

Product Datasheet - Technical Specifications



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IT6600C

Bidirectional Programmable DC Power Supply



Your Power Testing Solution

IT6600C

Bidirectional Programmable DC Power Supply



commercial aviation



server power supply



industry 4.0



EV



ESS



fuel cell



PV inverter

IT6600C series DC power supply is a new generation graphical bidirectional DC power supply. It adopts a touch screen design and intuitive GUI, making parameter setting and waveform editing simpler and more efficient. It adopts advanced third-generation SiC technology. A 3U height single unit can output 21kW each in dual channels. If the two independent channels are connected in series/parallel, it can reach maximum power 42kW. Since 1 unit IT6600C can cover the output range of 3-5 normal power supplies, it can be applied to various applications requiring high voltage or high current.

IT6600C series is not only a power supply, but also an excellent electronic load. It can not only output power as a DC power supply, but also act as a DC electronic load, absorbing power and feeding clean power back to the grid to realize energy recycling. IT6600C series brings you a new experience during the high-power complex testing in the fields of automobiles, energy storage, industry, green energy and so on and provides strong support for R&D, verification, production, etc.

01 IT6600C Bidirectional Programmable DC Power Supply

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IT6600C Bidirectional Programmable DC Power Supply

FEATURES

- Bidirectional, integrating power supply and e-load in one
- High power density, up to 42kW in 3U
- Independent dual-channel design in 3U unit, and channels can be connected in series or parallel
- High efficient power regeneration
- Master-slave current equalizing, output max. 10MW in parallel, no performance lost
- 5-inch touch screen with intuitive GUI
- Dynamic response $\leq 200\mu s$
- Rise time $\leq 1ms$
- High precision $\leq 0.03\% + 30mA$
- Built-in communication interface
 - USB (USB-TMC/USB-VCP)
 - LAN (Rawsocket/Modbus-TCP/Profinet/VNC/VXI-11/Web/Telnet)
 - CAN 2.0B (CANopen/CAN2.0)
 - digital IO
- Optional communication interface GPIB/EtherCAT/Analog&RS232

FUNCTION

- CC/CV priority
- Can be used as a battery simulator*1
- Battery test function, supports battery charge/discharge mode
- Accurately simulate the IV characteristic output of Si, GaAs and other solar panels
- Built-in standard multi-channel solar array simulation software
- Fuel cell simulation*2
- List function, dynamic working condition simulation with tens of millions of points
- Built-in IEC 61000-4-17/IEC 61000-4-29 waveforms
- Built-in 9 standard automotive voltage curves, including LV123, LV148, ISO21498-2, etc.
- Output impedance is adjustable
- Redundancy function, helps to check the status of each single unit or cabinet and ensure the overall output

*1 Optional BSS2000 battery simulation software

*2 Optional FCS3000 fuel cell simulation software



APPLICATIONS



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Graphic touch screen design

IT6600C provides a variety of operation modes and functions. The 5-inch touch screen, keyboard and knobs can be used for convenient and quick operations. The simple and intuitive UI can directly display the settings and measurements of various parameters, and supports waveform preview. The user-friendly menu can meet a variety of your testing needs.



Data recorder

The data recorder function of IT6600C helps to observe trends over a period of time. You can select 1~6 curves to view the average, minimum and maximum values of voltage, current and power in different channels. You can also observe the data and waveforms at a certain moment in time through vertical, horizontal and zoom.



Graphic UI Easy to operate



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IT6600C Bidirectional Programmable DC Power Supply



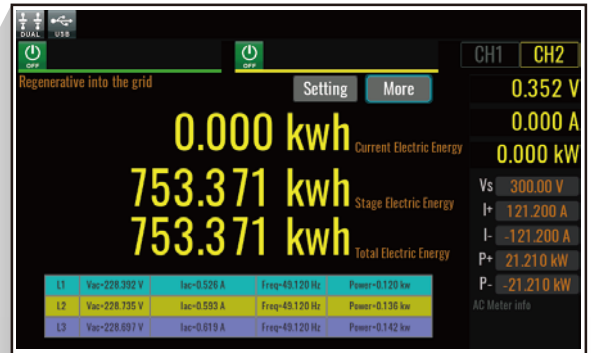
Oscilloscope function

IT6600C can display waveforms. You can instantly analyze and save data without an oscilloscope. The screen displays up to 4 real-time voltage and current curves. You can choose to hide other curves and only show the ones you want. Moreover, the colorful GUI gives you an oscilloscope-like experience.



