ITECH ELECTRONIC

IT-EC7800 Series
Programmable AC/DC Power Supply

New Energy | Power Electronics | Home Appliances | Medical Equipment | Scientific Research & Education

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IT-EC7800 Series Programmable AC/DC Power Supply

The IT-EC7800 Series is a programmable AC/DC power supply that integrates advanced Silicon Carbide (SiC) technology and a high power density design, delivering up to 6kVA in a 2U chassis and up to 15kVA in a 3U chassis, combining compact size with powerful performance.

This series includes a built-in high-precision power meter and arbitrary waveform generator, supporting harmonic simulation, complex waveform output, and comprehensive data analysis functions, along with an intuitive LCD touchscreen for easy operation.It is widely used in R\&D validation, production testing, and quality control across industries such as new energy, power electronics, and scientific research institutions.

FEATURE

- Adopts Silicon Carbide (SiC) technology
- High power density design: up to 15kVA in 3U, up to 6kVA in 2U
- Voltage rating: 350V L-N
- Harmonic simulation and analysis up to the 50th order
- Output frequency: 16–1000Hz; adjustable voltage and frequency slew rate
- Built-in single-phase or three-phase AC power meter
- Supports four output modes: AC, DC, AC+DC, DC+AC
- Selectable single-phase or three-phase output modes
- Programmable output impedance
- Touchscreen interface with a clean UI design
- Arbitrary waveform simulation, supports CSV waveform import
- Built-in rich waveform database
- List mode simulates power grid restoration and momentary power interruption
- Configurable output start/stop phase angle from 0–360°
- Built-in Surge & Sag simulation
- Built-in Relay Ctrl output for DUT and source electrical isolation
- Built-in USB/CAN/LAN/Digital I/O; optional GPIB/Analog/RS232 interfaces
- Supports CANopen, Modbus, LXI, SCPI, and other communication protocols

Application Fields

New Energy
Onboard chargers, AC/DC charging piles

Power Electronics
Inverters, UPS systems, AC motors

Home Appliances
Air conditioners, microwave ovens, refrigerators, washing machines

Civil Aviation
Avionics, airport ground support equipment

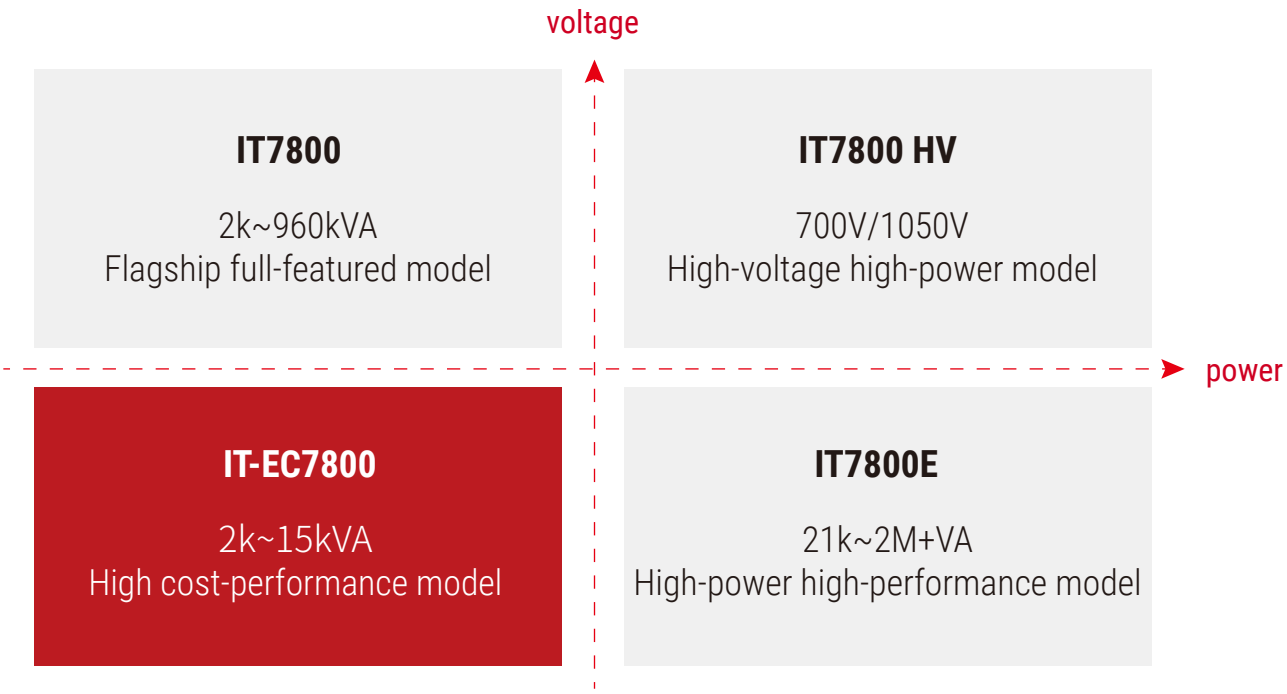
Medical Equipment
CT scanners, MRI systems, life science analyzers, etc.

