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TECHNICAL PRODUCT INFORMATION

Test & measurement instruments

- high - quality
- moderate prices
- excellent precision

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IT-M7700 High Performance Programmable AC Power Supply

ITECH newly-launched IT-M7700 High Performance Programmable AC Power Supply combines intelligence and flexibility, breaks through the huge defects of the traditional AC power source, reduces the size to only 1U Half-Rack, maximizes space utilization. Built-in power meter and arbitrary waveform generator make it convenient to simulate various arbitrary waveform outputs. IT-M7700 is designed with advanced technologies of programmable AC and DC power supplies, and can be widely used in multiple fields such as power energy products, home appliances, industrial electronics and IEC standards testing.



Features

- 1U Half-Rack compact design, increased space utilization
- AC, DC, AC + DC output modes, DC voltage offset simulation in AC + DC mode
- Built-in AC power meter with powerful functions
- Built-in abundant waveform database, including 30 harmonic distortion waveforms
- List mode, simulate civil AC working condition, realize instantaneous power interruption simulation function *1
- Arbitrary waveform output function, user can customize waveforms
- Harmonic analysis and simulation function
- CF=6, good for the inrush current test at the start moment*2
- Surge/Trap function
- Front and rear edge Dimmer phase dimming function
- Settable output waveform start/stop phase angle
- Higher voltage available by two units in series connection*3
- Three phase output available by three units Y-type external connections*3
- Standard USB/LAN interface, optional accessories such as IT-E1205 (GPIB), IT-E1207 (RS232 & CAN), IT-E1208 (external analog & RS485), IT-E251 (multi-stage interconnecting running cable), etc.

*1 Realize by PC software *2 Only available for the model IT-M7722D, IT-M7723D

*3 Available on IT-M7721/7722/7722E/7722D/7723D/7723E

Model	Power(AC/DC)	Voltage	Current	Frequency	Volume
IT-M7721	300 VA/300 W	300 V	3 A	45~1000 Hz	1U Half-Rack
IT-M7722D	300 VA/300 W	300 V	3 A	45~1000 Hz	1U Half-Rack
IT-M7722	600 VA/600 W	300 V	6 A	45~1000 Hz	1U Half-Rack
IT-M7723D	750 VA/750 W	300 V	7.5 A	45~1000 Hz	2U Half-Rack
IT-M7722E	1000 VA/1000 W	300 V	10 A	45~1000 Hz	2U Half-Rack
IT-M7723	1200 VA/1200 W	300 V/600 V	12 A /6 A	45~1000 Hz	1U
IT-M7723E	1500 VA/1500 W	300 V	15 A	45~1000 Hz	2U Half-Rack

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IT-M7700 High Performance Programmable AC Power Supply

List Mode

IT-M7700 LIST mode supports program complex waveform editing. The users can edit 5 list files, each file can be edited up to 50 steps. Each step settable parameters include: basic waveform (incl. THD and user defined waveform), AC/DC amplitude, slew rate, frequency, dwell time, start/stop phase angle, times of repetition etc. This function with complex waveforms can help users to simulate grid disturbance, periodic power off and so on.

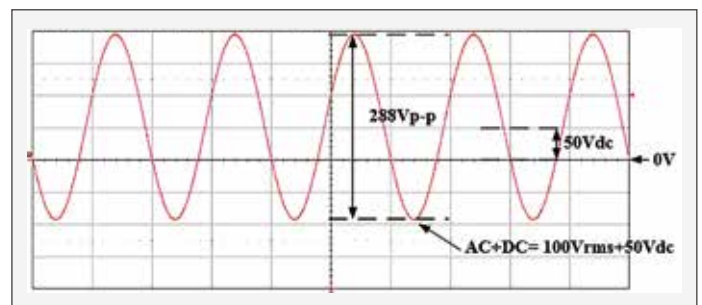
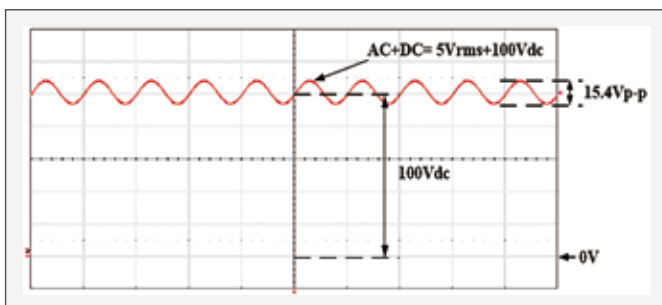
* Available with ITECH PC software.



