ITECH

YOUR POWER TESTING SOLUTION

Product

IT7800 high power programmable AC/DC power supply

IT7800E high power programmable AC/DC power supply

APPLICATIONS

- New Energy
- Civil Aviation
- Research Institutes
- Power Electronics
- Household Products etc.
- Medical Equipment

Your Power Testing Solution

IT7800E

High power programmable AC/DC power supply

Adopting advanced SiC technology, ITECH IT7800E 3U high series of programmable AC/DC power supply, with power up to 21kVA, voltage ranges up to 350V L-N. Users are able to increase output power up to more than 1MVA by configuring master-slave parallel. With intuitive LCD touch panel interface, users can be quickly familiar with the unit operation.

IT7800E series is built-in power meter and arbitrary waveform generator, which is able to simulate harmonics and other arbitrary waveform output. Users can choose single phase, three-phase and reverse phase output modes, with programmable output and complete measurements. ITECH IT7800E series is designed for new energy, power electronics, research institutes etc.

FEATURE

- Adopt advanced SiC technology
- High power density, 3U up to 21kVA
- Master-slave parallel with current sharing technology, up to 1MVA, multiple units in parallel work as one
- Voltage ranges : 350/700/1050 VL-N*3
- Up to 50th harmonic simulation and analysis with built-in IEC61000-3-2/3-12 regulations*1
- Output frequency: 16-2400Hz, programmable slew rate setting for changing voltage and frequency
- Built-in single/3-phase AC power meter
- 4 output modes: AC/DC/AC+DC/DC+AC
- Choose single phase, three-phase, reverse phase output mode, to simulate 3-phase imbalance, 3-phase harmonics imbalance, 3-phase split phase test, reverse phase sequence tests for 3-phase models and etc.
- Harmonics, inter-harmonics waveform synthesizer
- Programmable output impedance
- Intuitive touch screen interface
- Simulate arbitrary waveform output, support csv. file import
- High current crest factor, suitable for inrush current testing*2
- Built-in various waveforms
- List mode simulates the power supply reproduction function to realize the simulation function of instantaneous power interruption
- Output 0-360 ° start/stop phase angle can be set
- Surge/Sag function
- Relay CTRL function, to cut off the connection between instrument and DUT
- Built-in waveforms compliance with the IEC61000-4-11/4-13/4-14/4-28
- Built-in USB/CAN/LAN/Digital IO interface, optional GPIB / Analog&RS232
- Optional software can help complete the pre-compliance standards test of civil avionics/electrical ships interms of the multi-national safety regulations*1
- Support CANopen*1、Modbus、LXI、SCPI communication

*1 Voltage and current harmonic analysis / Voltage harmonic simulation

*2 Maximum CF is up to 6 within peak currnt range

Your Power Testing Solution

IT7800E high power programmable AC/DC power supply

Applications

New Energy

OBC, AC/DC charging pile

Power electronics

frequency converter, UPS, AC motor

Appliance

air conditioner, microwave oven, refrigerator, washing machine

Civil aviation

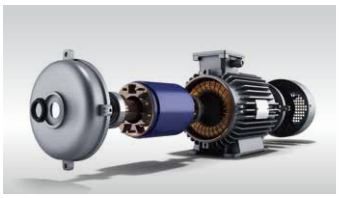
airborne equipment, airport ground facilities

Research institute, lab, testing organizations

AC-DC power adapter, EMC test

Medical equipments

CT, MRI, life detector etc




Model	Voltage range Vac		Current range Aac		Power Pac	Phase	Height
	V L-N	V L-L	Arms(1Φ)	Arms(3Φ)			
IT7821E-350-105	350V	606V	105A	35A	21kVA	1Φ or 3Φ	3U
IT7842E-350-210	350V	606V	210A	70A	42kVA	1Φ or 3Φ	6U
IT7863E-350-315	350V	606V	315A	105A	63kVA	1Φ or 3Φ	15U
IT7884E-350-420	350V	606V	420A	140A	84kVA	1Φ or 3Φ	27U
IT78105E-350-525	350V	606V	525A	175A	105kVA	1Φ or 3Φ	27U
IT78126E-350-630	350V	606V	630A	210A	126kVA	1Φ or 3Φ	27U

**For higher power, please call for availability

* The above specifications are subject to change without prior notice.