Research, Universities, Laboratories, Testing Organizations
AC-DC power adapter testing, EMC compliance testing

Model	Output voltage Vac		Output Amps/Phs		Output power	Phase	Height
	V L-N	V L-L	Arms(1Φ)	Arms(3Φ)	Pac		
IT-EC7802-350-10U	350V	606V	10A	–	2kVA	1Φ	2U
IT-EC7804-350-20U	350V	606V	20A	–	4kVA	1Φ	2U
IT-EC7806-350-30	350V	606V	30A	10A	6kVA	1Φ or 3Φ	2U
IT-EC7806-350-90	350V	606V	90A	30A	6kVA	1Φ or 3Φ	3U
IT-EC7809-350-90	350V	606V	90A	30A	9kVA	1Φ or 3Φ	3U
IT-EC7812-350-90	350V	606V	90A	30A	12kVA	1Φ or 3Φ	3U
IT-EC7815-350-90	350V	606V	90A	30A	15kVA	1Φ or 3Φ	3U

*Specifications subject to change without notice

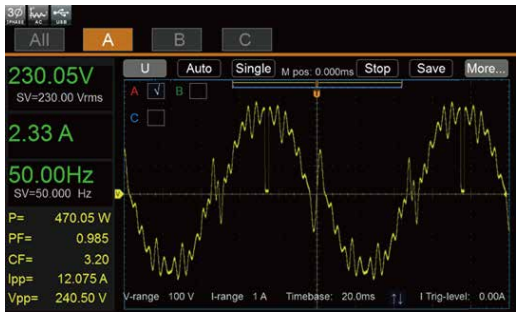
ITECH High Power AC Power Supply Selection Guide



User-Friendly Touchscreen Design

The IT-EC7800 series features a brand-new touchscreen design. Its simple and intuitive UI, combined with a keypad and rotary knob, allows users to make selections directly and quickly.Users can choose different display styles, customize parameter types and their screen positions. The user-friendly settings accommodate a wide range of measurement needs during testing.

The screen can display real-time voltage and current waveforms, with up to 6 oscilloscope traces. Users can perform instant analysis and save data without the need for an external oscilloscope.



Application: testing inductive, capacitive or resistive products

·When testing inductive, capacitive or resistive products, there are certain leading or lagging characteristics of voltage and current.

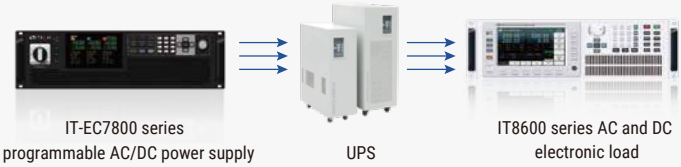
· Using IT-EC7800 series can not only display real-time data, but also select the desired waveform on the screen for visual observation. And through short-cut keys, save the picture to the storage disk of the peripheral device. It is convenient to perform secondary analysis on data and waveforms, making it easier and more effective to use.

Application: UPS test

· Test standard：YD-T 1095-2018

· Test equipment: IT-EC7800 series high-power programmable AC/ DC power supply, IT8600 series AC and DC electronic load

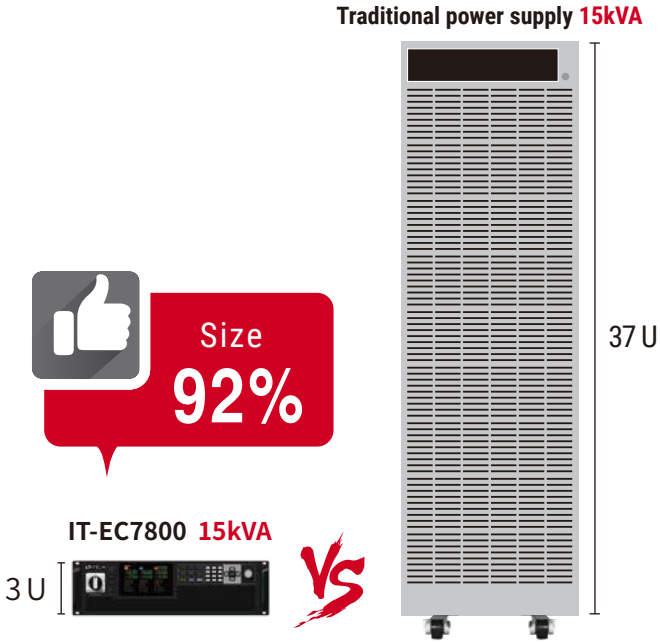
·Test content: Adjust the AC input voltage and change it within the range specified by the standard to see if the UPS meets the indicators related to the input voltage change.