High efficient power regeneration

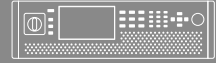
IT6600C has an energy regeneration function that can feed clean electricity back to the grid, automatically and safely. Its power statistics function allows you to intuitively check power consumption such as the current electric energy, stage electric energy, and total electric energy. This function not only helps you better understand the energy savings of the power supply, but also optimizes your power consumption through real-time monitoring, providing an intelligent and efficient energy management experience.



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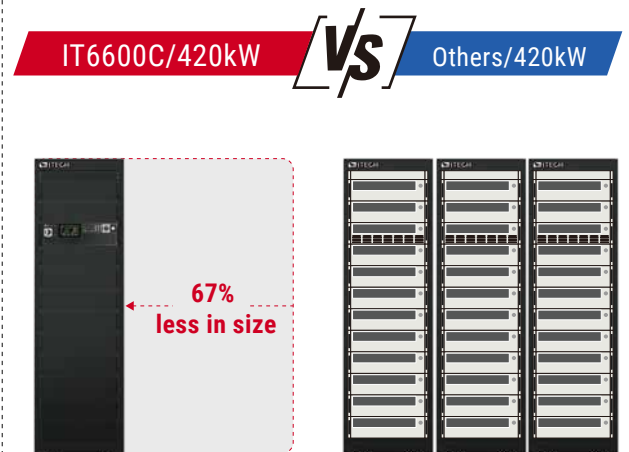
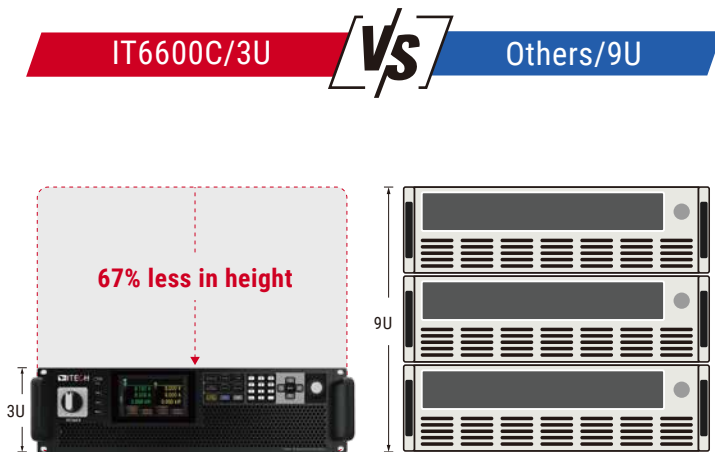
IT6600C Bidirectional Programmable DC Power Supply

1 power supply realizes the output and functions of multiple units



Industry-leading high power density

IT6600C provides up to 42kW power supply and loading power in a 3U chassis, making it possible of a bench top solution for a high-performance and high-power test. It is also very suitable for integrated systems with strict space requirements.



2 in 1 unit

The IT6600C cleverly integrates a bidirectional power supply and a regenerative load to achieve continuous current supply and absorption. As a power supply, it can stably output the required power; and as a load, it can efficiently absorb up to 100% of the rated current.

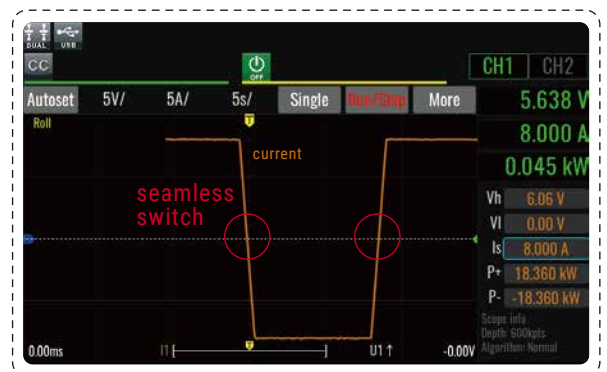
In "Only Load" mode, IT6600C can perform load testing in CR, CC and CW modes, providing more flexible options.

The IT6600C series not only saves space, but also reduces energy consumption and costs for you.



