

IT8700 Multi-channel Programmable DC Electronic Load



Applications

Multiple or single output AC / DC, DC / DC power converters, chargers and other power supply electronic components performance test, ATE test system, solar cells, LED, communications testing, aerospace and other fields.

Feature

- Removable modules for easy system configuration
- Dual-channel module can display each channel information simultaneously without switching
- Single frame up to 8 channels, extended frame up to 16 channels
- Dynamic power distribution function for dual channels, save your cost
- Measurement resolution: 0.1mV/0.01mA
- Measure short-circuit peak current value and peak voltage value
- Measurement speed for voltage, current up to 50KHZ
- Adjustable current rising / falling slope
- Auto-test function, with automatic judgement whether the test result exceeds the set specification
- Simulate various waveforms with load under List mode
- Up to 25KHz dynamic mode
- Automatic test function can automatically determine whether the test results have exceeded the set specifications
- Simultaneously perform multiple sets of electronic load modules
- OVP / OCP / OPP / OTP / anti-reverse protection function
- Built-in Ether Net / GPIB / USB / RS232 communication interface
- Support anti-reverse alarm function

IT8700 series programmable DC electronic load adopts removable modules design, single frame up to 8 channels, supports up to 16 channels with mainframe extension transient mode up to 25 kHz, which improves your test efficiency, with high resolution and accuracy. Users can freely choose in the 8 load modules according to the number of channels and power requirements, controlled by mainframe control panel, or controlled by host computer software via built-in LAN / RS232 / USB / GPIB interface.

IT8700 is with adjustable slope, list function, automatic test and other functions, automatic test function can be set to work under CC / CV / CR / CP and other different mode, easy to test fast and accurately for R&D and production line.

IT8700 has self-diagnosis and comprehensive OVP, OCP, OPP, OTP, etc., preventing instrument or personal injury caused by misuse or the environment factors.

Model	Specification	Size
IT8731	80V/40A/200W	573*183*82mm
IT8732	80V/60A/400W	573*183*82mm
IT8732B	500V/20A/300W	573*183*82mm
IT8733	80V/120A/600W	573*183*82mm
IT8733B	500V/30A/500W	573*183*82mm
IT8722	80V/20A/250W*2CH	573*183*82mm
IT8722B	500V/15A/250W*2CH	573*183*82mm
IT8723	80V/45A/300W*2CH	573*183*82mm

Matching frame

IT8702	Four-load module main control unit (including four interfaces)
IT8703	Four-load module expansion unit

*1: The total power of dual channel for IT8722/IT8722B is 300W, if the two channel of IT8722/IT8722B work at the same time, need to meet: 50W ≤ PCH1/PCH2 ≤ 250W; PCH1+PCH2 ≤ 300W

*2: IT8700 modules should be equipped with IT8702 mainframe

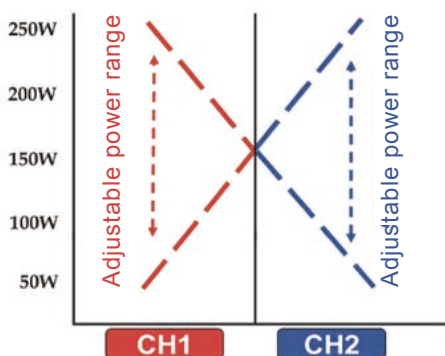
*3: Interface of mainframe: RS232, USB, GPIB, Ether Net

Freely configurable modular system architecture

IT8700 programmable DC electronic load adopts modular design, there is a high-performance microprocessor in every module and mainframe. It has high measurement speed because of parallel architecture. The system controls modules synchronously, and also test multi-output batteries synchronously.

Dynamic power distribution function

Usually, one module require high power while another require low power in battery testing. IT8722/IT8722B has dynamic power distribution function, that means within 300W, any channel which power over 50W and less than 250W, the power can be distributed freely, one module can be used as multiple standard modules.



With ITECH test system

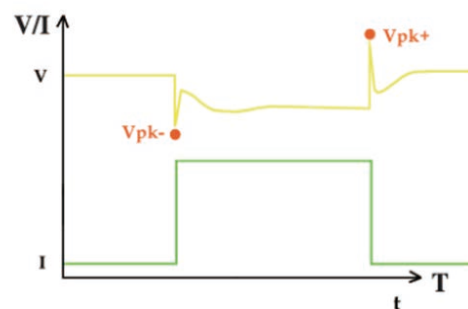
ITS5300 battery test system can be formed by IT8700, ITECH power supply, battery resistance tester and temperature data logger, which makes hundreds of channels run at the same time, record voltage and current waveforms in real-time. Test data can be exported to EXCEL.

IT8700 can also equip with ITECH AC and DC power supply, relay card, I / O Card, DSO card to set up ITS9500 power supply test system, which achieves multi-supply modules simultaneously test or multiplex output AC / DC or DC / DC power supply module test.

IT8700 with IT9380 software can achieve multi-channel solar cell test, the test interface can be switched freely, support the sampling time settings, export test data, and with up to 50KHz I-V sampling rate, achieving high efficient and fully automated testing for solar panel.