PC software

Multiple output modes: AC, DC, AC+DC

The output modes of IT-M7700 series include AC, DC, AC+DC. It can not only provide pure AC or DC output but also AC+DC output mode which can expand application fields and test DC offset element.



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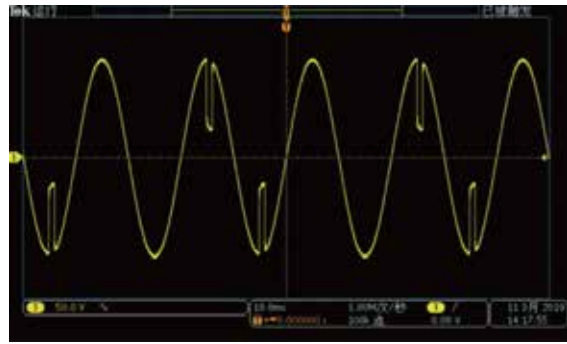
IT-M7700 High Performance Programmable AC Power Supply

Surge / Trap Wave Function

IT-M7700 series provide surge and trap wave simulation function. User can add surge/trap wave to the output sine wave accordingly, to simulate voltage frequent fluctuation. Thus to simulate the real testing environment.



Surge



Trap

Harmonic simulation function

Within the frequency range 45~50Hz, it can measure up to 50 times, which perfectly simulate the distorted waveform and help to find fast solution.



Loading 50 order harmonic components

Front and rear Dimmer phase dimming function

The IT-M7700 series supports front and rear phase angle dimming or speed control tests. The user can adjust the active power by setting the phase angle and performing the leading or trailing edge waveform concealment to achieve the purpose of adjusting the light intensity of the lamp. It is used to verify whether there is a quality hazard when the end user uses the dimming or speed controller.



LeadingEdge phase dimming



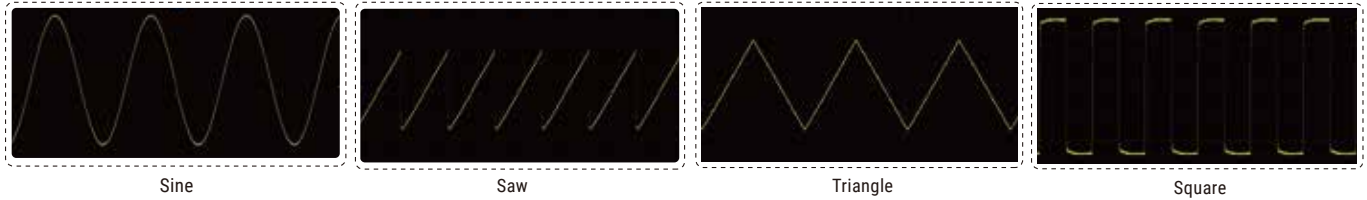
TrailingEdge phase dimming

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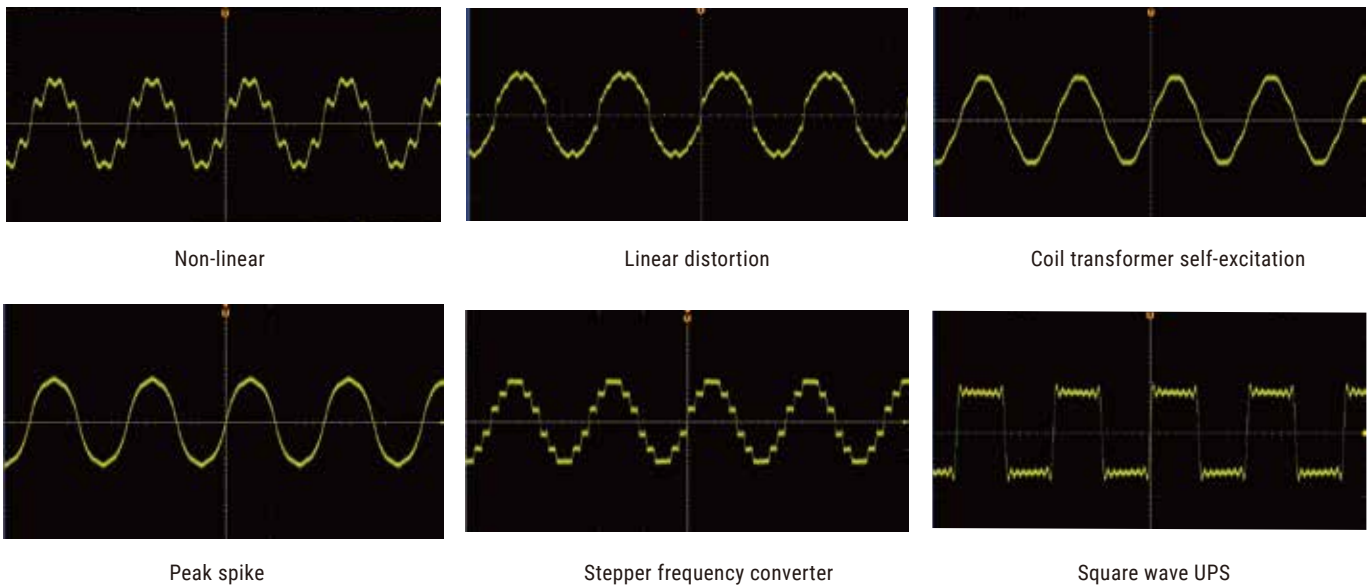
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Built-in abundant waveform database