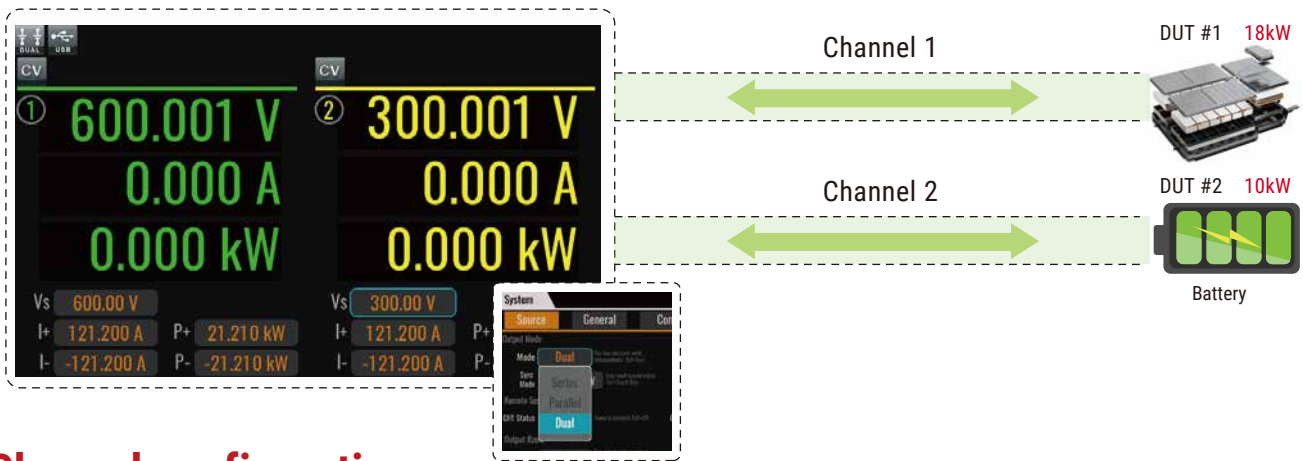
Bidirectional current seamless transfer

IT6600C can perform high-speed current switching between source and load, fast, continuously and seamless, thereby effectively avoiding damage to the output characteristics of the DUT caused by voltage or current overshoot. It provides a higher level of power control and protection in various applications.



Independent dual-channel

A 3U height single unit of IT6600C can output 21kW each in dual channels. Each channel has a completely independent isolation design and can be controlled and measured. The IT6600C has both source and load function. The channel 1 (Ch1) can provide power output, and the channel 2 (Ch2) can be used as a load. It can truly be used as two units. The two channels can also be connected in series or parallel to increase the output range and cope with various test requirements.



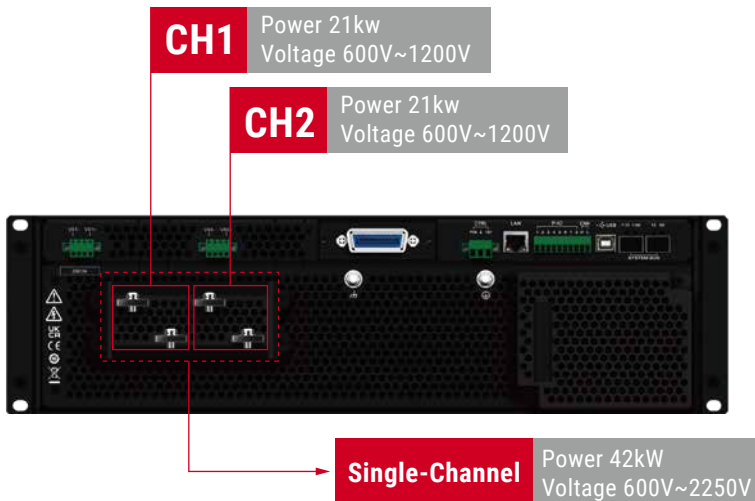
Channel configuration

Dual-channel

- Any channel can be independently configured as a source or a load
- 3U/15U/27U/37U.. all can be set as dual channels
- Channels can be connected in parallel or series

Single-Channel

- Power in the channel can flow in either direction
- Source mode, 3U can output up to 42kW
- Load mode, it can absorb the same power and feed about 95% of the energy back to the grid

