IT-M7700 High Performance Programmable AC Power Supply

Applications

Testing of commercial and military avionics, RD,verification and testing of the small-size power supply production, IEC standard testing, Communications/Telecommunications, AC power simulation,Manufacturing and process control, Battery or LCD applications, ATE testing, etc.

Feature

- 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 function *2

- Harmonic simulation function

- 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 *2*3

- Three phase output available by three units Y-type external connections *2*3

- Optional interfaces include RS232, CAN, LAN, GPIB, USB_TMC,USB_VCP, external analog, IO. Flexible and cost effective

- With professional software, set up programs comply with multinational security regulations and test conditions, to complete military, civil aviation electronics and IEC related standards testing *3

*1 Realize by PC software
*2 Available on IT-M7721/7722/7722E/7723E   *3 Coming soon

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, avionics, military and IEC standards testing.

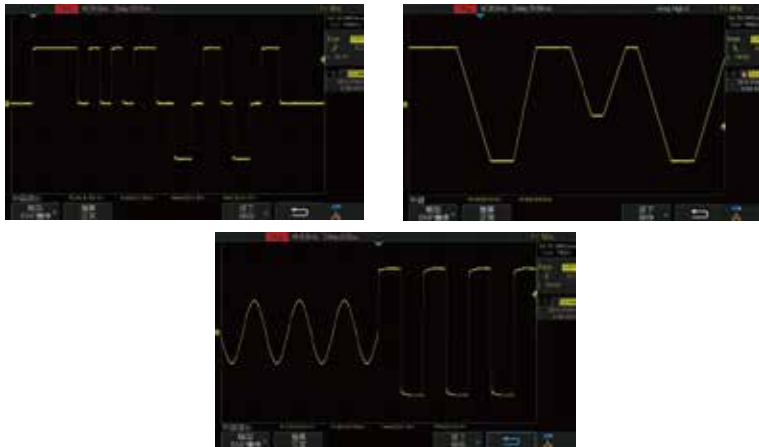| Model	Power(AC/DC)	Voltage	Current	Volume
IT-M7721	300 VA/300 W	300 V	3A	1/2 1U
IT-M7722	600 VA/600 W	300 V	6A	1/2 1U
IT-M7722E	750 VA/750 W	300 V	7.5A	1/2 2U
IT-M7723	1.2 kVA/1.2 kW	300 V/600 V	12A/6A	1U
IT-M7723E	1.5 kVA/1.5 kW	300 V	15A	1/2 2U
IT-M7724	3 kVA/3 kW	300 V/600 V	30A/ 15A	2U

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

Power Supply

ITECH ELECTRONICS
Your Power Testing Solution

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.
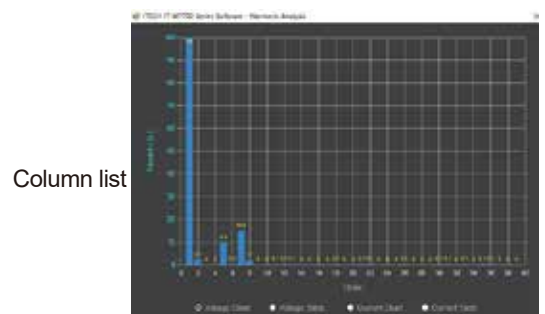

List Mode

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.

PC software

Harmonic analysis function

IT-M7700 series support 40th 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.

List

Column list

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.
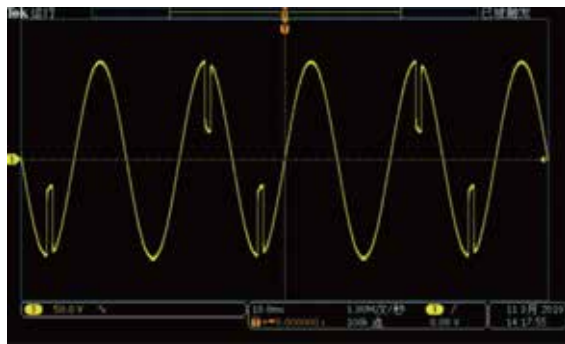