IT-M7700 series has a variety of user-defined waveforms such as square, saw and triangle. There are 30 built-in distortion waveforms for users to edit and recall, which can also be used as the basic waveform to be recalled during list programming.



IT-M7700 series has 30 built-in harmonic distortion waveforms



Output waveform start/stop phase angle is settable

IT-M7700 series supports the initial phase and stop phase of the output waveform settable to meet different test requirements. The initial phase and stop phase are set in the range of 0-360°. By adjusting the phase angle, the user can test the rush current of the product at different positions which is widely applied to various switch current impulse tests and various rectifiers test.



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IT-M7700 High Performance Programmable AC Power Supply

Built-in AC power meter

IT-M7700 provides built-in AC power meter which can accurately measure and display 12 parameters on the screen, including rms voltage, rms current, output frequency, active power, power factor, etc. No need for additional power meter. So it can not only reduce test cost but also get rid of the complex connection operation.

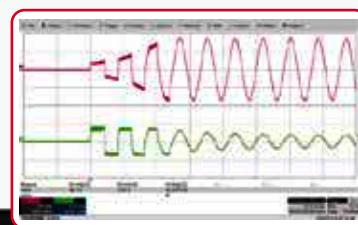
Comprehensive protection

IT-M7700 series provides comprehensive protection, including OVP rms, OVP peak, UVP rms, OCP rms, OCP peak, OCP delay, OPP, OTP and smart fan dysfunctional protection.



Application case

When testing a capacitive load with an AC power supply, the voltage will suddenly drop due to high current impulse, which will lead to failure load. At the same time, excessive surge current will easily cause damage to the AC power supply. Therefore, comprehensive protection is essential for the AC power supply. The picture on the right shows the voltage and current curves of the incandescent bulb tested by the IT-M7722.



Panel operation and remote control

The users can operate easily on the IT-M7700 front panel; IT-M7700 also comes with optional USB, GPIB, LAN and RS-232 interfaces, and an analog interface is also available to support remote control and ATE system quick integration. Supporting LXI and SCPI protocol, the user can remotely control the unit via web-server for convenient control and monitoring.

Pictures	Model	Interface
	IT-E1205 (optional)	GPIB
	IT-E1206 (standard)	USB/LAN
	IT-E1207 (optional)	RS-232/CAN
	IT-E1208 (optional)	Analog
	IT-E1209 (optional)	USB
	IT-E251 (standard)	Connection Cable



Rear panel with optional interfaces

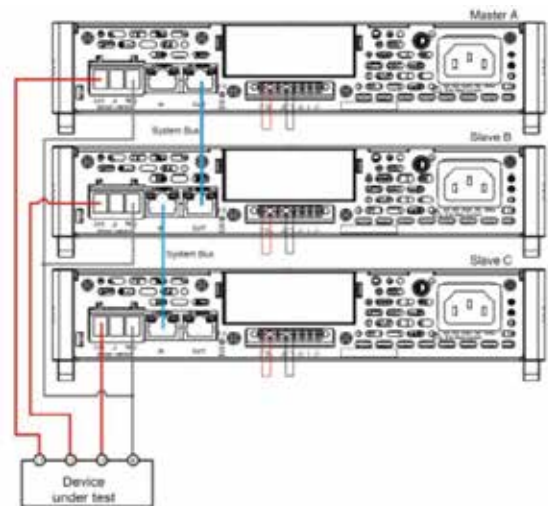
*IT-E251 is standard accessory for three phase installation and serial connection.