High Power Density Design

The IT-EC7800 series adopts a compact standalone architecture, offering both 2U and 3U configurations to cover a power range from 2kVA to 15kVA, flexibly accommodating a wide variety of test requirements from low to high power.Particularly for the 3U/15kVA model, its volume is reduced to approximately 1/12 of conventional AC power supplies, significantly reducing space requirements.Users can achieve high power density test setups without the need for additional power racks or laboratory expansion,which helps enterprises reduce the cost of building and operating test environments, while improving space utilization and overall testing efficiency.

3U 15kVA	2U 6kVA	ATE set up	bench test

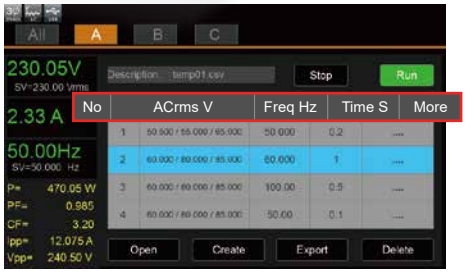


Surge & Sag Function

The IT-EC7800 series provides surge and sag simulation functions,allowing users to superimpose surges or sags on a sine wave to simulate abnormal voltage fluctuations in electrical systems,to verify the performance of the device under test (DUT) under such conditions.

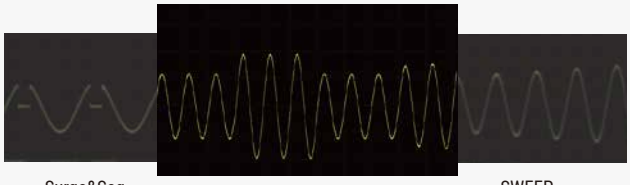
List Mode

The IT-EC7800 series provides a simple and efficient way to achieve step-by-step or continuous changes in output parameters through LIST, SWEEP, and SURGE & SAG modes.Output parameters such as voltage amplitude, frequency, phase, and waveform can be triggered via internal or external signals of the instrument,enabling simulation of power phenomena such as momentary outages, surges, and ramp-up conditions.



Application- Mains reproduction simulation

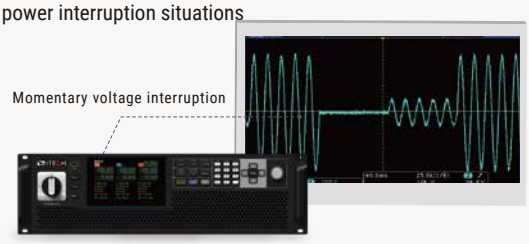
· Users can use the panel or program control of IT-EC7800 series to edit and simulate various power interference conditions



Surge&Sag LIST SWEEP

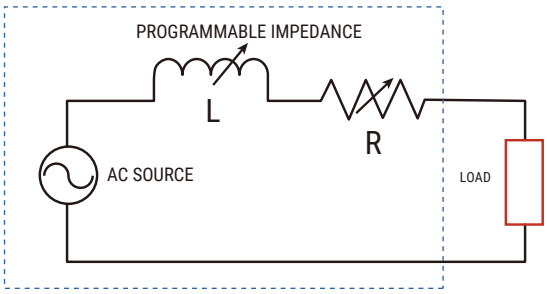
Application- Momentary power interruption simulation

· IT-EC7800 series can also effectively simulate various power interruption situations



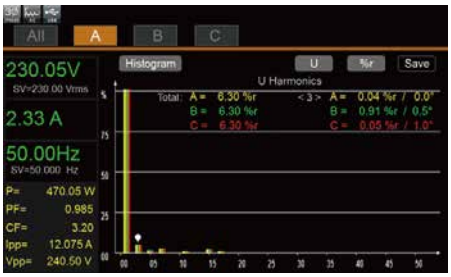
Programmable Output Impedance

The IT-EC7800 series provides programmable output impedance functionality, allowing users to set R and L parameters,to simulate the line impedance of power systems, in compliance with IEC61000-3-3 and IEC61000-3-2 standards.

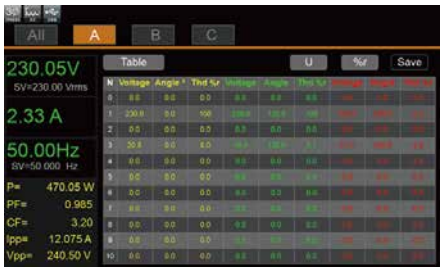


Harmonic Analysis and Simulation Function

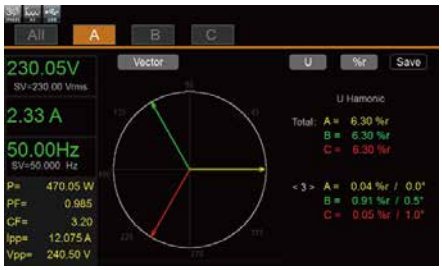
The harmonic analysis function of the IT-EC7800 series includes voltage and current harmonic measurements.In harmonic mode, it supports measurement of voltage/current Total Harmonic Distortion (THD) and phase deviation of harmonics relative to the fundamental wave.It also allows multi-order harmonic measurements with results displayed as lists, bar charts, or vector diagrams,making the analysis of test results more intuitive.



histogram



list



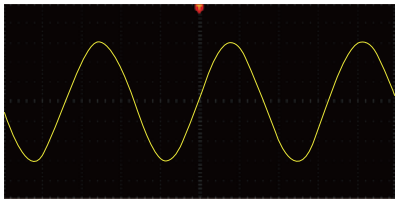
vector diagram

The IT-EC7800 series supports harmonic simulation (single-phase / three-phase / unbalanced three-phase) of up to the 50th voltage harmonic.

