ITECH
YOUR POWER TESTING SOLUTION

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Product

IT-M7700 High Performance Programmable AC Power Supply

IT-M7700 High Performance Programmable AC Power Supply

APPLICATIONS

- Energy
- Commercial Aerospace
- Industrial Electronics
- Home Appliance
- IEC Conformity Test
- ATS

Your Power Testing Solution

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, commercial avionics 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	2U 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

APPLICATIONS

- RD, verification and testing of the small-size power supply production
- Communications/Telecommunications
- AC power simulation
- Manufacturing and process control
- Battery or LCD applications
- ATE testing

1U Half-Rack 4.5kg | **AC/DC AC+DC** | **Built-in Power meter** | **Arbitrary waveforms** | **Harmonic testing**

1U Half-Rack Mini size

The conventional AC power supplies are much bigger and heavier, difficult to move. The size of IT-M7700 is only 1U Half-Rack, but its max. power is up to 600VA. Its weight is 4.5kg only. With such high-power density design, the space is better utilized. So it can be portable, convenient for bench testing and good for system building.

Conventional switching AC power supplies
>10kg

VS

IT-M7700 series
1U Half-Rack, 4.5kg

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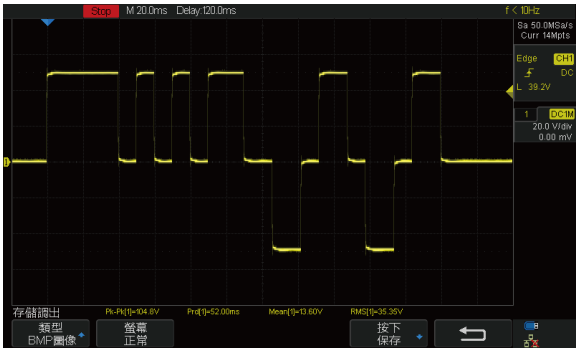
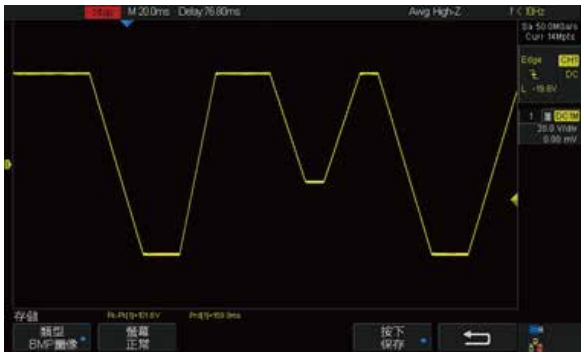
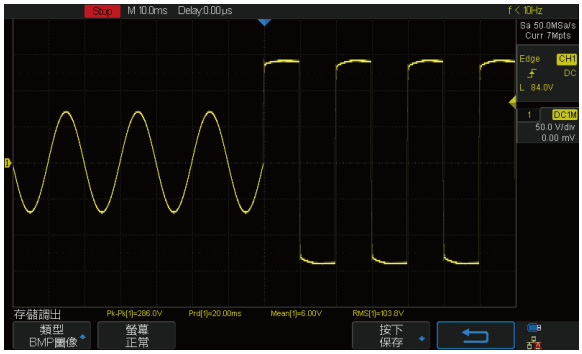
IT-M7700 High Performance Programmable AC Power Supply

Arbitrary waveforms output

Users can self define arbitrary waveforms through IT-M7700 software and download to power supply so as to simulate or duplicate the real waveforms.