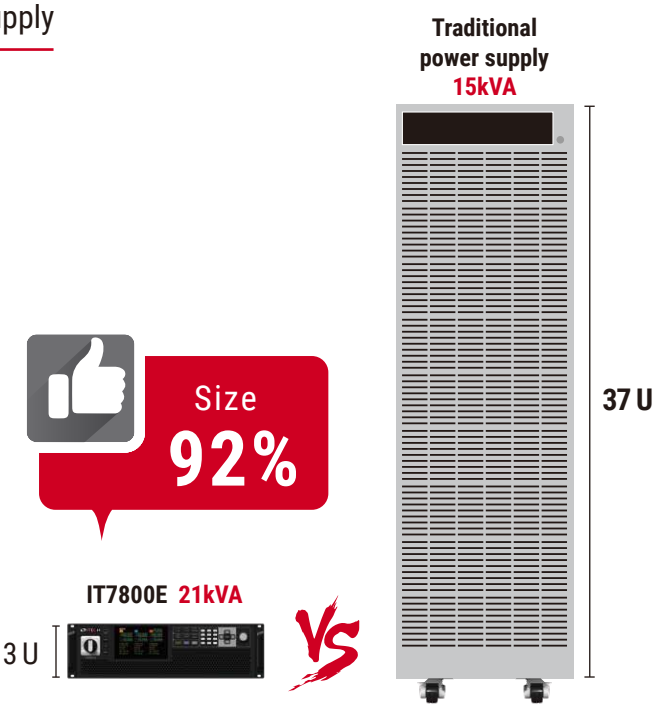
Your Power Testing Solution

IT7800E high power programmable AC/DC power supply

3U/21kVA high power density

With only 3U size, ITECH IT7800E can reach both 21kVA for power and 350V L-N for voltage. Compared with conventional AC source, it saves a lot of space for users.

3U 21kVA | 350V | ATE set up | bench test



Master/Slave parallel

ITECH IT7800 series can provide more power by using the master/slave parallel output function, with 64 units in paralleled, to achieve total output power max. 960kVA.

IT7800 comes with synchronous On/Off input and output signals, which ensures the synchronization of paralleling and ensures synchronous current sharing of multiple modules. After paralleling, not only all functions are retained, but there is no loss of accuracy. Make the construction of the power system faster, more flexible, and more economical, whether it is a stand-alone test or ATE system, it can be easily reached.

Application: Electrical performance test of industrial frequency converter

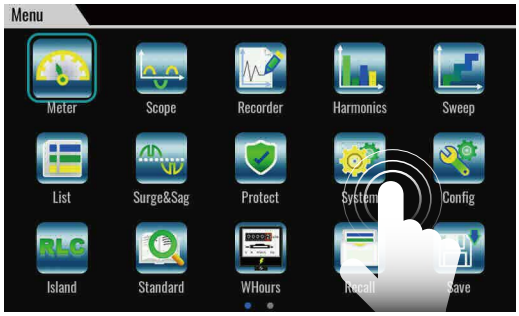
· Background description: Inverter is a converter that converts fixed voltage and fixed frequency AC current into adjustable voltage and frequency alternating current, to achieve the purpose of speed regulation. It is widely used in fans, water pumps, AC motors and large-scale driving equipment. The range is from several hundred watts to several hundred kilowatts. The inverter test includes input electrical parameters, output electrical parameters, protection functions and conversion efficiency.