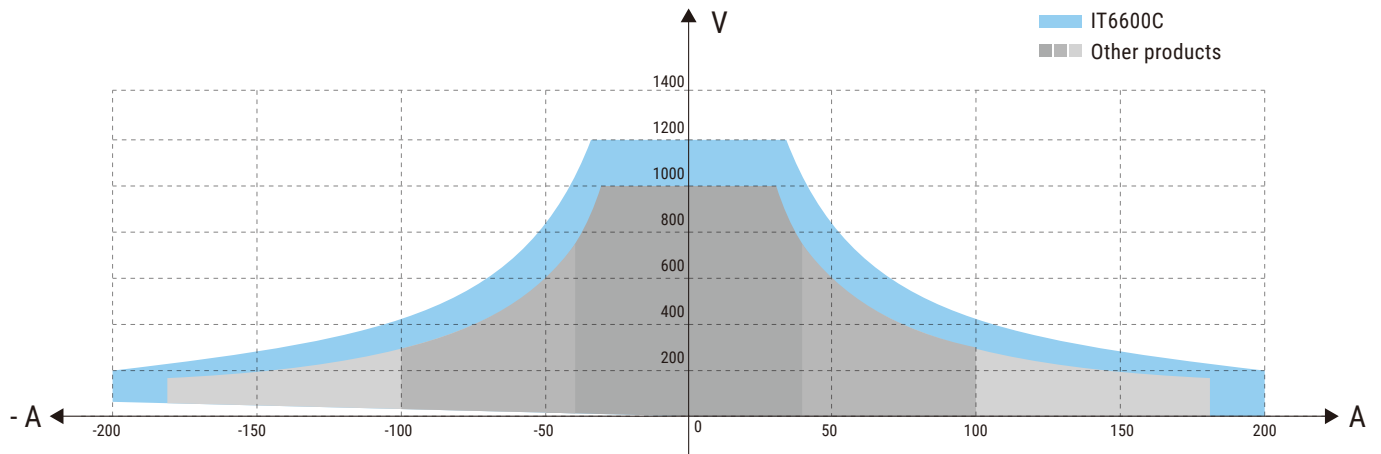


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Wide range output for various applications

Compared with other DC power supplies, IT6600C's wide-range output is more flexible and provides more voltage and current combinations. IT6600C supports multiple output combinations such as dual channels, channel series connection, and channel parallel connection. You can flexibly configure it according to your testing needs. It is like integrating multiple ordinary DC power supplies, making it an ideal choice to meet diverse experimental needs.



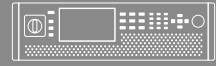
As shown above, one unit IT6642C-1200-200 can cover the output range of several competing products. This means that whether the DUT is low voltage and high current or high voltage and low current, IT6600C can flexibly meet various testing needs. One unit can replace multiple traditional DC power supplies. It is not only suitable for ATE systems and production lines, but also for laboratory use. While meeting the test requirements, it saves cost and space, simplifies wiring, and is more convenient and efficient.

Application - Production line in factory

Factories often need to produce products of different specifications, and testing equipment must match it accordingly. This requires frequent wiring connection, which not only reduces work efficiency but also increases the risk of operational errors. The wide output range of IT6600C is equivalent to 3 to 5 traditional instruments. One IT6600C can meet all production and testing needs, improve efficiency and increase production capacity.

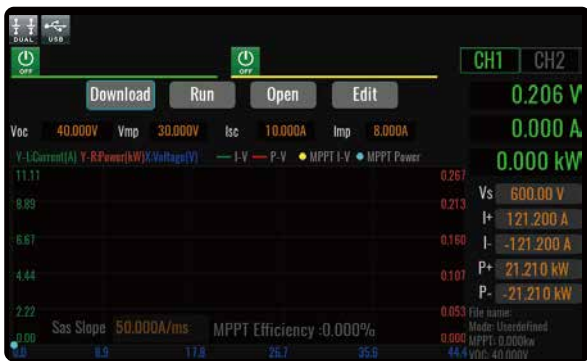


Well matched with various applications



Solar Array Simulation I-V Curve Power Supply

The IT6600C series is equipped with SAS test interface, supporting MPPT tracking tests for PV arrays/modules/cells. Under "User-defined" mode, users can easily set parameters such as Voc, Vmp, Imp, Isc, etc to generate a specific I-V curve output. Curve mode provides PV simulation according to EN50530 and Sandia standards, allowing the user to select the appropriate solar panel according to different standards and simulate it by setting the Vmp and Pmp parameters, which is very suitable for verifying the performance of PV Inverters.