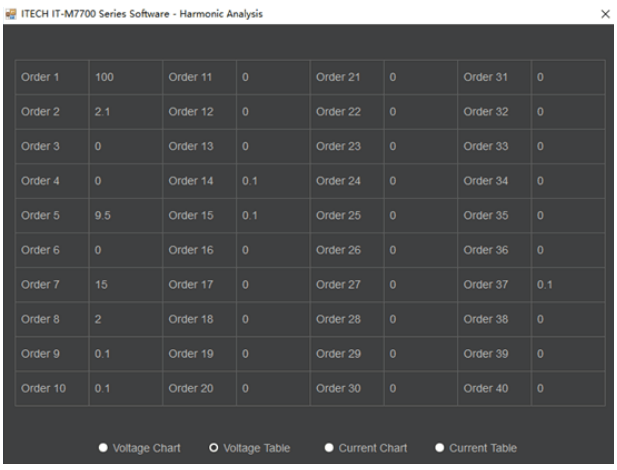






Harmonic analysis function

IT-M7700 series support 50th voltage/current harmonic measurements with the frequency ranging from 45Hz to 50Hz. The analysis results are clearly displayed in list or columnar as showed in following pictures.

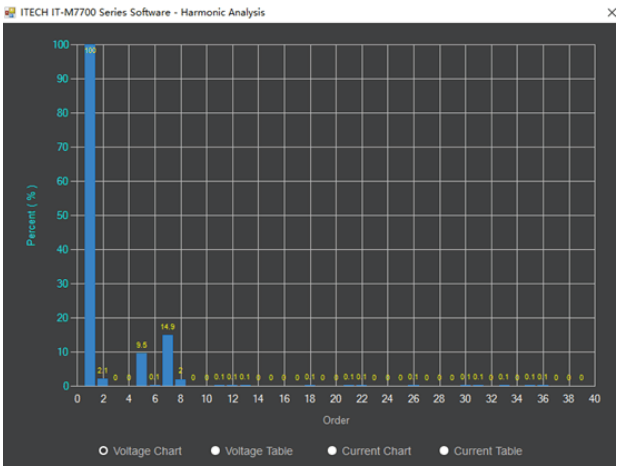


ITECH IT-M7700 Series Software - Harmonic Analysis

Order 1	100	Order 11	0	Order 21	0	Order 31	0
Order 2	2.1	Order 12	0	Order 22	0	Order 32	0
Order 3	0	Order 13	0	Order 23	0	Order 33	0
Order 4	0	Order 14	0.1	Order 24	0	Order 34	0
Order 5	9.5	Order 15	0.1	Order 25	0	Order 35	0
Order 6	0	Order 16	0	Order 26	0	Order 36	0
Order 7	15	Order 17	0	Order 27	0	Order 37	0.1
Order 8	2	Order 18	0	Order 28	0	Order 38	0
Order 9	0.1	Order 19	0	Order 29	0	Order 39	0
Order 10	0.1	Order 20	0	Order 30	0	Order 40	0

Voltage Chart Voltage Table Current Chart Current Table

List

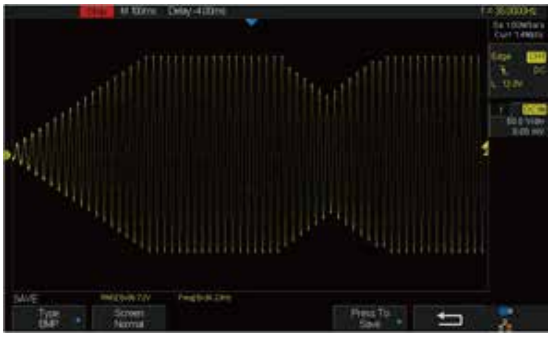


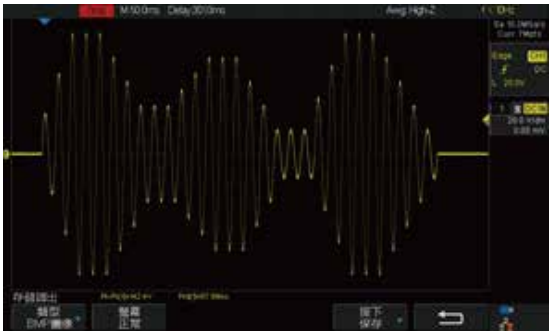
Column list

List Mode

IT-M7700 LIST mode supports program complex waveform editing. The users can edite 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.