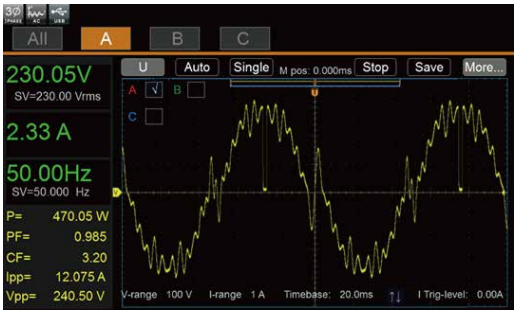
· Solution: IT7800E can meet the test of high-power inverters up to 1MVA, and can simulate input three-phase imbalance, input voltage sag and other disturbance waveforms to verify the input stability of the inverter.

Intuitive touch panel design

The IT7800E series is equipped with a brand-new touch screen design, a simple and intuitive GUI interface, and the keyboard knob design allows users to perform tests directly and quickly. Users can choose different interface display styles, customize the parameter types and display positions of the page, and the user-friendly settings can meet various measurement needs in the test.

The screen can display real-time voltage and current curves, up to 6 waveforms, users can perform instantaneous analysis without an oscilloscope, and save them.





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 IT7800 series can not only display real-time data, but also select the desired waveform on the screen for visual observation. And through shortcut 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 testing

· Test standard： YD-T 1095-2018

· Test equipment: IT7800E series high-power programmable AC /DC power supply, IT8600 series AC and DC electronic load,IT8200 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.

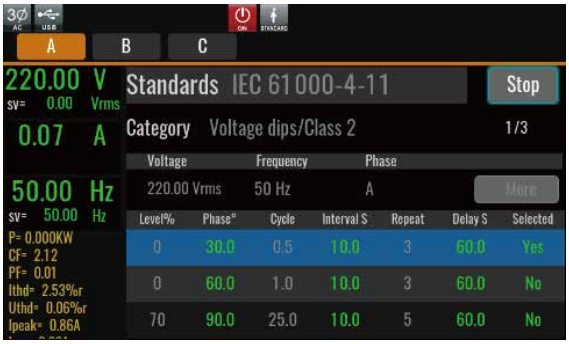
IT7800E series high-power programmable AC/DC power supply

UPS

IT8600 series&IT8200 AC and DC electronic load

Standard regulatory testing

According to relevant industry standards, the IT7800E series has built-in standard regulatory tests such as IEC 61000-4-11/4-13/4-14/4-28, IEC61000-3-2/3-12. Users can directly call up the compliance of test regulations, and can also define items according to regulatory requirements to expand the test content of the object under test.

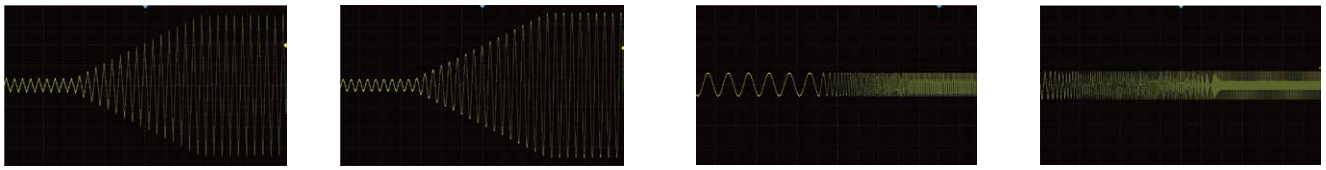


Your Power Testing Solution

IT7800E high power programmable AC/DC power supply

The output frequency can reach 2.4kHZ, the voltage or frequency output variation rate is adjustable

The output frequency of IT7800E series is adjustable between 16-2400Hz, allowing users to set the voltage or frequency output variation rate by themselves, so that the voltage or frequency gradually reaches the set value in a regular manner. Therefore, it can verify the operating range of the product more accurately, and can also reduce the surge current when the DUT is turned on.



Application- Surge current test

Measuring the surge current can evaluate whether the AC switch, rectifier bridge, fuse, EMI filter components exceed the allowable current value. Switch the loop repeatedly, and the AC input voltage should not damage the power supply or cause the fuse to blow.

