-overload Use (10s/300s)		Heavy-overload Use (60s/300s)	
	V_I	V_O	V_{O_nom}	I_N	P_N	I_{fast}	P_{fast}	I_{Hd}	P_{Hd}
	VAC	VDC	VDC	A (DC)	kW	A (DC)	kW	A (DC)	kW
24 V to 1000 V									
MD880-DCP-0200-7A	380	24-1000	500	200	100	150	75	170	85
MD880-DCP-0500-7A	380	24-1000	500	500	250	375	187.5	425	212.5
MD880-DCP-0600-7A	380	24-1000	500	600	300	450	225	510	255
MD880-DCP-0800-7A	380	24-1000	500	800	400	600	300	680	340
MD880-DCP-1000-7A	380	24-1000	500	1000	500	750	375	850	425
MD880-DCP-0600-7A-E	380	24-1000	500	600	300	450	225	510	255
MD880-DCP-1000-7A-E	380	24-1000	500	1000	500	750	375	850	425
24 V to 1200 V									
MD880-DCP-0600-7C	380	24-1200	500	600	300	450	225	510	255
MD880-DCP-1000-7C	380	24-1200	500	1000	500	750	375	850	425
MD880-DCP-1200-7C	380	24-1200	500	1200	600	900	450	1020	510
MD880-DCP-0600-7C-E	380	24-1200	500	600	300	450	225	510	255

Note:

1. Dual-power-supply function and customized models are available, contact Inovance for details.
2. The suffix "-E" stands for compliance with CE certification.

Overload Capacity



Application Cases and Partners



Comprehensive Solution for Industrial Automation and Digitalization