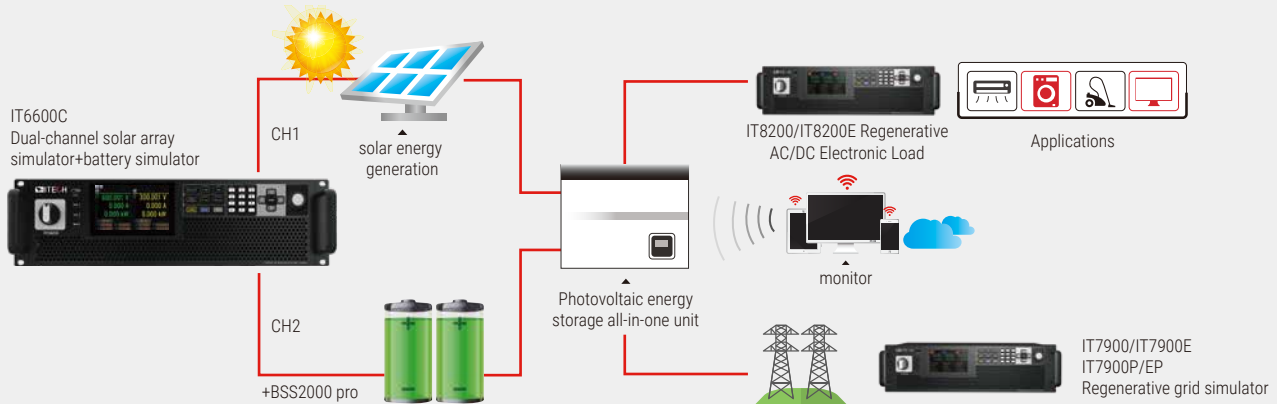


Build-in multi-channel solar array simulation software

When facing more complex PV testing requirements, users can utilize the IT6600C multi-channel solar array simulation software which is very easy to output, measure and display the MPPT status of the PV inverter and its numerical records in real time. The software has built-in EN50530 / Sandia and other five mainstream regulatory test programs, enabling users to conveniently test the static and dynamic MPPT performance of PV inverters, and generate detailed reports to facilitate performance comparison with other.

Application- Photovoltaic energy storage all-in-one unit test

Photovoltaic energy storage all-in-one technology combines solar power generation with battery energy storage technology to achieve the solution of "solar + energy storage". IT6600C can set channel 1 (Ch1) as a solar array simulation to test solar inverters; channel 2 (Ch2) can test the battery's charging and discharging characteristics. Traditional tests require at least 2 to 3 devices to cover all the tests, but the IT6600C series only need one device to complete all, greatly saving space and costs.



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Built-in 9 standard automotive regulatory test waveforms

Whether it is a fuel vehicle or an EV, car manufacturers and automotive industry associations have developed a series of standards and regulations for various types of vehicle testing. IT6600C series has built-in 9 standard automotive regulatory test waveforms, including LV123, LV148, ISO21780, ISO21498-2, etc. You can recall the waveforms directly from the front panel for testing. Also, you can view the real-time curves through the "oscilloscope function". There is no need to use an oscilloscope or by PC software, which saves time and money compared to competitive products.



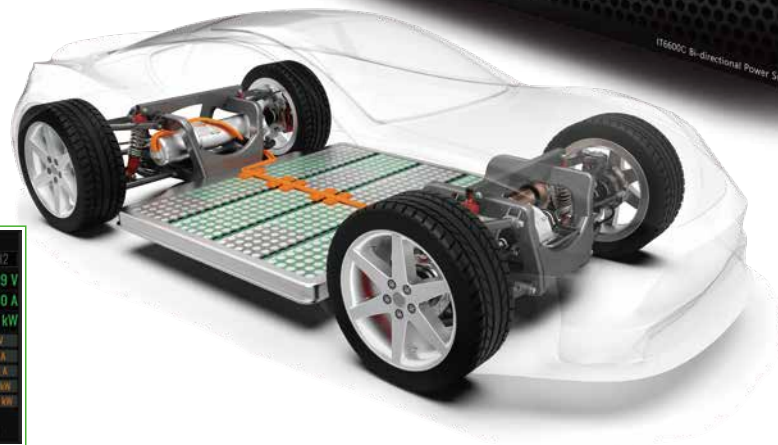
built-in 9 standard waveforms



ISO21498-2



"oscilloscope function" for timely check



Built-in IEC61000-4-17/4-29

IT6600C has built-in IEC61000-4-17/4-29 test items, which means no programming is required and you can easily recall the test items directly on the front panel. The design not only saves time, but also simplifies operation, making the test faster and more accurate. The 5-inch touch screen equipped with IT6600C can clearly display parameters, allowing you to observe the test progress more intuitively. It also allows to edit parameters, so you can customize the test items according to your needs, which is more flexible.