Previous test solution

Oscilloscope + sampling resistor (power and withstand voltage are large enough)

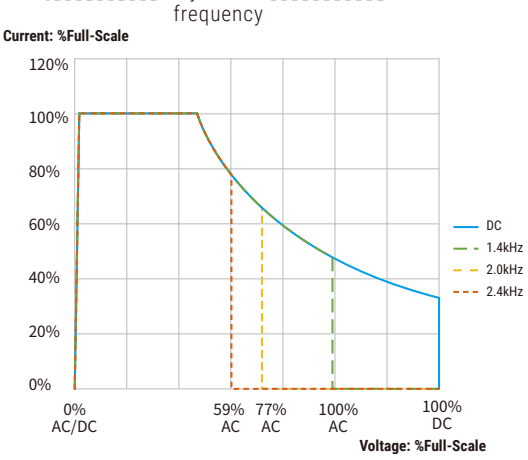
Disadvantages: high cost, complicated wiring connection, secondary analysis is needed

ITECH test solution

Only with 1 unit IT7800E high power AC/DC power supply

Advantages: · The surge current value Ipeak can be directly obtained

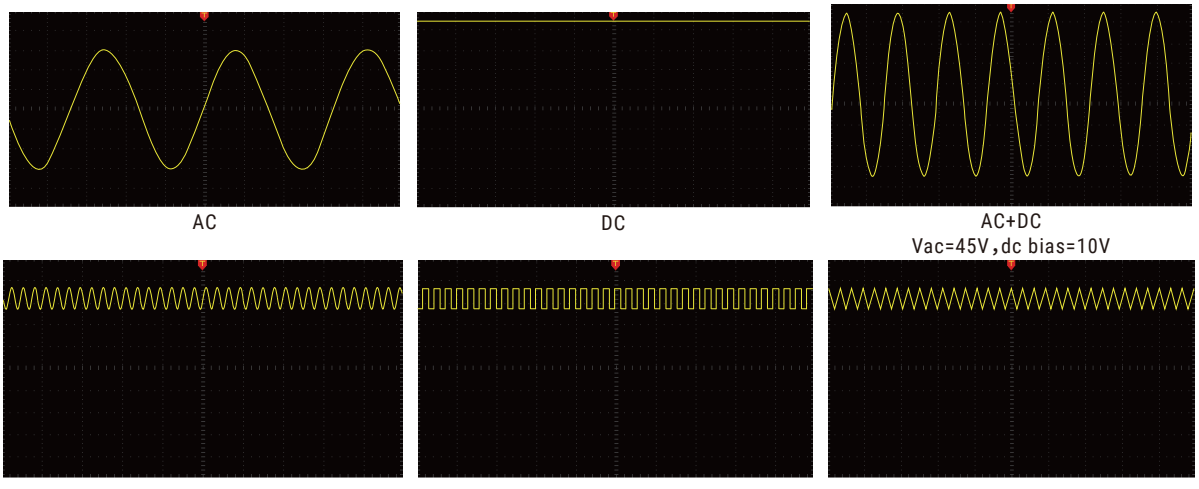
· The voltage or frequency can reach the set value step by step on a regular basis, which can effectively reduce the surge current when the DUT is turned on and improve the test accuracy



Output Current Rating for DC and 16Hz to 2.4kHz

AC、DC、AC+DC、DC+AC

The IT7800E series has four output modes: AC, DC, AC+DC, DC+AC. It not only provides pure AC/DC output, but also can use AC+DC and DC+AC output modes to realize "AC output plus DC bias" And "DC output waveform with ripple", which cover a wider range of applications.



AC

DC

AC+DC
Vac=45V，dc bias=10V

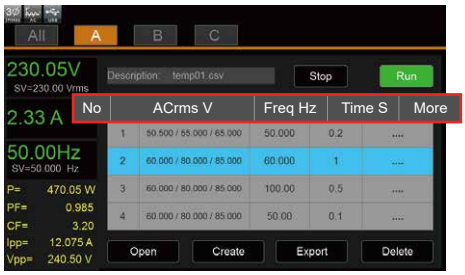
DC+AC
Vdc=50V, sine ripple Vac=5V,
freqency 1000Hz