Power Supply
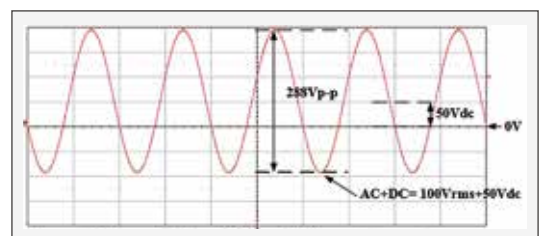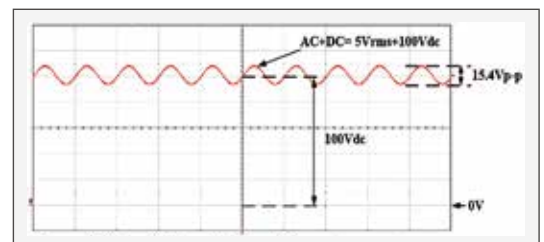
Surge / Trap Wave Function

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

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.
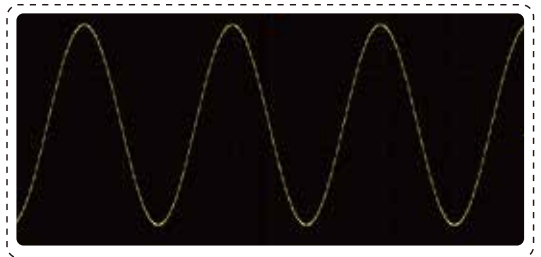
sine
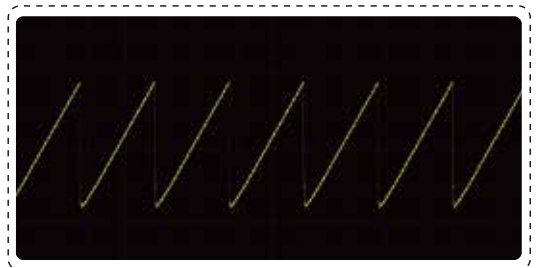
Saw
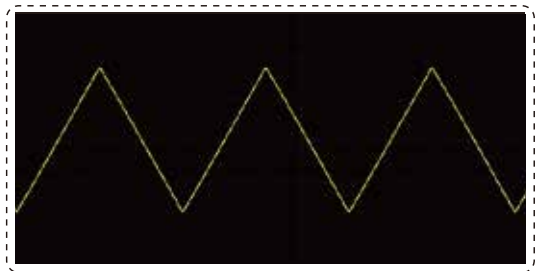
Triangle
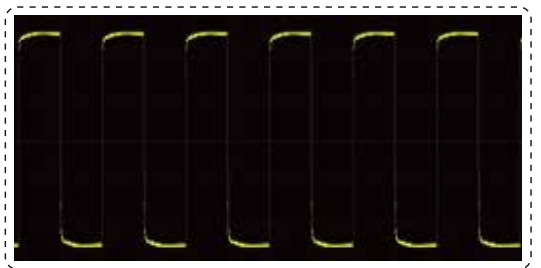
Square

Harmonic simulation function

Within the frequency range 45~50Hz, it can measure up to 40 times, which perfectly simulate the distorted waveform and help to find fast solution.

Loading 40 order harmonic components

Power Supply

Power Supply

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

Non-linear

Linear distortion

Peak spike

Stepper frequency converter

Coil transformer self-excitation

Square wave UPS

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 pur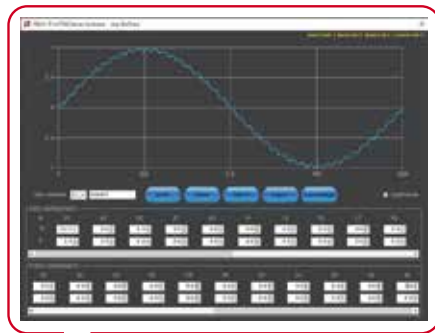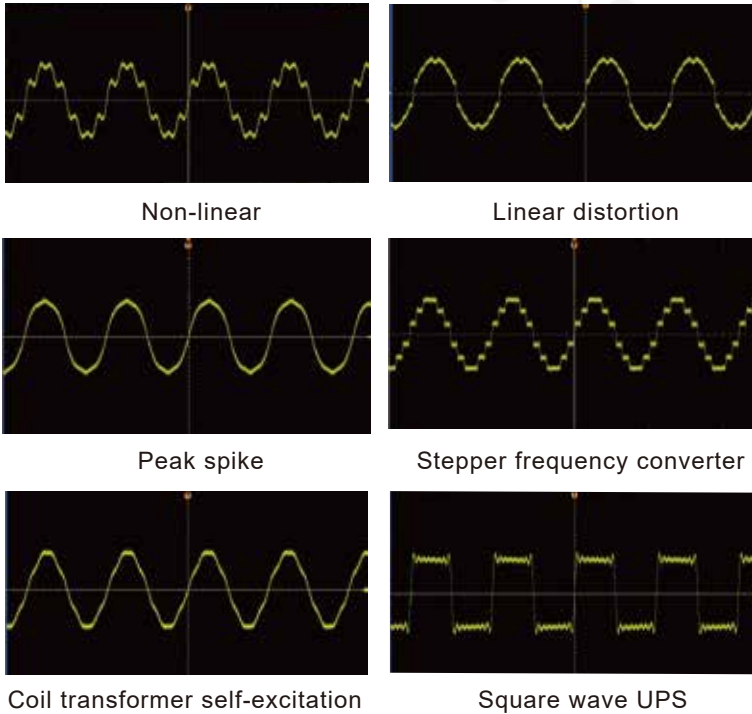pose of adjusting the light intensity of the lamp. It is used to verify whether there is a quality hazard when the end user uses the dimming or speed controller.