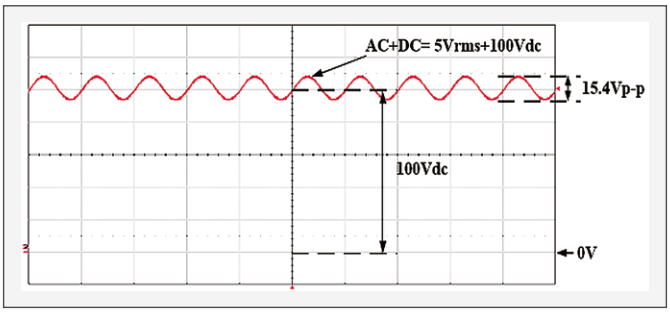
* Available with ITECH PC software.

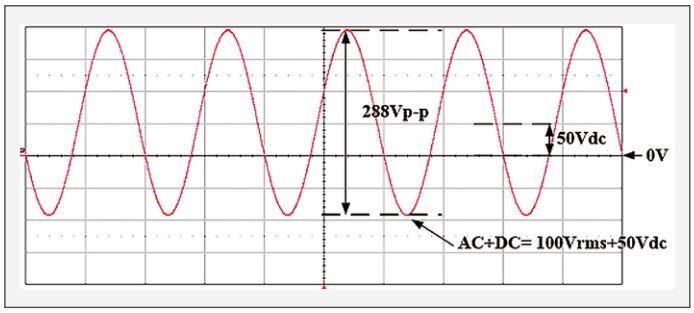




Multiple output modes: AC, DC, AC+DC

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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Surge / Trap Wave Function

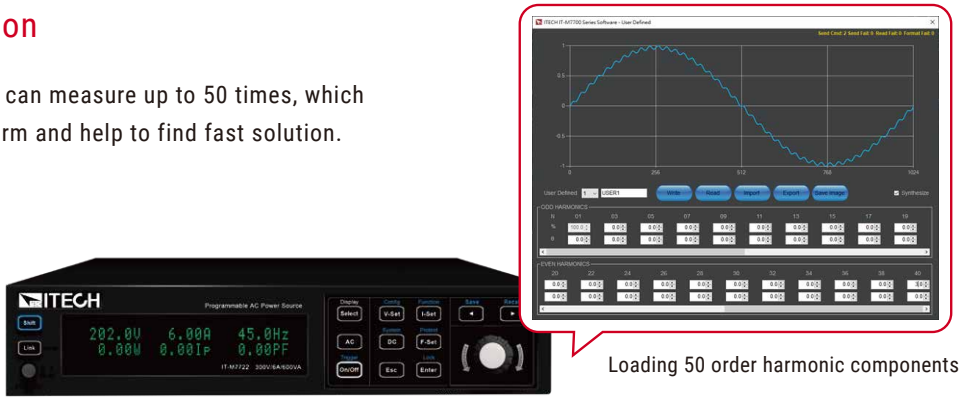
IT-M7700 series provide surge and trap wave simulation function. User can add surge/trap wave to the output sine wave accordingly, to simulate voltage frequent fluctuation. Thus to simulate the real testing environment.

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

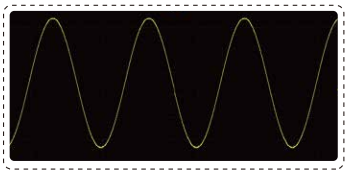
The IT-M7700 series supports front and rear phase angle dimming or speed control tests. The user can adjust the active power by setting the phase angle and performing the leading or trailing edge waveform concealment to achieve the purpose of adjusting the light intensity of the lamp. It is used to verify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

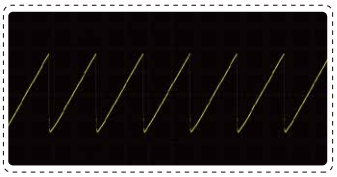
LeadingEdge phase dimming

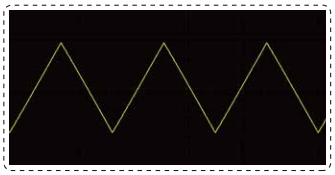
TrailingEdge phase dimming

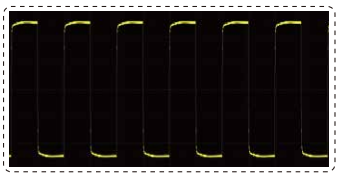
Built-in abundant waveform database

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.