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

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

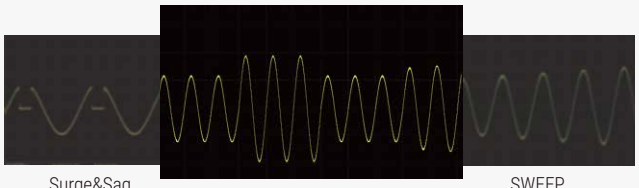
LIST

Through LIST, SWEEP and Surge&Sag mode, IT7800E series can easily realize the stepwise or continuous change of output parameters. Its output voltage amplitude, frequency, phase, waveform and other parameters can also be output by controlling the internal trigger or external trigger of the instrument. Therefore, it can simulate the characteristics of instantaneous power failure, surge, and slow rise of various power supplies.



Application- Mains reproduction simulation

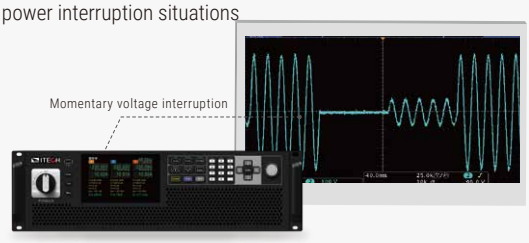
·Users can use the panel or program control of IT7800E series to edit and simulate various power interference conditions



Surge&Sag LIST SWEEP

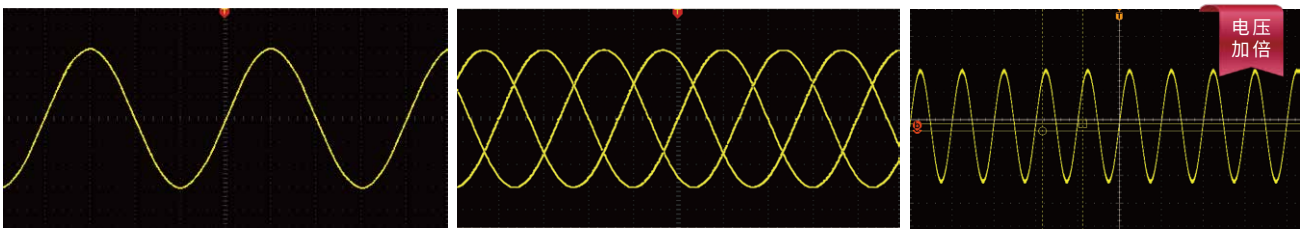
Application- Momentary power interruption simulation

· IT7800E series can also effectively simulate various power interruption situations



Single phase, three phase, reverse phase

The IT7800E series provides multiple output modes such as single-phase, three-phase and reverse phase, which can be selected by the user through the panel menu. By programming ,it can simulate three-phase unbalance, three-phase harmonic unbalance, lack of phase test, phase sequence reverse connection and other tests, which are flexible and cover more applications. At the same time, IT7800E's reverse mode can also provide a high-voltage test solution. Its voltage can be increased to twice and the power remains 2/3.
For example, if it is set to 350V, the actual output voltage can reach 700V after the reverse mode is selected.



Single phase Three phase Reverse phase

Application-Avionic power supply simulation test, power supply characteristic parameter test

When testing inductive, capacitive or resistive products, the aircraft power supply system is an important guarantee for safe flight. The steady-state characteristics of the power supply determine whether the power supply can provide the required electrical energy under normal, abnormal and emergency steady-state conditions.

- ISO1540：2006
  IT7800E series can simulate three-phase voltage unbalanced output, harmonic synthesis output, voltage sudden change waveform output, frequency sudden change waveform output, and meet the test requirements of ISO1540: 2006.
- MIL-STD-704/GJB 5189-2003
  The IT7800E series can simulate the AC/DC power supply system of the aircraft to verify the steady-state characteristics, power supply transient characteristics and compatibility of electrical equipment. The flexible master-slave parallel connection can meet the increasing power test requirements of large aircraft and still keep the accuracy and performance after parallel connection.