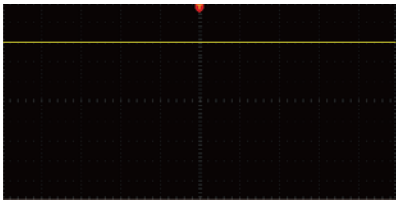
50th harmonic simulation

Supports AC, DC, AC+DC, and DC+AC Output Modes

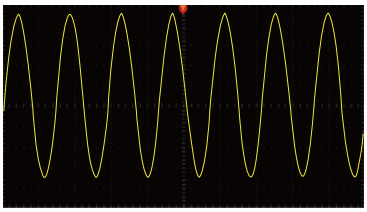
The IT-EC7800 series supports four output modes: AC, DC, AC+DC, and DC+AC,offering both pure AC and DC outputs,and enabling AC output with DC offset or DC output with ripple by using AC+DC or DC+AC modes,thus providing engineers with a broader range of testing applications.



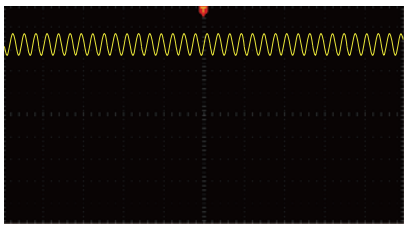
AC



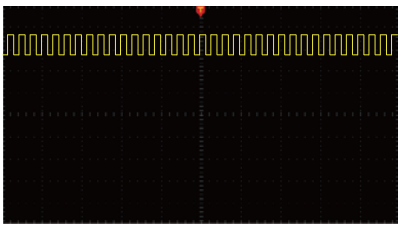
DC



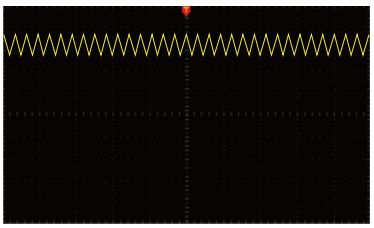
AC+DC
Vac=45V , dc bias=10V



DC+AC
Vdc=50V, sine ripple Vac=5V,freqency 1000Hz



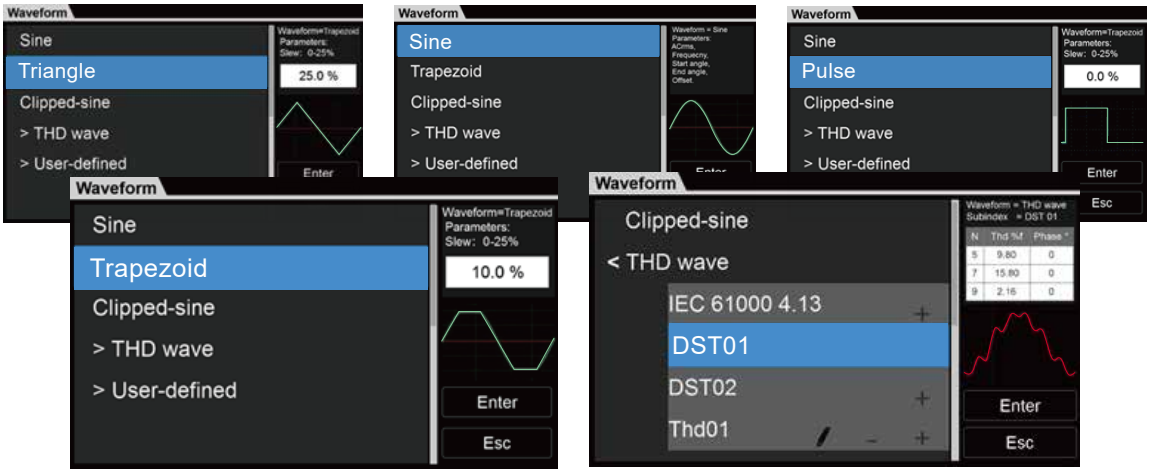
DC+AC
Vdc=50V, square ripple Vac=5V,freqency 1000Hz