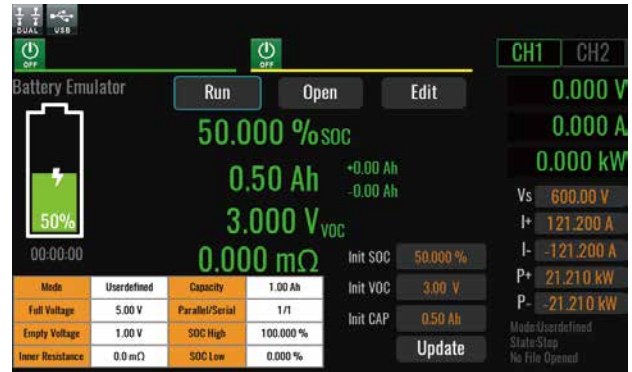
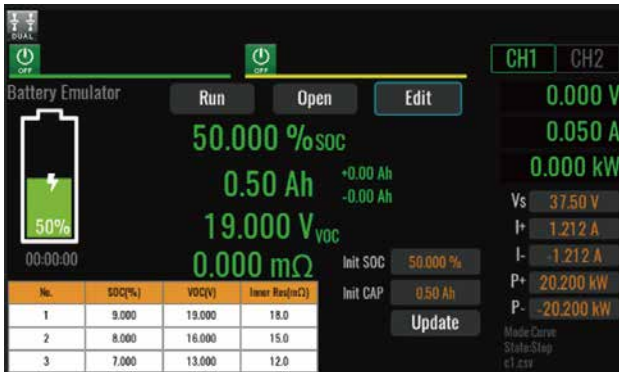
IEC61000-4-17

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Battery simulation

IT6600C can also be used as a battery simulator. It has fast battery emulation function. On the 5-inch touch screen, you can select either the "Mode:User-defined" or the "Mode:curve" to set the battery's voltage, capacity, IR and SOC, easily define the battery model, and carry on battery charge/discharge simulation.



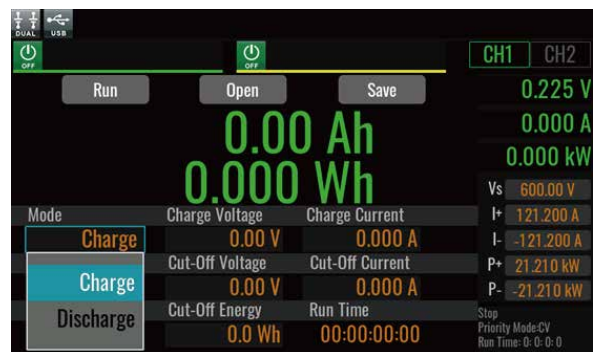
You can also choose ITECH BSS2000 battery simulation software. Use the built-in battery types to configure series and parallel parameters to simulate the characteristic curves of battery modules. The software supports importing matlab battery models or importing actual battery charge and discharge curves through .csv files to verify the battery in actual applications.



Battery charge/discharge test

IT6600C's bidirectional design, adjustable output impedance, and dual channels allow it to simulate the charging and discharging characteristics of the battery at the same time, enabling the setting and data processing of various test conditions. It is suitable for charge/discharge testing of various types of batteries.

IT6600C can be equipped with software to form the ITS5300 battery charge and discharge test system. In addition to BOL test, it can also simulate complex real conditions, such as driving conditions, current pulses or customized waveforms, to meet the evaluation of battery life, energy and recharge mileage. It can be widely used in product development, quality analysis/incoming material inspection, production and testing, etc.



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IT6600C Bidirectional Programmable DC Power Supply

High power system by modular design



Power output up to max. 10MW

In case higher power requirement, multiple units of IT6600C with the same specification can be connected in parallel to reach a maximum output of 10MW, which is fast and scalable.

- Master-slave parallel connection, active current sharing
- Easy to operate, no need to disassemble the cabinet
- Full isolation by optical fiber to effectively protect the DUT and itself
- No performance loss after parallel connection
- No calibration required after parallel connection



Redundant functions

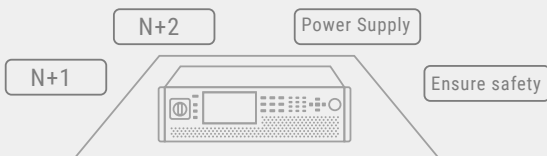
The redundancy function of IT6600C allows observing the status of each cabinet and single unit in parallel mode. When a unit fails, the IT6600C power supply system will automatically identify it, allow the redundant unit to quit the test, and deploy it within the total capacity range to ensure the external output of the entire system.