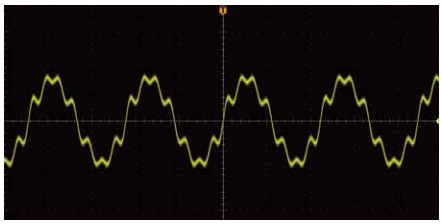

Sine

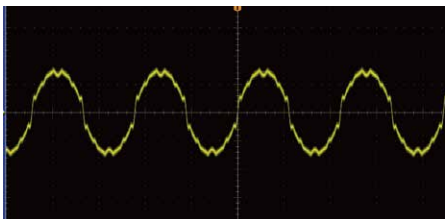

Saw

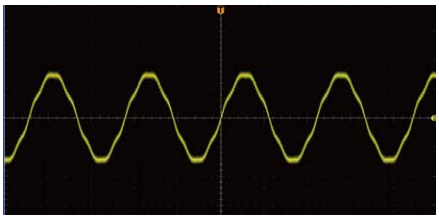

Triangle

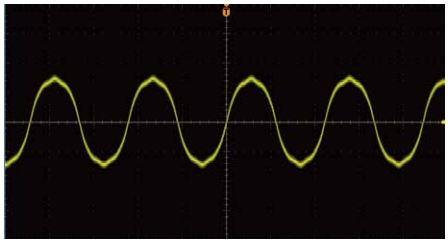

Square

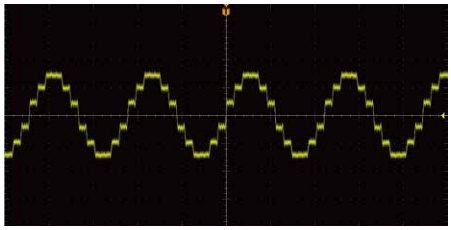
IT-M7700 series has 30 built-in harmonic distortion waveforms

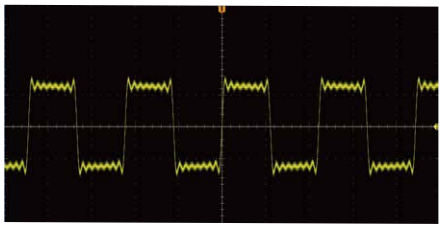

Non-linear


Linear distortion


Coil transformer self-excitation


Peak spike


Stepper frequency converter


Square wave UPS

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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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.

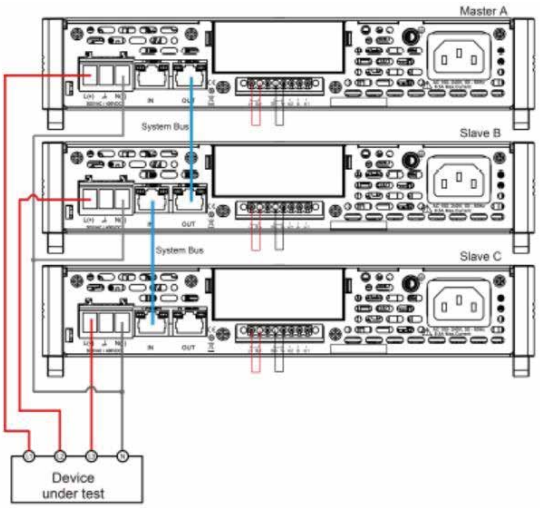
Pictures	Model	Interface
	IT-E1205 (optional)	GPIB
	IT-E1206(standard)	USB/LAN
	IT-E1207(optional)	RS-232/CAN
	IT-E1208(optional)	Analog
	IT-E1209(optional)	USB
	IT-E251(standard)	Connection Cable

