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YOUR POWER TESTING SOLUTION

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IT2705

Modular DC Power Analyzer

Your Power Testing Solution

F.E.S. Co., Ltd.

1000/24, P.B. Tower, 8 floor, Sukhumvit 71 Rd., North Klongtan, Wattana, Bangkok 10110

TEL: 02-064-4050 or 02-064-4051 I FAX: 02-010-4262 I Email: info@fesupply.com

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IT2705

Modular DC Power Analyzer

IOT
IOT

Battery Test

Semiconductor Test

Electronic Components Test

Medical Electronics Test

DC-DC Modules Test

RF Module Testing

IT2705 is a highly integrated modular DC power analysis platform designed for battery testing, developed based on extensive research on power sources. It combines DC power, electronic loads and arbitrary waveform generator with an intuitive GUI, supports Oscilloscope Sampling and Data Logging function, allowing for the creation of complex testing without the need for secondary development.

The IT2705 supports a variety of functional modules, including DC power modules, bidirectional power supply modules, regenerative loads, and SMU modules, with a power range from 20W to 500W, and can be configured with up to 8 channels. It can be applied for testing IoT devices, chips, automotive electronics, smart wearable devices,etc. It helps engineers deeply analyze dynamic waveforms, instant responses, and key electrical characteristics, improving testing efficiency and accuracy.

Frame（5U）	Voltage	Current	Power	DC souce(+P/+I)	Bidirectional DC source(±P/±I)	Regenerative load(-P/-I)	SMU(±U/±I)
IT2705	20V	3A	20W				IT27814/IT27814E
	30V	15A	200W	IT27134	IT27334	IT27534	
		30A	500W	IT27154	IT27354	IT27554	
	60V	10A	200W	IT27135	IT27335	IT27535	
		20A	500W	IT27155	IT27355	IT27555	
	150V	5A	200W	IT27137	IT27337	IT27537	
		10A	500W	IT27157	IT27357	IT27557	

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Features

Modular Design

- Supports 20 modules (including DC sources, electronic loads, bidirectional power supply, SMU).
- Up to 8 modules can be installed (depends on power), separate control and isolation between channels
- Supports master-slave parallel connection between 2 modules to extend power*1

*1 IT27814/IT27814E can be parallel connection only under CC mode.

Multiple Functions

- Supports LIST programming, sequence editing, battery testing/emulating, user-defined waveform and correction scanning, etc.
- Power analysis can be easily done without any additional equipment.

EIS Electrochemical Impedance Analysis

- The IT27814 module provides EIS function, and can generate Nyquist and Bode.

Graphical User Interface

- 7-inch color display, supports voltage, current, and power waveform display and analysis in real-time.
- Built-in guide and setup functions, easy to use.
- Supports Web control, allowing full functionality to be operated through a browser.

High-Speed Sampling and Data Logging

- Voltage and current sampling rate up to 200 kSa/s (waveform mode).
- Simultaneously sample data from multiple channels (seconds, minutes, hours, days), suitable for dynamic power analysis.
- Built-in data logger function, capable of logging data with a maximum sampling interval of 20μs.

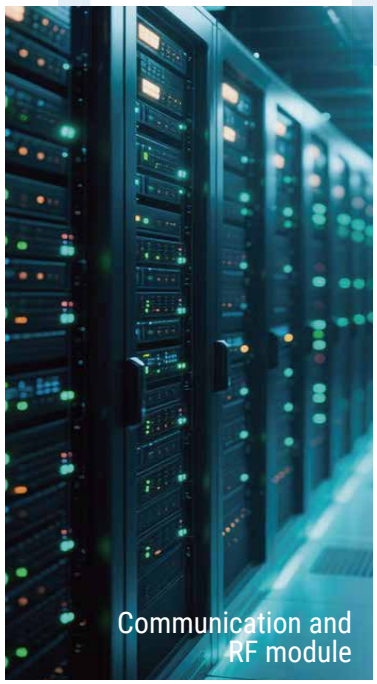
Communication Interfaces

- Standard USB/LAN/CAN/DigitIO communication interfaces, with free programming software PV2700.

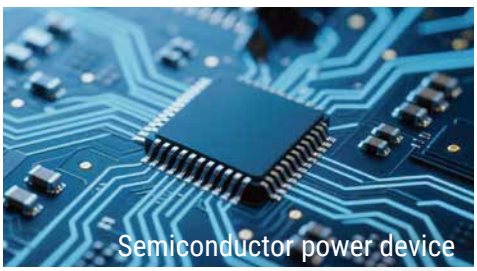
Application

- IoT device power consumption analysis
- Chip power supply testing
- DC-DC power module characteristic analysis
- Battery testing and emulation
- Communication and RF module characteristic analysis
- Portable medical electronics testing
- Semiconductor power device power supply verification
- Battery impedance analysis
- Sensor and electronic component testing