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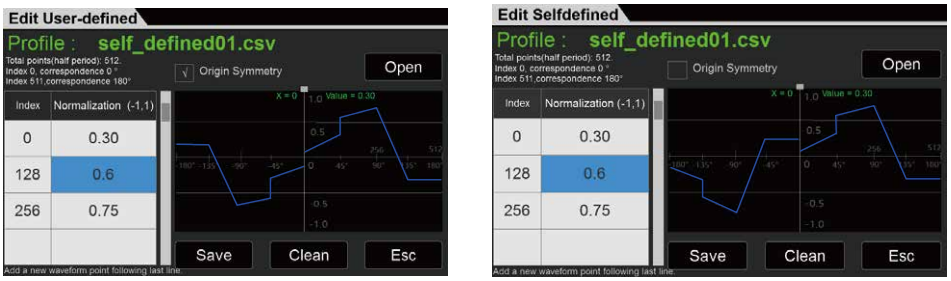
IT7800E high power programmable AC/DC power supply

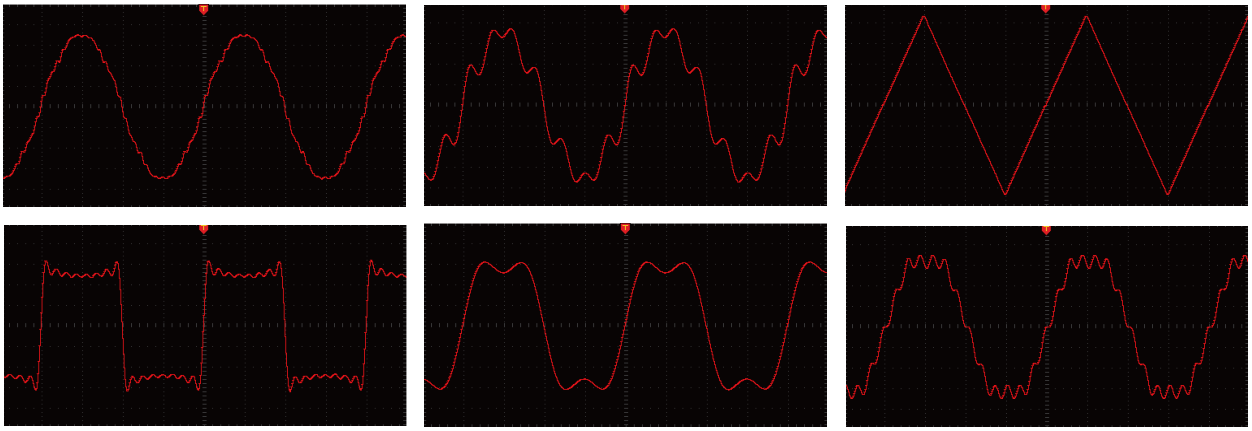
Build-in multiple waveforms

There are many different types of waveforms built in IT7800E series, such as triangle wave, sine wave, square wave, sawtooth wave, etc. Users can recall them through the menu and display the selected waveform on the LCD screen.

Users can also edit the waveform through the custom mode of the interface to simulate and reproduce the real power waveform at the moment that the problem occurs.