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3 phase output

Three units single-phase AC power supply can be combined into one unit three-phase AC power supply. Connect 3 units IT-M7721/IT-M7722/ IT-M7722D/IT-M7723D/IT-M7723E of the same model through the System Bus to realize the output of three-phase AC power.



Free remote control software PV7700

The IT-M7700 series offers free remote control software named PV7700. With the PV7700 software, users can quickly perform functions such as LIST, harmonic simulation, custom waveform simulation, and AC/DC parameter measurement. The software also provides data recording and waveform display functions, greatly enhancing the efficiency of DUT testing and analysis.



Your Power Testing Solution

IT-M7700 High Performance Programmable AC Power Supply

IT-M7721			IT-M7722		
AC Input					
Voltage		100~240Vac		100 ~ 240Vac	
Phase		Single-phase		Single-phase	
Frequency		47~63Hz		47 ~ 63Hz	
Max.Current		4.3A		8.5A	
Power Factor		0.99(Typical)		0.99(Typical)	
AC Output					
Max. Output Power		300VA		600VA	
Max. Output Voltage		300V		300V	
Output Phase		Single-phase		Single-phase	
Current Range(Rms)		3A		6A	
Current Range(Peak)		9A		18A	
Output Frequency Range		45 ~ 1000Hz		45 ~ 1000Hz	
Phase Angle Degree Range		0 ~ 359.9°		0 ~ 359.9°	
THD*1*3		≤0.3% at f=45~100Hz;≤1% at f=101~800Hz;≤ (0.15%f-0.2)% at f=801~1000Hz		≤0.3% at 45 ~ 100Hz;≤1% at 101 ~ 800Hz;≤ (0.15%f-0.2)% at 801 ~ 1000Hz	
Crest Factor		3		3	
Line Regulation*3		≤0.06%		≤0.06%	
Load Regulation*3		≤0.15%		≤0.15%	
Output Voltage(V _{AC})	Resolution	0.1V		0.1V	
	Accuracy	±(0.2%+0.2% F.S.)		±(0.2%+0.2% F.S.)	
Frequency	Resolution	0.1Hz		0.1Hz	
	Accuracy	±0.1%		±0.1%	
Phase Angle Degree Range	Resolution	0.1°		0.1°	
	Accuracy	0.5°		0.5°	
DC Offset Value		20mVdc		20mVdc	
Efficiency		75% (Typical)		80% (Typical)	
DC Output					
Max. Output Power		300W		600W	
Max. Output Voltage		±400Vdc		±400Vdc	
Maximum Output Current (Rms)		±3A		±6A	
DC Voltage(V _{DC})	Accuracy	±(0.2%+0.2% F.S.)		±(0.2%+0.2% F.S.)	
Dynamic Response Time		≤0.5ms(Full load of 10~90%)		≤0.5ms	
Meter					
AC Voltage(V _{AC})	Range	0 ~ 300V		0 ~ 300V	
	Resolution	0.1V		0.1V	
	Accuracy	±(0.25%+0.25% F.S.)		±(0.25%+0.25% F.S.)	
AC Current (Rms, High range)	Range	0.1 ~ 3A		0.1 ~ 6A	
	Resolution	10mA		10mA	
	Accuracy	±(0.5%+0.5% F.S.)		±(0.25%+0.25% F.S.)	
AC Current (Rms, Low range at 100Hz)	Range	0.1 ~ 1250 mA		0.1 ~ 1250 mA	
	Resolution	0.1mA		0.1mA	
	Accuracy	±(0.25%+0.25% F.S.)		±(0.25%+0.25% F.S.)	
AC Current (Peak)	Range	0 ~ 4.25A		0-8.5A	
	Resolution	10mA		10mA	
	Accuracy	±(0.4%+0.8% F.S.)		±(0.4%+0.8% F.S.)	
DC Voltage	Accuracy	±(0.25%+0.25% F.S.)		±(0.25%+0.25% F.S.)	
DC Current (High range)	Accuracy	±(0.25%+0.355% F.S.)		±(0.25%+0.355% F.S.)	
DC Current (Low range)	Accuracy	±(0.25%+0.355% F.S.)		±(0.25%+0.355% F.S.)	
Frequency	Range	45 ~ 1000Hz		45 ~ 1000Hz	
	Resolution*5	0.1Hz		0.1Hz	
	Accuracy*2	±0.1%		±0.1%	
Power *4 (S)	Resolution	100mVA		100mVA	
	Accuracy	±(0.5%+0.5% F.S.)		±(0.5%+0.5% F.S.)	
Other					
Dimension(WxHxD)		215 x 44.45(1U) x 450 mm		215 x 44.45(1U) x 450 mm	
Weight		5 KG		5 KG	

*1: Min voltage for THD test is 100Vac. *2: Min voltage for frequency display accuracy is 100Vac. *3: Tested with pure resistive load. *4: This specification is applicable below ≤800Hz. *5: The applicable range of frequency resolution is 45~99.9Hz.