APPLICATIONS


Communication and RF module

DC-DC power module


Semiconductor power device


micro battery

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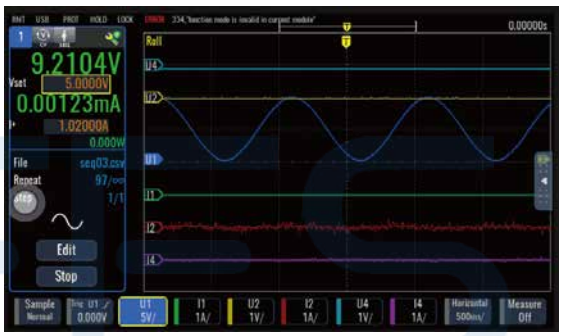
8-Channel Modular Power Analysis Platform

The IT2705 is a powerful and efficient modular power analyzer that supports installation of up to 8 different types of modules (DC source, bidirectional source, regenerative load, SMU). With a full-color touchscreen, it allows real-time monitoring of all channel parameters and supports various meter view modes such as View1, View4, and View8. All modules can operate synchronously, enabling unified control and monitoring of input, output, and load—avoiding the complexity of combining multiple bench-top instruments.

It is particularly well-suited for DC-DC module testing, integrating source and load into one frame to complete power supply, loading, measurement, and data acquisition in one unit. This significantly improves R&D efficiency. At the same time, the modular design supports flexible replacement and upgrades, meeting evolving testing requirements and helping to maximize long-term return on investment.

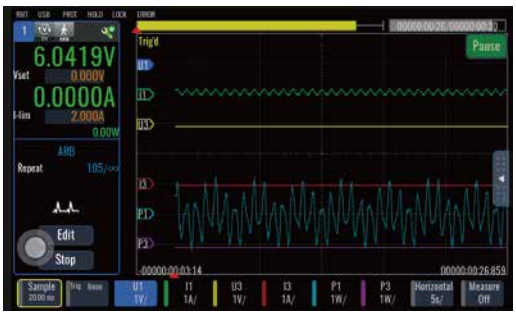
Scope view

All IT2705 modules are equipped with a scope sampling rate of up to 200 kHz, supporting high-bandwidth, real-time monitoring of DUT's voltage, current, and power waveforms. No external current probes, current clamps, or voltage probes are required, allowing complete capture of power-on/off transients, load switching, and interferences. This significantly simplifies the testing and improve analysis efficiency. Additionally, the IT2705 front panel is equipped with scope control keys (including trigger, single capture, run/stop, time base adjustment, etc.), making debugging more intuitive and efficient.



Data Logger view

The IT2705 is not only a powerful modular power analyzer but also features professional data logging capabilities. Each module in the frame can continuously measure voltage and current, and log the data in real time to internal RAM or external USB.
Its data logging interval can be as short as 20 µs, ensuring fine-grained, lossless data capture. With such highly flexible and accurate data logging capabilities, the IT2705 is widely applicable in long-duration trend analysis, load variation tracking, abnormal behavior capture, and performance comparison testing across various R&D scenarios. It greatly simplifies system setup and improves testing efficiency.



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One Device, Flexibly Configurable for Different Test Scenarios

IT271XX Series DC Power Modules

The IT271XX modules provide high-performance programmable DC output with full protection and accurate measurement. They feature three output modes (CV/CC/CP) and support priority switching between CC/CV with built-in resistance setting, effectively avoiding overshoot and inrush triggering risks. The programmable combination of multiple channels with real-time sequencing makes them widely applicable in scientific research and R&D testing environments.

IT278XX Series Four-Quadrant SMU Modules

The IT27814/IT27814E are precision SMU modules designed for low-power device development and testing. They feature high-resolution sourcing and measurement, high sampling rate, and fast transient response. The IT27814 supports current range auto-ranging and smooth switching, allowing seamless current monitoring from standby to active state, further improving current dynamics capture. It is ideal for testing IoT devices, wearable electronics, DC-DC modules, and power ICs. The IT27814 also supports EIS (Electrochemical Impedance Spectroscopy) for battery and sensor impedance analysis, generating Nyquist and Bode.

IT273XX Series Bidirectional DC Power Modules

The IT273XX bidirectional DC power modules integrate source and sink functions, supporting bidirectional energy flow. They can provide stable power to the DUT while also absorbing and feeding back power. Supporting CV, CC, CP modes, they offer fast response and high-precision measurement. The modules support sequence waveform and arbitrary waveform output, making them ideal for DC-DC bidirectional power supply, battery simulation, charging/discharging testing, and energy conversion unit verification in energy storage systems.

IT275XX Series Regenerative DC Electronic Load Modules

The IT275XX regenerative electronic loads come in 200W and 500W configurations, supporting various operating modes including CV, CC, CR, CP as well as complex modes like CC+CV, CR+CV, CP+CV, CC+CR, and Auto. The built-in arbitrary waveform generator allows simulation of complex loading, helping evaluate power supply response, dynamic characteristics, and abnormal behavior, making it a core tool for reliability verification and load simulation testing of power supplies.