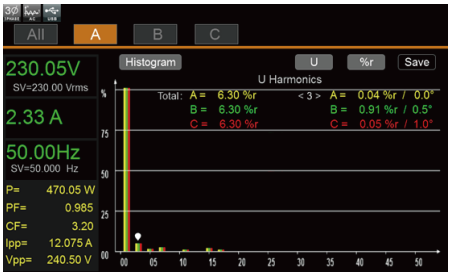


30 built-in harmonic waveforms

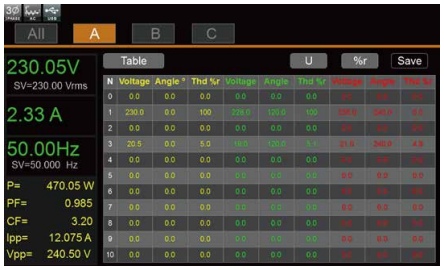


Harmonic analysis and simulation

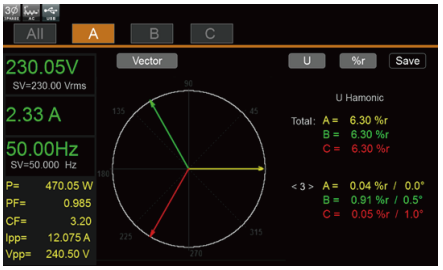
The harmonic analysis function of IT7800E series includes voltage harmonic measurement and current harmonic measurement. In the harmonic mode, the voltage and current harmonic distortion factor (THD) and the phase difference of the harmonic to the fundamental wave can be tested. In addition, it can measure multiple harmonics, and the results are displayed in a list,histogram or vector diagram, making the test results easy to be seen.



histogram



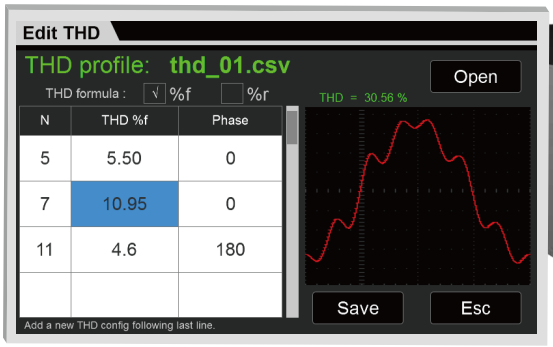
list



vector diagram

The harmonic simulation function of IT7800E series (single-phase harmonic/three-phase harmonic/three-phase harmonic unbalance) can simulate up to the 50th voltage harmonic.

50th harmonic simulation



Data record

IT7800E has the function of data recording. Users can observe the trend over a period of time in detail, or observe the data at a certain moment in the current trend graph by sliding the vernier caliper. Up to 6 curves can be observed. The graphic display interface is colorful, allowing users to have an oscilloscope-like experience at the same time.

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Surge & Sag

The IT7800E series provides a surge/trap simulation function. Users can add a surge/sag to the output sine wave and simulate abnormal voltage fluctuations accordingly, so as to test the performance of the DUT under the situation.

Sweep

The Sweep function can be used to test the efficiency of the switching power supply and capture the voltage and frequency of the maximum power point. Users can set the start voltage, end voltage, step voltage,
start frequency, stop frequency, step frequency and single step time, so that the power supply voltage and frequency can be changed in a step-by-step manner. After the test, the voltage and frequency of the maximum power point can be displayed.