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Your Power Testing Solution

IT-M7700 High Performance Programmable AC Power Supply

IT-M7723			IT-M7723E		
AC Input					
Voltage		100~240Vac		100 ~ 240Vac	
Phase		Single-phase		Single-phase	
Frequency		47-63Hz		47 ~ 63Hz	
Max.Current		18A		20A	
Power Factor		0.99(Typical)		0.99(Typical)	
AC Output					
Max. Output Power		1200VA		1500VA	
Max. Output Voltage		600Vac		300V	
Output Phase		Single-phase		Single-phase	
Current Range(Rms)		12A		15A	
Current Range(Peak)		36A		45A	
Output Frequency Range		45 - 1000Hz		45~1000Hz	
Phase Angle Degree Range		0 – 359.9°		0~359.9°	
THD*1*3		≤0.5% at f=45~100Hz; ≤1.5% at f=101~1000Hz		≤0.3% at 45~100Hz; ≤1% at 101~800Hz; ≤ (0.15%f-0.2)% at 801~1000Hz	
Crest Factor		3		3	
Line Regulation*3		≤0.06%		≤0.06%	
Load Regulation*3		≤0.15%		≤0.15%	
Output Voltage(V _{ac})	Resolution	0.1V		0.1V	
	Accuracy	±(0.2%+ 0.2% F.S.)		±(0.2%+0.2% F.S.)	
Frequency	Resolution	0.1Hz		0.1Hz	
	Accuracy	±0.1%		±0.1%	
Phase Angle Degree Range	Resolution	0.1°		0.1°	
	Accuracy	0.5°		0.5°	
DC Offset Value		50mVdc		20mVdc	
Efficiency		78%(Typical)		83% (Typical)	
DC Output					
Max. Output Power		1200W		1500W	
Max. Output Voltage		±800Vdc		±400Vdc	
Maximum Output Current (Rms)		±12A		±15A	
DC Voltage(VDC)	Accuracy	±(0.2% + 0.2% F.S.)		±(0.2%+0.2% F.S.)	
Dynamic Response Time		≤0.5ms		≤0.5ms(Full load of 10~90%)	
Meter					
AC Voltage(V _{ac})	Range	0-600V		0~300V	
	Resolution	0.1V		0.1V	
	Accuracy	±(0.25% + 0.25% F.S.)		±(0.25%+0.25% F.S.)	
AC Current (Rms, High range)	Range	0.1 -12A		0.1~15A	
	Resolution	10mA		10mA	
	Accuracy	±(0.25% + 0.25% F.S.)		±(0.25%+0.25% F.S.)	
AC Current (Rms, Low range at 100Hz)	Range	/		0.1~1250 mA	
	Resolution	/		0.1mA	
	Accuracy	/		±(0.25%+0.25% F.S.)	
AC Current (Peak)	Range	0-17A		0~50A	
	Resolution	10mA		10mA	
	Accuracy	±(0.4% + 0.8% F.S.)		±(0.4%+0.8% F.S.)	
DC Voltage	Accuracy	±(0.25% + 0.25% F.S.)		±(0.25%+0.25% F.S.)	
DC Current (High range)	Accuracy	±(0.25% + 0.355% F.S.)		±(0.25%+0.355% F.S.)	
DC Current (Low range)	Accuracy	/		±(0.25%+0.355% F.S.)	
Frequency	Range	45-1000Hz		45~1000Hz	
	Resolution*5	0.1Hz		0.1Hz	
	Accuracy*2	±0.1%		±0.1%	
Power *4 (S)	Resolution	100mVA		100mVA	
	Accuracy	±(0.5% + 0.5% F.S.)		±(0.5%+0.5% F.S.)	
Other					
Dimension(WxHxD)		680 × 436 × 44 mm		215 × 88.2 × 450 mm	
Weight		12KG		9 KG	

*1: Min voltage for THD test is 100Vac.

*2: Min voltage for frequency display accuracy is 100Vac.

*3: Tested with pure resistive load.

*4: This specification is applicable below ≤800Hz.

*5: The applicable range of frequency resolution is 45~99.9Hz.