Function	DC source IT271XX	Bidirectional DC source IT273XX	DC load IT275XX	SMU IT27814	SMU IT27814E
2-quadrant operation		•			
4-quadrant operation				•	•
Source: CC/CV/CP(no CP)	•	•		•	•
Sink: CC/CV/CR/CP(no CP)		•		•	•
Rin	•	•		•	•
Load: CC/CV/CR/CP/CC+CV/CR+CV/CP+CV/CC+CR / Auto			•		
CC/CV priority	•	•		•	•
LIST mode	•	•	•	•	•
Sequence	•	•	•	•	•
ARB (Arbitrary waveform generator)	•	•	•	•	•
CDARB (Constant Dwell ARB)	•	•	•	•	•
Sine Sweep	•	•	•	•	•
Transient			•		
Battery Charge	•	•		•	•
Battery Discharge		•	•	•	•
Battery Simulation		•		•	•
EIS Function				•	
Voltage range （Set/Measure）				2	2
Current range （Set/Measure）				3(4)	3(4)
Output disconnet relay	•	•	•	•	•

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LIST Mode

The IT271XX / IT273XX / IT275XX / IT278XX modules support LIST mode, enabling precise step changes in voltage and current over time. Users can configure multiple steps with parameters such as Step, Width (duration), and Slew Rate, allowing for the flexible generation of complex power output waveforms or load waveforms.
LIST mode can be triggered via internal or external signals and supports both internal and external triggering. Each LIST file supports up to 2000 steps, making it suitable for simulating power supply waveforms, load transients, and other application scenarios.

Arb Mode

The IT271XX / IT273XX / IT275XX / IT278XX modules are all equipped with high-performance Arbitrary Waveform (ARB) output capability, allowing users to define voltage, current, power, or resistance values that change over time for precise output sequences. This enables accurate simulation of voltage transients, dropout events, load pulses, and other dynamic behaviors at the DUT input.
A variety of built-in standard waveform types are provided, including sine, pulse, trapezoid, exponential, step, ramp, staircase, and user-defined waveforms (supporting up to 128-point data import).ARB functionality is widely used in battery operating condition simulation, DC-DC stability testing, and communication device activation behavior analysis and so on.

Sequence Mode

The IT271XX / IT273XX / IT275XX / IT278XX modules support Sequence waveform mode, allowing multiple different types of waveform segments (such as DC output, trapezoidal waveforms, etc.) to be combined into a complete sequence file and executed automatically in a predefined order. Each segment can be individually configured with duration and repeat count. It is suitable for simulating scenarios where a DC-DC power module transitions from normal supply to fault or abnormal conditions, as well as for testing response to multi-step load variations. It significantly enhances test automation and repeatability.

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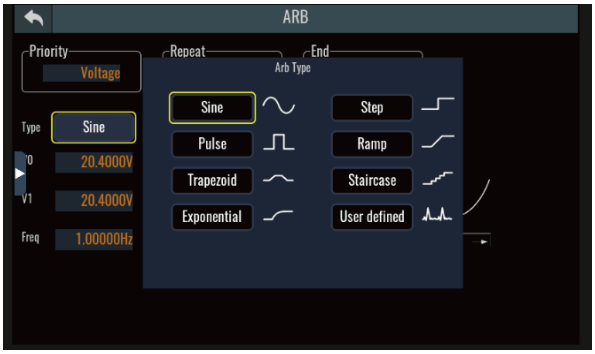
Const Dwell Arbitrary



The IT271XX / IT273XX / IT275XX / IT278XX modules support importing user-captured data to generate arbitrary waveform output with constant dwell time (CDARB mode, Const Dwell Arbitrary).In this mode, all waveform points use a uniform dwell time and are executed sequentially at equal intervals. It supports importing up to 8000 points of voltage, current, power, or resistance waveform. Users can freely set the output duration, and the system by default switches between points at the fastest slew rate, precisely restoring the original waveform variations.

Battery Simulation

The IT273XX / IT278XX modules support battery simulation functionality, accurately replicating the voltage-current behavior of real batteries under different states of charge (SOC). Users can set key battery parameters such as open-circuit voltage, internal resistance and capacity. The system dynamically adjusts the output voltage based on the DUT's current request, simulating the real charge/discharge process of a battery. Compared to real batteries, the simulator offers higher repeat-ability, making it especially suitable for scenarios such as development of battery powered devices , validation of power management IC, and more.

Battery Charge/Discharge Testing

The IT271XX / IT273XX / IT275XX / IT278XX modules support various battery charge and discharge testing modes. Charging supports CC/CV modes, while discharging supports CC, CP and CR modes. The system offers flexible cutoff condition settings, including voltage, current, time, capacity, energy, to ensure test safety and controllability. With built-in data logging functionality, users can record and export key parameters such as voltage, current, and power in real time during the charge/discharge process for further analysis and validation. It is widely applicable to testing of battery cells, battery packs, and energy storage systems for performance evaluation and lifecycle testing.