		IT7821E-350-105	
Input parameter			
AC input	Wiring connection	3 phase 3wire + ground(PE)	
	Line voltage	RMS	(200～220V) ±10% *1 (380～480V) ±10%
	Line current	RMS	< 47A
	Apparent power	< 24.4kVA	
	Frequency Range	45～65Hz	
	PF	typ	0.98
Output parameter			
AC output	AC input	VLN *2	0～350V
		VLL	0～606V (3phase) / 0～700V (reverse)
	Output current	Crest Factor *3	6
		RMS	105A (1phase) / 35A (3phase/reverse)
		Peak	315A (1phase) / 105 (3phase/reverse)
	Output power	Per Phase/Per Channel	7kVA
		Max. Power	14kVA (reverse phase) / 21kVA (1phase/3phase/)
	Voltage setting		
	Range	0～350V (1phase/3phase) / 0～700V (reverse)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (16Hz～500Hz) /＜0.1%+(0.2%*kHz)F.S(500.01Hz～2.4kHz)	
	Temperature drift coefficient	< 100ppm/°C F.S.	
	DC Offset voltage	typ	0.02Vdc
	Current setting		
	Range	RMS	105A (1phase)/ 35A (3phase/reverse)
	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～2.4kHz)	
	Temperature drift coefficient	< 200ppm/°C F.S.	
	Frequency		
	Range	16～500Hz (Low*4) / 16～2.4kHz (High*4)	
	Resolution	0.01Hz	
	Resolution	0.01% (16Hz～500Hz) / 0.1% (500.01Hz～2.4kHz)	
	Waveform synthesis	50/60Hz	up to 50 orders
	Phase		
	Range	0～360°	
	Resolution	0.01°	
DC output	**Voltage setting**		
	Range	-499～499Vdc (1phase) / -998～998Vdc (reverse)	
	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S.	
	Temperature drift coefficient	< 100ppm/°C F.S.	
	Current setting		
	Range	-35～35Adc (reverse) / -105～105Adc (1phase)	
	Resolution	0.01A	
	Accuracy	＜0.1% + 0.2% F.S.	
	Temperature drift coefficient	< 200ppm/°C F.S.	
	Power(max.)		
	Phase power	Per Phase	7kW
	Output power	Max. Power	14kW (reverse phase) / 21kW (1phase)
Programmable impedance	Resistance setting range	0～1000mΩ (3phase) / 0～333.333mΩ (1phase) / 0～0～2000mΩ (reverse)	
	Inductance setting range	0～1000uH (3phase) / 0～333.333uH (1phase) / 0～0～2000uH (reverse)	
Voltage stability	Line regulation	＜0.05% F.S.	
	Load regulation*5	＜0.05% + 0.05% F.S. (DC,16Hz～500Hz) / ＜0.05% + (0.1%*kHz) F.S(500.01Hz～2.4kHz)	
	THD*6	＜0.5%(16Hz～100Hz) / ＜1%(100.01Hz～500Hz) / ＜1%+(1%*kHz) (500.01Hz～2.4kHz)	
	Voltage ripple	RMS	< 0.4V
	Dynamic response*7	typ	200us
	Voltage ramp rate	≥2 V/μs with full-scale programmed voltage step	
	Output isolation	550Vac	

Measurement parameter			
Voltage RMS	Resolution	0.01V	
	Accuracy	＜0.1%+0.1% F.S. (DC,16Hz～500Hz) / ＜0.1%+(0.2%*kHz) F.S(500.01Hz～2.4kHz)	
	Temperature drift coefficient	< 100ppm/°C F.S.	
Current RMS	Resolution	0.1A	
	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～2.4kHz)	
	Temperature drift coefficient	< 200ppm/°C F.S.	
Peak current	Resolution	0.1A	
	Accuracy	＜0.4% + 0.6% F.S.(16Hz～500Hz) / ＜0.4% + (1.2%*kHz) F.S(500.01Hz～2.4kHz)	
Output power	Resolution	0.001kW	
	Accuracy	＜0.4% +0.4% F.S. (DC,16Hz～500Hz) / ＜0.4% +＜(0.8%*kHz) F.S(500.01Hz～2.4kHz)	
Harmonic measurement	Max.	50/60Hz	up to 50 orders
Others			
Efficiency	typ	91%	
Protection		OVP, OCP, OPP, OTP, FAN, ECP, Sense	
Net. Dimension (mm)		483.00mm （W）*151.30mm（H）*700.00mm（D）	
Net. Weight		42kg	
Working temperature		0°C-50°C	
Programming response time		2ms	
Sense voltage		20V	
Interfaces		Built-in standard USB/CAN/LAN/VCP, optional GPIB, analog (including RS232)	

*1 (200～220) ±10%, the power of 12kw and above is 60% of the rated.

*2 The output voltage will decrease along with the output frequency. The rated voltage can be output under 1.4kHz, the maximum output voltage is 250.76Vrms at 2kHz, and the maximum output voltage is 208.97Vrms at 2.4kHz.

*3 When the output frequency is 50Hz/60Hz, the maximum CF is up to 6 without exceeding the peak current; under the condition of full current and full power, the maximum CF is up to 3

*4 When loopSpeed Low is low，it can better complied DUT's characteristics；When LoopSpeed is High，the dynamic response time is faster.

*5 It needs the sense remote measurement mode for testing

*6 Test condition: pure resistive load, under full power condition

*7 Test under DC mode, high speed level, DUT capacity is less than 10uf

This information is subject to change without notice.For more information, please contact ITECH.

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