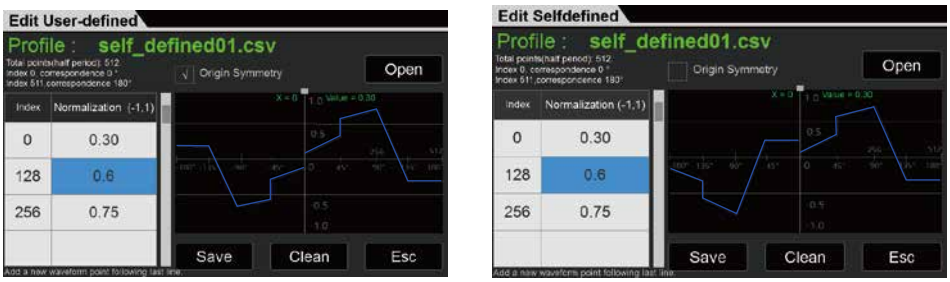
DC+AC
Vdc=50V, triangle ripple Vac=5V,freqency 1000Hz

Built-in Rich Waveform Library

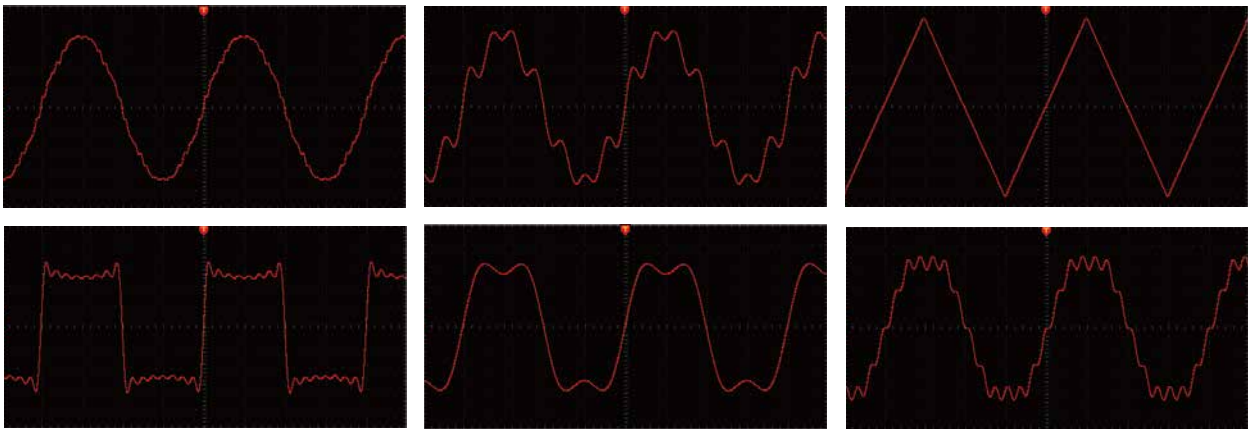
The IT-EC7800 series includes 30 built-in harmonic distortion waveforms.The series also includes a variety of built-in waveforms such as triangle wave, sine wave, square wave, and sawtooth wave,which can be selected and displayed via the menu on the LCD screen.



Users can also customize and edit waveforms through the interface,to replicate and simulate real-world power waveforms from actual fault events.



The IT-EC7800 series has 30 built-in harmonic distortion waveforms.



IT-EC7802-350-10U			
Input parameter			
AC input	Wiring connection	3 phase 3wire + ground(PE)	
	Line voltage	RMS	(200～220) ±10% V / (380～480) ±10% V
	Line current	RMS	＜8.1A
	Apparent Power	＜2.4kVA	
	Frequency range	45～65Hz	
	PF	typ	0.98
Output parameter			
AC output	Output voltage	VLN	0～350V
	Output current	RMS（1phase）	10A
		Crest Factor *1	6
		Peak（1phase）	40A
	Output power	Max. Power（1phase）	2kVA
	Voltage setting		
	Range	0～350V (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (16Hz～500Hz) /＜0.1%+(0.2%*kHz)F.S(500.01Hz～1kHz)	
	Current setting		
	Range	RMS	10A (1phase)
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.(16Hz～150Hz) / ＜0.2% + 0.3% F.S.(150.01Hz～500Hz) / ＜0.3%+(0.6%*kHz) F.S(500.01Hz～1kHz)	
	Frequency setting		
	Range	16～500Hz (Low*2) / 16～1kHz (High*2)	
	Resolution	0.01Hz	
	Accuracy	0.01% (16Hz～500Hz) / 0.1% (500.01Hz～1kHz)	
	harmonic waveform	50/60Hz	up to 50 orders
	Phase setting		
	Range	0～360°	
	Resolution	0.01°	
DC output	Voltage setting		
	Range	-499～499Vdc (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S.	
	Current setting		
	Range	-10～10Adc（1phase)	
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.	
	Power(max.)		
	Total Power	Max. Power（1phase)	2kW
Voltage stability	Line regulation	＜0.05% F.S.	
	Load regulation*3	＜0.05% + 0.05% F.S. (DC,16Hz～500Hz) / ＜0.05% + (0.1%*kHz) F.S(500.01Hz～1kHz)	
	THD*4	＜0.5%(16Hz～100Hz) / ＜1%(100Hz～500Hz) / ＜1%+(1%*kHz) (500.01Hz～1kHz)	
	Voltage ripple	RMS	< 0.4V
	Dynamic response*5	typ	220us
Measurement parameter			
Voltage RMS	Accuracy	＜0.1%+0.1% F.S. (DC,16Hz～500Hz) / ＜0.1%+(0.2%*kHz) F.S(500.01Hz～1kHz)	
Current RMS	Accuracy	＜0.1% + 0.2% F.S.(DC,16Hz～150Hz)/＜0.2% + 0.3% F.S.(150.01Hz～500Hz)/＜0.3% + (0.6%*kHz) F.S(500.01Hz～1kHz)	
Peak current	Accuracy	＜0.4% + 0.6% F.S.(16Hz～500Hz) / ＜0.4% + (1.2%*kHz) F.S(500.01Hz～1kHz)	
Output power	Accuracy	＜0.4% +0.4% F.S. (DC,16Hz～500Hz) / ＜0.4% +＜(0.8%*kHz) F.S(500.01Hz～1kHz)	
Harmonic measurement	Max.	50/60Hz	up to 50 orders
Efficiency	typ	84%	
Weight		15kg	