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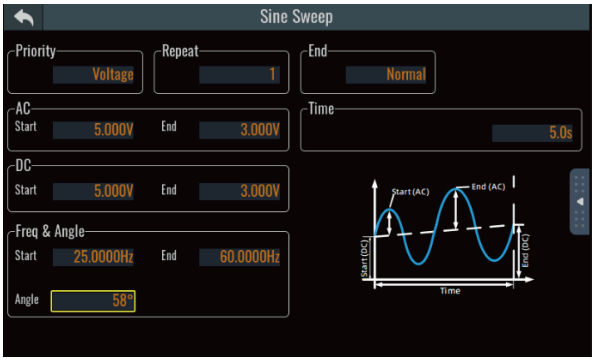
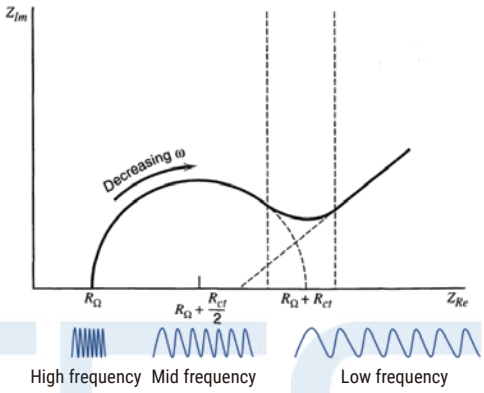
Sine Sweep

The IT271XX / IT273XX / IT275XX / IT278XX modules support sine sweep frequency output. Users can flexibly configure amplitude, offset, and frequency parameters to analyze the DUT's performance under different frequency conditions. Starting frequency, ending frequency, and step interval can all be set independently. It is suitable for evaluating the impedance characteristics of power devices, fuel cell single-cell impedance testing, etc. It helps engineers gain deeper insight into the frequency changes and dynamic characteristics of power systems.



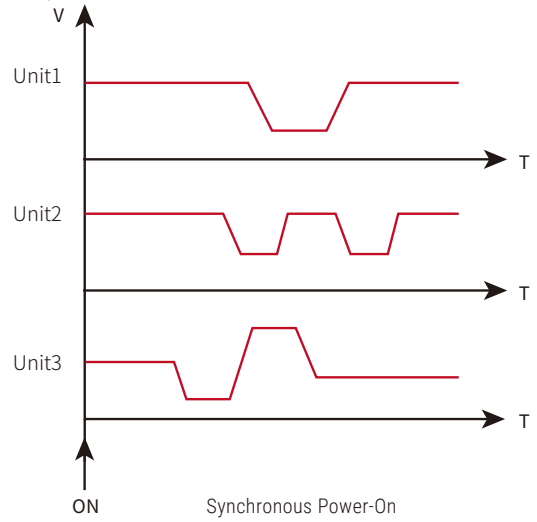
Electrochemical Impedance Spectroscopy

The IT27814 four-quadrant SMU module is equipped with professional impedance spectrum analysis capability, allowing evaluation of battery impedance characteristics under different states to help explore internal behaviors. With the built-in EIS function, it can capture subtle responses under multi-frequency excitation (0.1 Hz ~ 20 kHz), identifying potential issues that traditional methods may miss. Test results can be displayed through Bode plots and Nyquist plots for intuitive visualization.
Widely applicable for fuel cell evaluation, battery cells, and power device performance and lifespan assessment, it is a powerful helper for electro-chemical characteristic research.

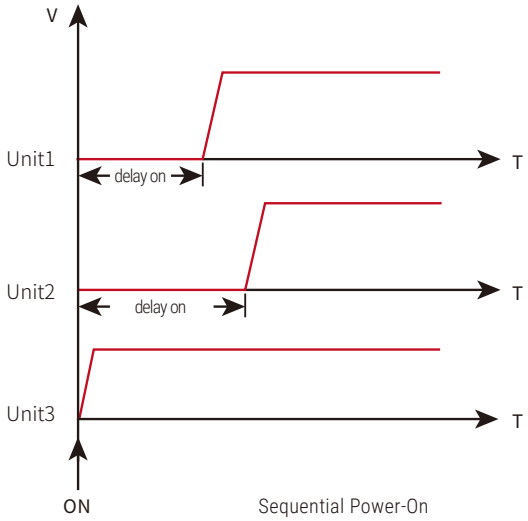


Power-On/Off Sequencing

The IT2705 supports independent configuration of power-on/off delay for each module, enabling sequence control across channels. It is suitable for startup protection of multi-channel power supply systems and power-up sequence management of components, enhancing testing safety and system stability.