LeadingEdge phase dimming

TrailingEdge phase dimming

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.

Application:
LED driver, household appliances and other products input surge current and power supply disturbance performance verification

IT-M7700 programmable AC power supply

AC input

LED driver

DC output

IT8912E programmable DC e-load

IEC61000-4-11
IEC61000-4-13

coming soon

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.
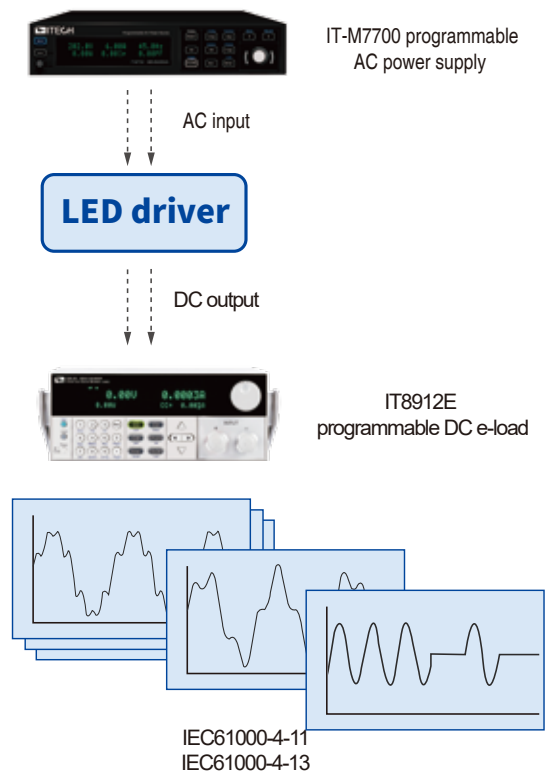
Comprehensive protection

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.

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.

Rear panel with optional interface IT-E1208

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

*For three phase installation and serial connection , pls. choose the optional accessary IT-E251.

EMC Testing

With the professional test software, users can simply recall and complete the corresponding IEC standard test items for EMC test.

- IEC 61000-4-11......GB/T17626.11...... Voltage dips, short interruptions and voltage variations immunity tests.
- IEC 61000-4-13......GB/T17626.13...... Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests.
- IEC 61000-4-14......GB/T17626.14...... Voltage fluctuation immunity test for equipment with input current not exceeding 16A per phase.
- IEC 61000-4-17......GB/T17626.17...... Ripple on d.c. input power port immunity test
- IEC 61000-4-28......GB/T17626.28...... Variation of power frequency, immunity test for equipment with input current not exceeding 16A per phase.

coming soon

Compliance Test of Aviation and Ship Electronic Equipment

With the strong programming ability, the IT-M7700 series AC power supply can be used to test the immunity of aircraft electrical equipment against AC input changes. With professional software, users can carry out RTCA DO-160D, MIL-STD-704F, ABD0100, Boeing 787B3-0147 and MIL-STD-1399-300B standards test quickly and conveniently. It fully covers the compliance testing of commercial, military aviation, ship and submarine electronic equipment.