*1 When the output frequency is 50Hz/60Hz and the peak current is not exceeded, the maximum Crest Factor (CF) is 6; under full current and full power conditions, the CF is up to 4.

*2 When LoopSpeed is set to Low, the system has better load adaptability; when set to High, it provides faster dynamic response.

*3 For parallel models, Sense remote measurement mode must be used during testing.

*4 Test conditions: Pure resistive load under full power output.

*5 Dynamic response time test conditions: DC mode, High speed setting, DUT capacitance < 10μF.

* Specifications are subject to change without prior notice.

IT-EC7804-350-20U			
Input parameter			
AC input	Wiring connection	3 phase 3wire + ground(PE)	
	Line voltage	RMS	(200～220) ±10% V *1 / (380～480) ±10% V
	Line current	RMS	＜9.4A
	Apparent Power	＜4.6kVA	
	Frequency range	45～65Hz	
	PF	typ	0.98
Output parameter			
AC output	Output voltage	VLN	0～350V
	Output current	RMS（1phase）	20A
		Crest Factor *2	6
		Peak（1phase）	80A
	Output power	Max. Power（1phase）	4kVA
	Voltage setting		
	Range	0～350V (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (16Hz～500Hz) /＜0.1%+(0.2%*kHz)F.S(500.01Hz～1kHz)	
	Current setting		
	Range	RMS	20A (1phase)
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.(16Hz～150Hz) / ＜0.2% + 0.3% F.S.(150.01Hz～500Hz) / ＜0.3%+(0.6%*kHz) F.S(500.01Hz～1kHz)	
	Frequency setting		
	Range	16～500Hz (Low*3) / 16～1kHz (High*3)	
	Resolution	0.01Hz	
	Accuracy	0.01% (16Hz～500Hz) / 0.1% (500.01Hz～1kHz)	
	harmonic waveform	50/60Hz	up to 50 orders
	Phase setting		
	Range	0～360°	
	Resolution	0.01°	
DC output	Voltage setting		
	Range	-499～499Vdc (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S.	
	Current setting		
	Range	-20～20Adc（1phase)	
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.	
	Power(max.)		
	Total Power	Max. Power（1phase)	4kW
Voltage stability	Line regulation	＜0.05% F.S.	
	Load regulation*4	＜0.05% + 0.05% F.S. (DC,16Hz～500Hz) / ＜0.05% + (0.1%*kHz) F.S(500.01Hz～1kHz)	
	THD*5	＜0.5%(16Hz～100Hz) / ＜1%(100Hz～500Hz) / ＜1%+(1%*kHz) (500.01Hz～1kHz)	
	Voltage ripple	RMS	< 0.4V
	Dynamic response*6	typ	220us
Measurement parameter			
Voltage RMS	Accuracy	＜0.1%+0.1% F.S. (DC,16Hz～500Hz) / ＜0.1%+(0.2%*kHz) F.S(500.01Hz～1kHz)	
Current RMS	Accuracy	＜0.1% + 0.2% F.S.(DC,16Hz～150Hz)/＜0.2% + 0.3% F.S.(150.01Hz～500Hz)/＜0.3% + (0.6%*kHz) F.S(500.01Hz～1kHz)	
Peak current	Accuracy	＜0.4% + 0.6% F.S.(16Hz～500Hz) / ＜0.4% + (1.2%*kHz) F.S(500.01Hz～1kHz)	
Output power	Accuracy	＜0.4% +0.4% F.S. (DC,16Hz～500Hz) / ＜0.4% +＜(0.8%*kHz) F.S(500.01Hz～1kHz)	
Harmonic measurement	Max.	50/60Hz	up to 50 orders
Efficiency	typ	88%	
Weight		16.5kg	