Synchronous Power-On



Sequential Power-On

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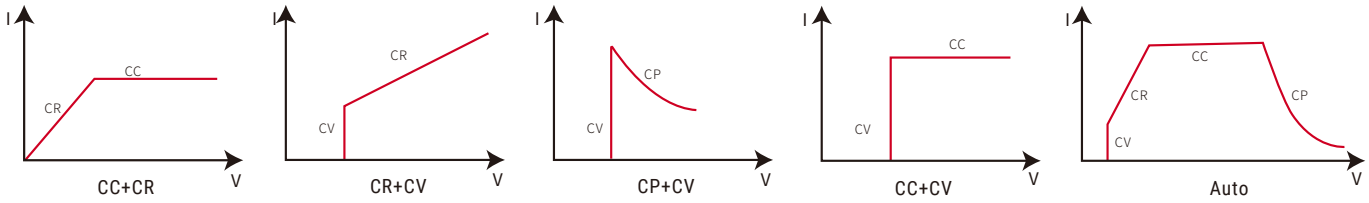
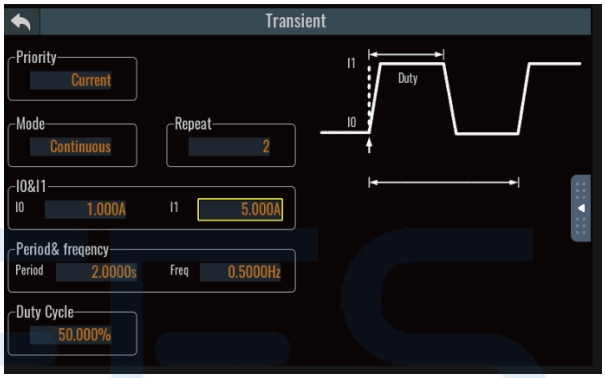
Multiple Load Modes (IT275XX Modules)

The IT275XX series supports 10 load modes. In addition to the basic CC, CV, CR, and CP modes, it also includes composite modes such as CC+CR, CR+CV, CP+CV, CC+CV, and AUTO. CR+CV mode simulates LED loads and can be used to evaluate current ripple in LED power supplies. CP+CV mode is suitable for battery discharge testing, where the voltage serves as the discharge cutoff. AUTO mode allows automatic switching between voltage, current, resistance, and power modes based on DUT conditions, effectively preventing protection failures and damage, while improving test safety and efficiency.



Dynamic Mode (IT275XX Modules)

The IT275XX series features dynamic load mode, supporting high-speed switching between two set levels to simulate rapid changes in load conditions. This function is commonly used to test the transient response of power supplies, loop regulation capability, and voltage recovery characteristics. It is a key tool for evaluating the dynamic performance of voltage regulators, adapters, and battery-powered devices.



DUT

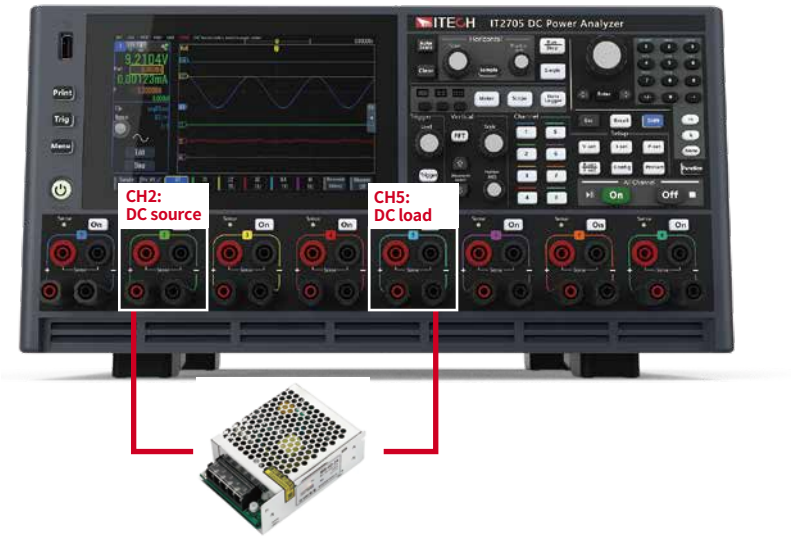
DC-DC Power Module Testing

Configuration

IT2705 + DC Source Module + Load Module

Testing Advantages

- Integrates power supply, oscilloscope, and waveform generator in one unit, simplifying the test setup
- 200 kHz high-speed sampling, accurately captures startup and transient behavior
- Supports arbitrary waveforms, simulates various input disturbances
- Centralized control of input and output, ideal for complete DC-DC testing
- Intuitive graphical interface, no programming required



DC-DC Power Module

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PV2700 Power Control and Waveform Analysis Software

PV2700 is a graphical control and analysis software developed specifically for the IT2705 modular power analysis system. It provides an intuitive user interface to help users quickly configure output parameters, control channel states, and execute various waveform outputs and automated test procedures.