This means that even if one of the units fails, the IT6600C power system will continue to provide full power to the bus as long as the remaining power can meet the test needs. We call it 100% power availability and it's especially suitable for applications with high reliability requirements of power supply .



Application

Applications that require long-term power supply or continuous testing have high requirements on the stability of the power supply system. It often requires it can operate without failure for a long time. Once the power supply is interrupted, the test results will be invalid and may even cause safety hazards. When building a power supply system with IT6600C, you can use N+1, N+2 or other combinations. Even some modules in the power system fail, IT6600C can continue to provide full power for the test, ensuring test stability and safety.



Full protection

For expensive DUTs, IT6600C is equipped with a variety of protection functions to ensure test safety, including OVP, OCP, OPP, UVP, UCP, etc., and with new protection functions such as maximum voltage limit, maximum current limit, and maximum power limit to ensure long-term testing for R&D and production lines. For rack mounted power systems, an emergency stop is available to deal with unexpected test conditions.



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Accessories

IT6600C is built in standard interfaces USB/CAN/LAN/digital IO, optional interfaces GPIB/EtherCAT/analog & RS232. IT6600C can also be equipped with a variety of software to complete more professional tests.

Category	Model	Specification	
Accessories for parallel connection	IT-E511-15U *1	15U unit,black	800mm X 550mm X907.64mm
	IT-E511-27U *1	27U unit,black	800mm X 600mmX 1441.41mm
	IT-E511-37U *1	37U unit,black	800mm X 600mm X 1885.91mm
	IT-E168	Optical fiber kit for parallel connection	for parallel communication between single units
	IT-E169	Optical fiber kit for parallel connection	for parallel communication between cabinets
Other accessories	IT-E258E	5m power cord for 3U unit, EU standard	AC input
	IT-E258E-15U	5m power cord for 15U unit, EU standard	AC input
	IT-E258E-27U	5m power cord for 27U unit, EU standard	AC input
	IT-E258E-37U	5m power cord for 37U unit, EU standard	AC input
	IT-E1601-black	support EtherCAT	
	IT-E176	GPIB	
	IT-E177	RS232&analog	
	IT-E179	Relay board	
Optional software	IT-E183	Series and parallel boxes	Cabinet configuration, direct switching between series and parallel
	FCS3000	Fuel cell simulation software	
	BSS2000	Battery simulation software	Basic version-single channel
	BSS2000 Pro	Battery simulation software	Premium version-single channel
	BSS2000M	Battery simulation software	Multi-channel version



Communication interfaces

- USB (USB-TMC/USB-VCP)
- LAN (Rawsocet/Modbus-TCP /Profinet/VNC/VXI-11/Web/Telnet)
- CAN 2.0B (CANopen/CAN2.0)
- Digital IO
- GPIB
- EtherCAT
- Analog&RS232

*1 free for models ≥84kW

Intuitive PC software, embedded web server, supports VNC screen transfer

IT6600C provides a variety of remote control methods through PC or mobile port



Free PC software PV6600



Web server



Virtual Network Computing (VNC)



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Product model	Max. Output Voltage(V)	Max. Output Current(A)	Max. Output Power(kW)	Specification			Height
IT6642C-1200-200	1200	±200	±42	600V/±100A/±21kW*2ch	600V/±200A/±42kW*1ch	1200V/±100A/±42kW*1ch	3U
IT6684C-1200-400	1200	±400	±84	600V/±200A/±42kW*2ch	600V/±400A/±84kW*1ch	1200V/±200A/±84kW*1ch	15U
IT66126C-1200-600	1200	±600	±126	600V/±300A/±63kW*2ch	600V/±600A/±126kW*1ch	1200V/±300A/±126kW*1ch	15U
IT66168C-1200-800	1200	±800	±168	600V/±400A/±84kW*2ch	600V/±800A/±168kW*1ch	1200V/±400A/±168kW*1ch	27U
IT66210C-1200-1000	1200	±1000	±210	600V/±500A/±105kW*2ch	600V/±1000A/±210kW*1ch	1200V/±500A/±210kW*1ch	27U
IT66252C-1200-1200	1200	±1200	±252	600V/±600A/±126kW*2ch	600V/±1200A/±252kW*1ch	1200V/±600A/±252kW*1ch	27U
IT66294C-1200-1400	1200	±1400	±294	600V/±700A/±147kW*2ch	600V/±1400A/±294kW*1ch	1200V/±700A/±294kW*1ch	27U
IT66336C-1200-1600	1200	±1600	±336	600V/±800A/±168kW*2ch	600V/±1600A/±336kW*1ch	1200V/±800A/±336kW*1ch	37U
IT66378C-1200-1800	1200	±1800	±378	600V/±900A/±189kW*2ch	600V/±1800A/±378kW*1ch	1200V/±900A/±378kW*1ch	37U
IT66420C-1200-2000	1200	±2000	±420	600V/±1000A/±210kW*2ch	600V/±2000A/±420kW*1ch	1200V/±1000A/±420kW*1ch	37U