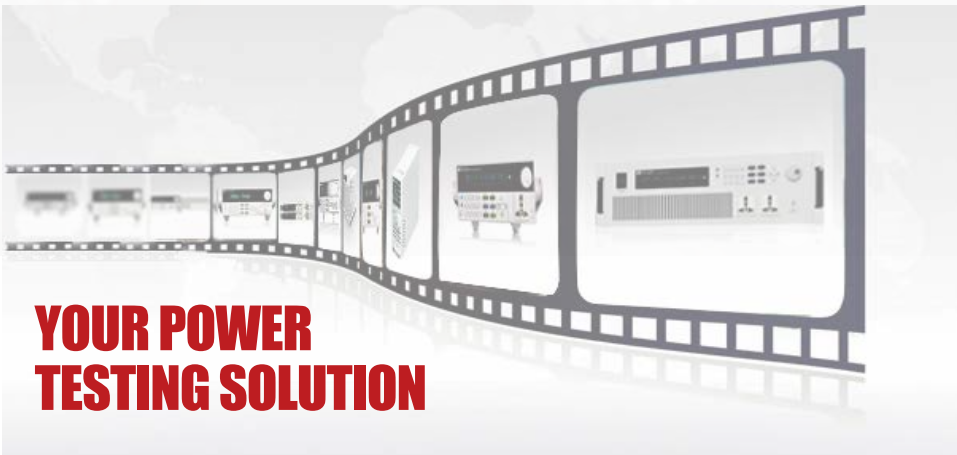
*1 When the input voltage is (200–220)V ±10%, the output rated power is limited to 3kW.
*2 When the output frequency is 50Hz/60Hz and peak current is not exceeded, the maximum Crest Factor (CF) is 6; under full current and full power conditions, the CF is up to 4.
*3 When LoopSpeed is set to Low, the system has better load adaptability; when set to High, it provides faster dynamic response.
*4 For parallel models, Sense remote measurement mode must be used during testing.
*5 Test conditions: Pure resistive load under full power output.
*6 Dynamic response time test conditions: DC mode, High speed setting, DUT capacitance < 10μF.
* Specifications are subject to change without prior notice.

IT-EC7806-350-30			
Input parameter			
AC input	Wiring connection	3 phase 3wire + ground(PE)	
	Line voltage	RMS	(200～220) ±10% V *1 / (380～480) ±10% V
	Line current	RMS	＜13.8A
	Apparent Power	＜7kVA	
	Frequency range	45～65Hz	
	PF	typ	0.98
Output parameter			
AC output	Output voltage	VLN	0～350V
		VLL（3phase）	0～606V
	Output current	RMS（1phase）	30A
		Crest Factor *2	6
		Peak（1phase）	120A
		RMS(3phase)	10A
		Peak(3phase)	40A
	Output power	Per Phase	2kVA
		Max. Power（1phase/3phase）	6kVA
	Voltage setting		
	Range	0～350V (1phase/3phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (16Hz～500Hz) /＜0.1%+(0.2%*kHz)F.S(500.01Hz～1kHz)	
	Current setting		
	Range	RMS	30A (1phase)/10A (3phase)
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.(16Hz～150Hz) / ＜0.2% + 0.3% F.S.(150.01Hz～500Hz) / ＜0.3%+(0.6%*kHz) F.S(500.01Hz～1kHz)	
	Frequency setting		
	Range	16～500Hz (Low*3) / 16～1kHz (High*3)	
	Resolution	0.01Hz	
	Accuracy	0.01% (16Hz～500Hz) / 0.1% (500.01Hz～1kHz)	
	harmonic waveform	50/60Hz	up to 50 orders
	Phase setting		
	Range	0～360°	
	Resolution	0.01°	
DC output	Voltage setting		
	Range	-499～499Vdc (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S.	
	Current setting		
	Range	-30～30Adc（1phase)	
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.	
	Power(max.)		
	Total Power	Max. Power（1phase ）	6kW
Voltage stability	Line regulation	＜0.05% F.S.	
	Load regulation*4	＜0.05% + 0.05% F.S. (DC,16Hz～500Hz) / ＜0.05% + (0.1%*kHz) F.S(500.01Hz～1kHz)	
	THD*5	＜0.5%(16Hz～100Hz) / ＜1%(100.01Hz～500Hz) / ＜1%+(1%*kHz) (500.01Hz～1kHz)	
	Voltage ripple	RMS	< 0.4V
	Dynamic response*6	typ	200us
Measurement parameter			
Voltage RMS	Accuracy	＜0.1%+0.1% F.S. (DC,16Hz～500Hz) / ＜0.1%+(0.2%*kHz) F.S(500.01Hz～1kHz)	
Current RMS	Accuracy	＜0.1% + 0.2% F.S.(DC,16Hz～150Hz)/＜0.2% + 0.3% F.S.(150.01Hz～500Hz)/＜0.3% + (0.6%*kHz) F.S(500.01Hz～1kHz)	
Peak current	Accuracy	＜0.4% + 0.6% F.S.(16Hz～500Hz) / ＜0.4% + (1.2%*kHz) F.S(500.01Hz～1kHz)	
Output power	Accuracy	＜0.4% +0.4% F.S. (DC,16Hz～500Hz) / ＜0.4% +＜(0.8%*kHz) F.S(500.01Hz～1kHz)	
Harmonic measurement	Max.	50/60Hz	up to 50 orders
Efficiency	typ	88%	
Weight		18kg	