Key features include:

- Graphical control of voltage, current, and power output across multiple channels
- Supports multiple output modes such as Arbitrary Waveform (ARB), Sequence, and LIST mode
- Real-time display of voltage, current, and power curves for easy DUT response observation
- Integrated data logging function with CSV export for post-analysis
- Professional power analysis interface to statistically analyze DUT power consumption
- Supports automated test flow configuration, ideal for charge/discharge cycles, power resistance testing, battery simulation, and more

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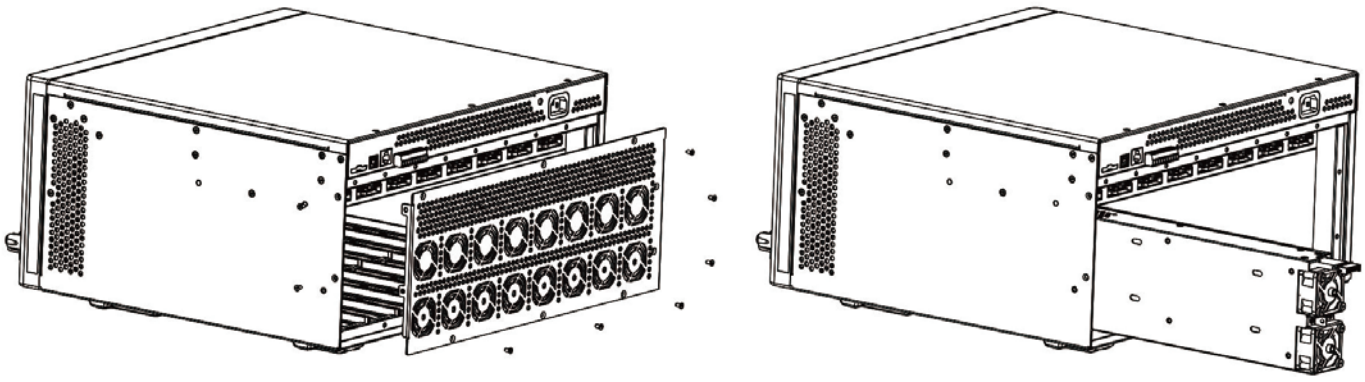
IT2705 5U Frame			
AC input	voltage	Single phase 100Vac-240Vac	
	frequency	50/60Hz	
Max. AC apparent power	2.2kVA		
Max. AC current *1	10Aac		
Max. efficiency	93%		
Maximum module power limit	1600W *1		
Maximum output current	terminal：30A	rubber connector：10A	
PF	0.99		
DC component	≤0.2A		
Current harmonic	≤3%		
Communication interface	USB/LAN/CAN/Digital IO		
Program response	0.1ms		
Max. channels	8		
Maximum current/channel	30A		
Display size	7"		
Display resolution	800*400		
Working temperature	0～40°C		
Store temperature	-10°C～70°C		
Protection level	IP20		
Withstand voltage (AC to ground)	3500Vdc		
Cooling	fan		
Dimension	365mm*395mm*195mm		
N.W.	8.5kg		

*1 The AC current is limited to 12.5Aac. When the mains voltage is low, power may be limited. For example: single-phase mains, phase voltage 100Vac, the power is:=100Vac*10Aac=1000VA

IT2705 Module Assembly



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		IT27134	IT27135	IT27137
Rated values	voltage	0～30V	0～60V	0～150V
	current	0～15A	0～10A	0～5A
	power	0～200W	0～200W	0～200W
	series IR (CV priority)	0～1Ω	0～1Ω	0～1Ω
Setup resolution	voltage	0.001V	0.001V	0.01V
	current	0.001A	0.001A	0.001A
	power	0.01W	0.01W	0.01W
	series IR (CV priority)	0.0001Ω	0.0001Ω	0.0001Ω
Readback resolution	voltage	0.0001V	0.0001V	0.0001V
	current	0.0001A	0.0001A	0.0001A
	power	0.01W	0.01W	0.01W
Set accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
	series IR (CV priority)	≤1%FS	≤1%FS	≤1%FS
Readback accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
Voltage ripple	Vpeak	≤30mVpp	≤60mVpp	≤150mVpp
	RMS	≤5mV	≤10mV	≤15mV
Setup temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Readback temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Rise time(no load)	voltage	≤10ms	≤10ms	≤10ms
Rise time(full load))	voltage	≤20ms	≤20ms	≤20ms
Rise time(no load)	voltage	≤0.5s	≤0.5s	≤0.5s
Rise time(full load)	voltage	≤10ms	≤10ms	≤10ms
Dynamic response time*1	voltage	≤1ms	≤1ms	≤1ms
Power regulation	voltage	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Load regulation	voltage*2	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Output protection	OCP	15.3A	10.2A	5.1A
	OVP	30.6V	61.2V	153V
	OPP	204W	204W	204W
Sense		⩽3V	⩽6V	⩽15V
Isolation(DC to ground)		800Vdc	800Vdc	800Vdc
Working temperature		0～40°C	0～40°C	0～40°C
Store temperature		-10°C～70°C	-10°C～70°C	-10°C～70°C
Protection level		IP20	IP20	IP20
Cooling		fan	fan	fan
Dimension		320mm*50mm*40mm	320mm*50mm*40mm	320mm*50mm*40mm
N.W.		0.6kg	0.6kg	0.6kg