Power Supply

Power Supply

IT-M7700 Specifications

		IT-M7721
		AC Input rating
AC Input voltage		100 – 240Vac (±10%)
Phase		Single-phase
Frequency		47-63Hz
Max.input current		2A/4.3A
PF		0.99 (Typical)
		AC Mode output rating
Max. output power		300VA
Max. output voltage		300V
Output phase		Single-phase
Current range (rms)		3A(100V)/ 1A(300V)
Current range (peak)		9A(100V)/ 3A(300V)
Output frequency range		45 - 1000Hz
Phase angle range		0 – 359.9°
THD [2][4]		≤ 0.3% at 45-100Hz; ≤1% 101-1000Hz
Crest factor		3
Power mediation rate		≤ 0.06% (100V±10%); ≤ 0.03% (240V±10%)
Load mediation rate [4]		≤ 0.13% (100V); ≤ 0.04% (200V); ≤ 0.015% (300V)
Output voltage	Resolution	0.1V
	Accuracy	±(0.2%×VAC+0.2%×F.S.) [1]
Output frequency	Resolution	0.1 Hz
	Accuracy	±0.1%
Phase angle degree range	Resolution	0.1°
	Accuracy	0.5°
Efficiency		75% (Typical)
		DC Mode output rating
Max. output power		300W
Max. output voltage		±400V
Max. output current		±3A/±0.75A(±100V/±400V)
Output voltage	Accuracy	±(0.2%×VDC+0.2%×F.S.) [1]
Voltage ripple	Peak- peak	3.2V
	RMS	1.27V
Dynamic response time		≤ 0.5ms
		Meter ratings
AC Voltage	Range	0-300V
	Resolution	0.1V
	Accuracy	±(0.25%×VAC+0.25%×F.S.) [1]
AC Current	Range	0.1-3A
	Resolution	10mA
	Accuracy	±(0.25%×IAC+0.25%×F.S.) [1]
AC Current (peak)	Range	0-4.2A
	Resolution	10mA
	Accuracy	±(0.4%×IP+0.8%×F.S.) [1]
Frequency	Range	45Hz - 1000Hz
	Resolution	0.1 Hz
	Accuracy	±0.1% [3]
Power	Resolution	10mVA
	Accuracy	±(0.5%×S+0.5%×F.S.) [1]
		Other
Dimension		215 x 44.45(1U) x 450 mm
Weight		4.5Kg

*This information is subject to change without notice.

*1 F.S. value is full voltage range   *2 Min voltage for THD test is 100Vac
*3 Min voltage for frequency display accuracy is 100Vac   *4 Tested with pure resistive load

Power Supply

IT-M7700 Specifications

		IT-M7722
		AC Input rating
AC Input voltage		100 – 240Vac (±10%)
Phase		Single-phase
Frequency		47-63Hz
Max.input current		4A/8.5A
PF		0.99 (Typical)
		AC Mode output rating
Max. output power		600VA
Max. output voltage		300V
Output phase		Single-phase
Current range (rms)		6A(100V)/ 2A(300V)
Current range (peak)		18A(100V)/ 6A(300V)
Output frequency range		45 - 1000Hz
Phase angle range		0 – 359.9°
THD [2][4]		≤ 0.3% at 45-100Hz; ≤1% 101-1000Hz
Crest factor		3
Power mediation rate		≤ 0.06% (100V±10%); ≤ 0.03% (240V±10%)
Load mediation rate [4]		≤ 0.13% (100V); ≤ 0.04% (200V); ≤ 0.015% (300V)
Output voltage	Resolution	0.1V
	Accuracy	±(0.2%×VAC+0.2%×F.S.) [1]
Output frequency	Resolution	0.1 Hz
	Accuracy	±0.1%
Phase angle degree range	Resolution	0.1°
	Accuracy	0.5°
Efficiency		80% (Typical)
		DC Mode output rating
Max. output power		600W
Max. output voltage		±400V
Max. output current		±6A/±1.5A(±100V/±400V)
Output voltage	Accuracy	±(0.2%×VDC+0.2%×F.S.)
Voltage ripple	Peak- peak	1.5 V
	RMS	0.53 V
Dynamic response time		≤ 0.5ms
		Meter ratings
AC Voltage	Range	0-300V
	Resolution	0.1V
	Accuracy	±(0.25%×VAC+0.25%×F.S.) [1]
AC Current	Range	0.1-6A
	Resolution	10mA
	Accuracy	±(0.25%×IAC+0.25%×F.S.) [1]
AC Current (peak)	Range	0-8.5A
	Resolution	10mA
	Accuracy	±(0.4%×IP+0.8%×F.S.) [1]
Frequency	Range	45Hz - 1000Hz
	Resolution	0.1 Hz
	Accuracy	±0.1% [3]
Power	Resolution	10mVA
	Accuracy	±(0.5%×S+0.5%×F.S.) [1]
		Other
Dimension		215 x 44.45(1U) x 450 mm
Weight		4.5KG

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