*1 When the input voltage is (200–220)V ±10%, the output rated power is limited to 50%.
*2 When the output frequency is 50Hz/60Hz and the peak current is not exceeded, the maximum Crest Factor (CF) is 6; under full current and full power conditions, the CF is up to 4.
*3 When LoopSpeed is set to Low, the system has better load adaptability; when set to High, it provides faster dynamic response.
*4 For parallel operation, Sense remote measurement mode must be used during testing.
*5 Test conditions: Pure resistive load under full power output.
*6 Dynamic response time test condition: DC mode, High speed setting, DUT capacitance < 10μF.
* Specifications are subject to change without prior notice.

IT-EC7815-350-90			
Input parameter			
AC input	Wiring connection	3 phase 3wire + ground(PE)	
	Line voltage	RMS	(200～220) ±10% V *1 / (380～480) ±10% V
	Line current	RMS	＜34A
	Apparent Power	＜17.4kVA	
	Frequency range	45～65Hz	
	PF	typ	0.98
Output parameter			
AC output	Output voltage	VLN	0～350V
		VLL（3phase）	0～606V
	Output current	RMS（1phase）	90A
		Crest Factor *2	6
		Peak（1phase）	270A
		RMS(3phase)	30A
		Peak(3phase)	90A
	Output power	Per Phase	5kVA
		Max. Power（1phase/3phase）	15kVA
	Voltage setting		
	Range	0～350V (1phase/3phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (16Hz～500Hz) /＜0.1%+(0.2%*kHz)F.S(500.01Hz～1kHz)	
	Current setting		
	Range	RMS	90A (1phase)/30A (3phase)
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.(16Hz～150Hz) / ＜0.2% + 0.3% F.S.(150.01Hz～500Hz) / ＜0.3%+(0.6%*kHz) F.S(500.01Hz～1kHz)	
	Frequency setting		
	Range	16～500Hz (Low*3) / 16～1kHz (High*3)	
	Resolution	0.01Hz	
	Accuracy	0.01% (16Hz～500Hz) / 0.1% (500.01Hz～1kHz)	
	harmonic waveform	50/60Hz	up to 50 orders
	Phase setting		
	Range	0～360°	
	Resolution	0.01°	
DC output	Voltage setting		
	Range	-499～499Vdc (1phase)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S.	
	Current setting		
	Range	-90～90Adc（1phase)	
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.	
	Power(max.)		
	Total Power	Max. Power（1phase ）	15kW
Voltage stability	Line regulation	＜0.05% F.S.	
	Load regulation*4	＜0.05% + 0.05% F.S. (DC,16Hz～500Hz) / ＜0.05% + (0.1%*kHz) F.S(500.01Hz～1kHz)	
	THD*5	＜0.5%(16Hz～100Hz) / ＜1%(100.01Hz～500Hz) / ＜1%+(1%*kHz) (500.01Hz～1kHz)	
	Voltage ripple	RMS	< 0.4V
	Dynamic response*6	typ	200us
Measurement parameter			
Voltage RMS	Accuracy	＜0.1%+0.1% F.S. (DC,16Hz～500Hz) / ＜0.1%+(0.2%*kHz) F.S(500.01Hz～1kHz)	
Current RMS	Accuracy	＜0.4% + 0.6% F.S.(16Hz～500Hz) / ＜0.4% + (1.2%*kHz) F.S(500.01Hz～1kHz)	
Peak current	Accuracy		
Output power	Accuracy	＜0.4% +0.4% F.S. (DC,16Hz～500Hz) / ＜0.4% +＜(0.8%*kHz) F.S(500.01Hz～1kHz)	
Harmonic measurement	Max.	50/60Hz	up to 50 orders
Efficiency	typ*7	91%	
Weight		42kg	

*1 When the input voltage is (200–220)V ±10%, models rated above 12kW are limited to 60% of their rated output power.
*2 When the output frequency is 50Hz/60Hz and peak current is not exceeded, the maximum Crest Factor (CF) is 6; under full current and full power conditions, the CF is up to 3.
*3 When LoopSpeed is set to Low, the system has better load adaptability; when set to High, it provides faster dynamic response.
*4 For parallel models, Sense remote measurement mode must be used during testing.
*5 Test conditions: Pure resistive load under full power output.
*6 Dynamic response time test conditions: DC mode, High speed setting, DUT capacitance < 10μF.
*7 Test conditions: Input 380VLL/50Hz, output 3-phase 350Vrms/50Hz at full power.
* Specifications are subject to change without prior notice.



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