*1 rated current: 10% to 90% *2 sense mode

F.E.S. Co., Ltd.
1000/24, P.B. Tower, 8 floor, Sukhumvit 71 Rd., North Klongtan, Wattana, Bangkok 10110
TEL: 02-064-4050 or 02-064-4051 I FAX: 02-010-4262 I Email: info@fesupply.com
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		IT27334	IT27335	IT27337
Rated values	voltage	0～30V	0～60V	0～150V
	current	-15A～15A	-10A～10A	-5A～5A
	power	-200W～200W	-200W～200W	-200W～200W
	series IR (CV priority)	0～1Ω	0～1Ω	0～1Ω
	load IR (CC priority)	0.02Ω～200Ω	0.06Ω～600Ω	0.3Ω～3000Ω
Setup resolution	voltage	0.001V	0.001V	0.01V
	current	0.001A	0.001A	0.001A
	power	0.01W	0.01W	0.01W
	series IR (CV priority)	0.0001Ω	0.0001Ω	0.0001Ω
	load IR (CC priority)	0.01Ω	0.01Ω	0.01Ω
Readback resolution	voltage	0.0001V	0.0001V	0.0001V
	current	0.0001A	0.0001A	0.0001A
	power	0.01W	0.01W	0.01W
Set accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
	series IR (CV priority)	≤1%FS	≤1%FS	≤1%FS
	load IR (CC priority)	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)
Readback accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
Voltage ripple	Vpeak	≤30mVpp	≤60mVpp	≤150mVpp
	RMS	≤5mV	≤10mV	≤15mV
Setup temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Readback temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Rise time(no load)	voltage	≤10ms	≤10ms	≤10ms
Rise time(full load))	voltage	≤20ms	≤20ms	≤20ms
Rise time(no load)	voltage	≤10ms	≤10ms	≤10ms
Rise time(full load)	voltage	≤10ms	≤10ms	≤10ms
Dynamic response time*1	voltage	≤1ms	≤1ms	≤1ms
Power regulation	voltage	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Load regulation	voltage*2	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Output protection	OCP	-15.3A or 15.3A	-10.2A or 10.2A	-5.1A or 5.1A
	OVP	30.6V	61.2V	153V
	OPP	-204W or 204W	-204W or 204W	-204W or 204W
Sense		⩽3V	⩽6V	⩽15V
Isolation(DC to ground)		800Vdc	800Vdc	800Vdc
Working temperature		0～40°C	0～40°C	0～40°C
Store temperature		-10°C～70°C	-10°C～70°C	-10°C～70°C
Protection level		IP20	IP20	IP20
Cooling		fan	fan	fan
Dimension		320mm*50mm*40mm	320mm*50mm*40mm	320mm*50mm*40mm
N.W.		0.6kg	0.6kg	0.6kg

*1 rated current: 10% to 90% *2 sense mode

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www.fesupply.com I www.siampowersupply.com

		IT27534	IT27535	IT27537
Rated values	voltage	0.03V～30V	0.06V～60V	0.150V～150V
	current	0～15A	0～10A	0～5A
	power	0～200W	0～200W	0～200W
	resistance *	0.02Ω～200Ω	0.06Ω～600Ω	0.3Ω～3000Ω
	MOV.	0.3V at 15A	0.6V at 10A	1.5V at 5A
	input leakage current	0.001A	0.001A	0.001A
Setup resolution	voltage	0.001V	0.001V	0.01V
	current	0.001A	0.001A	0.001A
	power	0.01W	0.01W	0.01W
	resistance	0.01Ω	0.01Ω	0.01Ω
Readback resolution	voltage	0.0001V	0.0001V	0.0001V
	current	0.0001A	0.0001A	0.0001A
	power	0.01W	0.01W	0.01W
Set accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
	resistance *1	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)	max：1/(1/Rset+(1/Rset)*0.05+0.0005) min：1/(1/Rset-(1/Rset)*0.05-0.0005)
Readback accuracy	voltage	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS	≤0.02% + 0.02%FS
	current	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS	≤0.05% + 0.05%FS
	power	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS	≤0.1% + 0.2%FS
Setup temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Readback temperature coefficient	voltage	≤20ppm/°C	≤20ppm/°C	≤20ppm/°C
	current	≤30ppm/°C	≤30ppm/°C	≤30ppm/°C
Dynamic response time	rise time	15A/ms	10A/ms	5A/ms
	fall time	15A/ms	10A/ms	5A/ms
	dynamic frequency	500Hz	500Hz	500Hz
Power regulation	voltage	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Load regulation	voltage *2	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS	≤0.005% + 0.005%FS
	current	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS	≤0.015% + 0.015%FS
Short circuit current	current	15.75A	10.5A	5.25A
Input protection	OCP	15.3A	10.2A	5.1A
	OVP	30.6V	61.2V	153V
	OPP	204W	204W	204W
Input OVP		31.5V	63V	156V
Sense		≤3V	≤6V	≤15V
Isolation(DC to ground)		800Vdc	800Vdc	800Vdc
Working temperature		0～40°C	0～40°C	0～40°C
Store temperature		-10°C～70°C	-10°C～70°C	-10°C～70°C
Protection level		IP20	IP20	IP20
Cooling		fan	fan	fan
Dimension		320mm*50mm*40mm	320mm*50mm*40mm	320mm*50mm*40mm
N.W.		0.6kg	0.6kg	0.6kg