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

Rear panel with optional interfaces

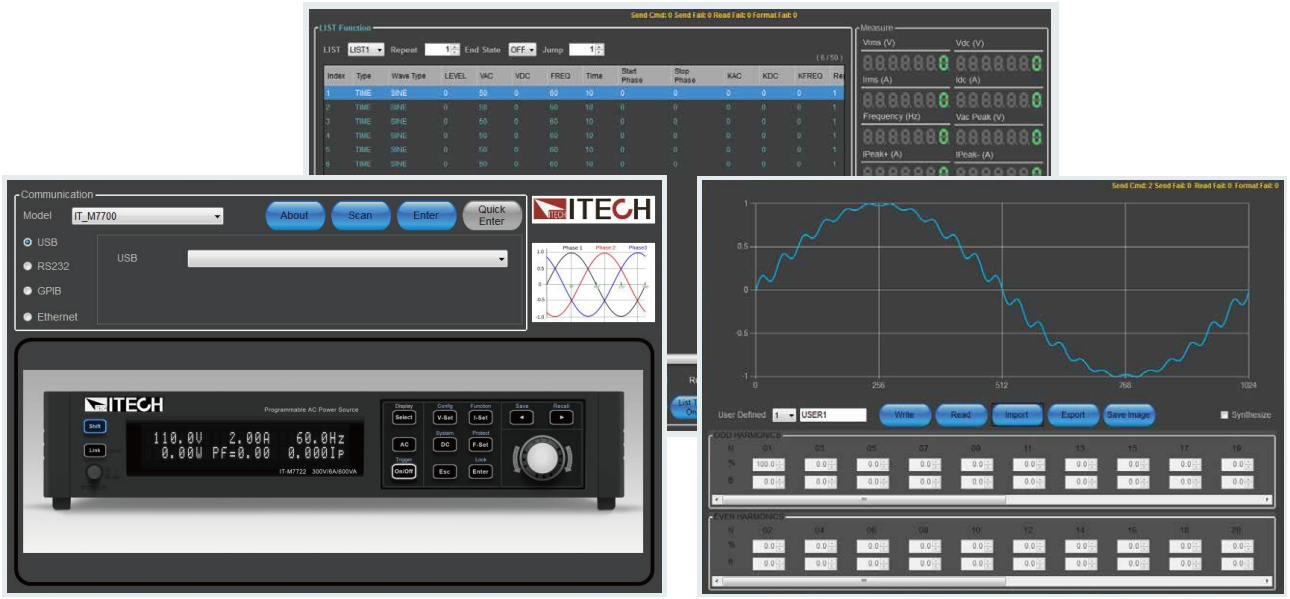
3 phase output

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.



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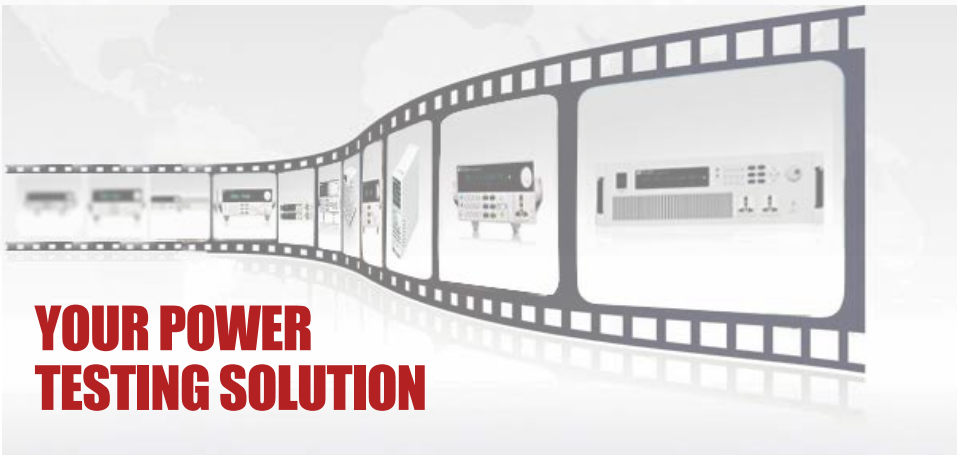
IT-M7700 High Performance Programmable AC Power Supply

		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.

		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.



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

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