Product model <small>Coming soon</small>	Max. Output Voltage(V)	Max. Output Current(A)	Max. Output Power(kW)	Specification			Height
IT6642C-1600-120	1600	±120	±42	800V/±60A/±21kW*2ch	800V/±120A/±42kW*1ch	1600V/±60A/±42kW*1ch	3U
IT6684C-1600-240	1600	±240	±84	800V/±120A/±42kW*2ch	800V/±240A/±84kW*1ch	1600V/±120A/±84kW*1ch	15U
IT66126C-1600-360	1600	±360	±126	800V/±180A/±63kW*2ch	800V/±360A/±126kW*1ch	1600V/±180A/±126kW*1ch	15U
IT66168C-1600-480	1600	±480	±168	800V/±240A/±84kW*2ch	800V/±480A/±168kW*1ch	1600V/±240A/±168kW*1ch	27U
IT66210C-1600-600	1600	±600	±210	800V/±300A/±105kW*2ch	800V/±600A/±210kW*1ch	1600V/±300A/±210kW*1ch	27U
IT66252C-1600-720	1600	±720	±252	800V/±360A/±126kW*2ch	800V/±720A/±252kW*1ch	1600V/±360A/±252kW*1ch	27U
IT66294C-1600-840	1600	±840	±294	800V/±420A/±147kW*2ch	800V/±840A/±294kW*1ch	1600V/±420A/±294kW*1ch	27U
IT66336C-1600-960	1600	±960	±336	800V/±480A/±168kW*2ch	800V/±960A/±336kW*1ch	1600V/±480A/±336kW*1ch	37U
IT66378C-1600-1080	1600	±1080	±378	800V/±540A/±189kW*2ch	800V/±1080A/±378kW*1ch	1600V/±540A/±378kW*1ch	37U
IT66420C-1600-1200	1600	±1200	±420	800V/±600A/±210kW*2ch	800V/±1200A/±420kW*1ch	1600V/±600A/±420kW*1ch	37U

Product model	Max. Output Voltage(V)	Max. Output Current(A)	Max. Output Power(kW)	Specification			Height
IT6642C-2250-100	2250	±100	±42	1200V/±50A/±21kW*2ch	1200V/±100A/±42kW*1ch	2250V/±50A/±42kW*1ch	3U
IT6684C-2250-200	2250	±200	±84	1200V/±100A/±42kW*2ch	1200V/±200A/±84kW*1ch	2250V/±100A/±84kW*1ch	15U
IT66126C-2250-300	2250	±300	±126	1200V/±150A/±63kW*2ch	1200V/±300A/±126kW*1ch	2250V/±150A/±126kW*1ch	15U
IT66168C-2250-400	2250	±400	±168	1200V/±200A/±84kW*2ch	1200V/±400A/±168kW*1ch	2250V/±200A/±168kW*1ch	27U
IT66210C-2250-500	2250	±500	±210	1200V/±250A/±105kW*2ch	1200V/±500A/±210kW*1ch	2250V/±250A/±210kW*1ch	27U
IT66252C-2250-600	2250	±600	±252	1200V/±300A/±126kW*2ch	1200V/±600A/±252kW*1ch	2250V/±300A/±252kW*1ch	27U
IT66294C-2250-700	2250	±700	±294	1200V/±350A/±147kW*2ch	1200V/±700A/±294kW*1ch	2250V/±350A/±294kW*1ch	27U
IT66336C-2250-800	2250	±800	±336	1200V/±400A/±168kW*2ch	1200V/±800A/±336kW*1ch	2250V/±400A/±336kW*1ch	37U
IT66378C-2250-900	2250	±900	±378	1200V/±450A/±189kW*2ch	1200V/±900A/±378kW*1ch	2250V/±450A/±378kW*1ch	37U
IT66420C-2250-1000	2250	±1000	±420	1200V/±500A/±210kW*2ch	1200V/±1000A/±420kW*1ch	2250V/±500A/±420kW*1ch	37U

* For higher power , please check with ITECH

* For multiple masters models,please check with ITECH