*1 resistance accuracy-voltage and current not less than 10%FS

*2 sense mode

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		IT27814				IT27814E			
Rated range	voltage	±6 V		±20 V		±6 V		±20 V	
	current	±3 A		±1 A		±3 A		±1 A	
	power	±20 W		±20 W		±20 W		±20 W	
Load regulation (voltage)	range	±6 V		±20 V		±6 V		±20 V	
	accuracy	150 μV		400 μV		600 μV		2 mV	
Load regulation (current)	range	10mA	100mA	1A	3A	10mA	10mA	1A	3A
	accuracy	1 μA	1 μA	50 μA	100 μA	3 μA	3 μA	200 μA	400 μA
Voltage setting accuracy	range	±6 V		±20 V		±6 V		±20 V	
	resolution	6 μV		20 μV		210 μV		700 μV	
	accuracy	≤0.015%+300 μV		≤0.015%+1 mV		≤0.02%+1 mV		≤0.02%+3 mV	
Current setting accuracy	range	10 mA	100 mA	3 A		10 mA	100 mA	3 A	
	resolution	0.1 μA	1 μA	10 μA		1 μA	10 μA	300 μA	
	accuracy	≤0.025% + 5 μA	≤0.025% + 10 μA	≤0.03% + 250 μA		≤0.05% + 6 μA	≤0.05% + 50 μA	≤0.05% + 1.5 mA	
Voltage measurement accuracy	range	±6 V		±20 V		±6 V		±20 V	
	resolution	6 μV		20 μV		210 μV		700 μV	
	accuracy	≤0.015%+300 μV		≤0.015%+1 mV		≤0.02%+1 mV		≤0.02%+3 mV	
Current measurement accuracy	range	10 μA	1 mA	100 mA	3 A	10 μA	1 mA	100 mA	3 A
	resolution	100 pA	10 nA	1 μA	10 μA	1 nA	100 nA	10 μA	300 μA
	accuracy	≤0.025% + 8 nA	≤0.025% + 100 nA	≤0.025% + 10 μA	≤0.03% + 250 μA	≤0.05% + 8 nA	≤0.05% + 400 nA	≤0.05% + 40 μA	≤0.05% + 1.2 mA
Internal resistance setting accuracy	range	±6 V		±20 V		±6 V		±20 V	
	resolution	0.25 mΩ		0.5 mΩ		0.5 mΩ		0.5 mΩ	
	Setting range (R)	- 40 mΩ ~ 1 Ω		- 40 mΩ ~ 1 Ω		- 40 mΩ ~ 1 Ω		- 40 mΩ ~ 1 Ω	
	Setting accuracy	0.1% + 1.5 mΩ		0.1% + 3 mΩ		0.1% + 1.5 mΩ		0.1% + 3 mΩ	
Voltage loop speed		The voltage loop has four speed settings: Low, High1, High2, and High3. The corresponding rise times are measured with load capacitances of 0μF / 0μF / 1μF / 7μF respectively.							
		Low	High1	High2	High3	Low	High1	High2	High3
	20V Range (0-10V)	250 μs	20 μs	20 μs	120 μs	250 μs	25 μs	35 μs	120 μs
	6V Range (0-4V)	200 μs	15 μs	15 μs	40 μs	160 μs	20 μs	25 μs	50 μs
		Rise time （≤0.1%）							
	20V Range (0-10V)	450 μs	75 μs	65 μs	220 μs	450 μs	75 μs	65 μs	220 μs
	6V Range (0-4V)	450 μs	55 μs	45 μs	120 μs	450 μs	55 μs	45 μs	120 μs
Current loop speed	range	10 mA	100 mA	1 A	3 A	10 mA	100 mA	1 A	3 A
	Rise time （10%-90%）	5 μs	4.5 μs	3.7 μs	3.7 μs	10 μs	10 μs	14 μs	15 μs
	Rise time （≤0.1%）	30 μs	30 μs	30 μs	30 μs	30 μs	30 μs	30 μs	30 μs
Other characteristics									
Voltage output noise （10 Hz to 20 MHz）		12mVp-p / 1.2mVrms							
CV mode dynamic response recovery time		Under sense mode, with a 150μF load capacitor (ESR = 50mΩ), current rise time is 10μs							
		20V range, 0.8A current step, voltage recovers to ±10mV within ≤35μs				20V range, 0.8A current step, voltage recovers to ±20mV within ≤40μs			
		6V range, 1.4A current step, voltage recovers to ±20mV within ≤35μs				6V range, 1.4A current step, voltage recovers to ±20mV within ≤55μs			
CC mode dynamic response recovery time		3A setting, voltage step 1−4V, current recovers to 5mA in 16μs				3A setting, voltage step 1−4V, current recovers to 5mA in 35μs			
		1A setting, voltage step 0.5−0V, current recovers to 10mA in 10μs				1A setting, voltage step 0.5−0V, current recovers to 10mA in 25μs			

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