Peak voltage, peak current measurement function

Dynamic current testing of switching power supply often requires oscilloscope to capture instantaneous voltage and current waveforms to obtain the value of the peak voltage V_{pk} and the peak current I_{pk} . IT8700 is with digital data acquisition function, users can easily get the values of V_{pk} and I_{pk} without oscilloscope.



High resolution and accuracy

IT8700 has the best product features with 0.1mV / 0.01mA resolution and 50kHz measurement speed, so that your test is fast and accurate.

High power density

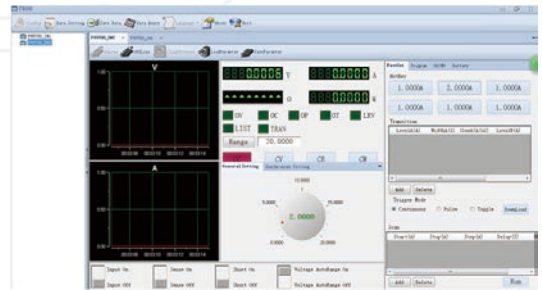
Maximum power density - 600W single module with ITECH advanced cooling technology, making IT8700 has ultra-high power density, 4u height up to 2400W.

Auto test

This function can be applied in the automated production test, users can set measurement mode and pull load value of each step for panel or PC software, and the upper and lower limits of test parameters, and display whether the test results have exceeded the set specifications.

PC communication Interface

IT8700 series of electronic load provide IT9000 PC software, users can easily set and monitor voltage & current waveform of each channel and operation of test, simplify automatic test and battery charge & discharge test. IT8700 has built-in GPIB / Ethernet / USB / RS232 interface, support SCPI communication protocol, provide Labview bottom Layer driver to help customers achieve system structures and remote control.



Electronic Load

IT8722/22B/23 Specification

		IT8722 ^{*8}		IT8722B ^{*8}		IT8723 ^{*8}	
Rated parameter (0~40°C)	Input voltage	0~80V		0~500V		0~80V	
	Input current	0~20A		0~15A		0~45A	
	Input power	250W ^{*1}		250W ^{*1}		300W	
CV mode	Min operating voltage	0.15V/3A	1.0V/20A	0.8V/3A	4.0V/15A	0.14V/4.5A	1.4V/45A
	Range	L: 0~18V; H: 0~80V		0.1~50V	0.1~500V	L: 0~18V; H: 0~80V	
	Resolution			L: 1mV; H: 10mV			
CC mode	Accuracy	±(0.05%+0.025%FS)		±(0.05%+0.05%FS)		±(0.05%+0.025%FS)	
	Range	0~3A	0~20A	0~3A	0~15A	0~4.5A	0~45A
	Resolution			L: 0.1mA; H: 1mA			
CR mode ^{*2}	Accuracy			±(0.05%+0.05%FS)			
	Range	L: 0.05Ω~10Ω; H: 10Ω~7.5KΩ		0.3Ω~10Ω	10Ω~7.5KΩ	L: 0.05Ω~10Ω; H: 10Ω~7.5KΩ	
	Resolution			16bit			
CP mode ^{*5}	Accuracy			0.01%+0.08S ^{*3} ; H: 0.01%+0.0008S			
	Range	250W ^{*4}		250W ^{*4}		300W	
	Resolution			10mW			
Dynamic mode	Accuracy			±(0.2%+0.2%FS)			
	T1&T2			20μS~3600S / Res: 1μS			
	Accuracy			5μS±100ppm			
Voltage readback value	Rise / fall slope ^{*6}	0.0001~0.2A/μS	0.001~1.6A/μS	0.0001~0.1A/μS	0.001~0.5A/μS	0.0001~0.25A/μS	0.001~2.5A/μS
	Min rise time ^{*7}	≅10μS		≅20μS		≅12μS	
	Range			Measuring range			
Current readback value	Resolution	0~18V	0~80V	0~50V	0~500V	0~18V	0~80V
	Accuracy	L: 0.1 mV; H: 1mV		L: 1 mV; H: 10mV		L: 0.1 mV; H: 1mV	
	Range			±(0.025%+0.025%FS)			
Power readback value	Resolution	0~3A	0~20A	0~3A	0~15A	0~4.5A	0~45A
	Accuracy	L: 0.01mA; H: 0.1mA		L: 0.01mA; H: 0.1mA		L: 0.1mA; H: 1mA	
	Range			±(0.05%+0.05%FS)			
Over power protection	Resolution	250W		250W		300W	
	Accuracy			10mW			
	Protected range			±(0.2%+0.2%FS)			
Overcurrent protection	Over power protection	≅250W		≅260W		≅310W	
	Overcurrent protection	≅3.3A	≅22A	≅3.3A	≅16.5A	≅5A	≅50A
	Over voltage protection	≅82V		≅530V		≅82V	
Short circuit	Over temperature protection			≅85°C			
	Current	≅3.3/3A	≅22/20A	≅3.3/3A	≅16.5/15A	≅5/4.5A	≅50/45A
	Voltage			0V			
Input terminal impedance	Resistance	≅50mΩ		≅260mΩ		≅30mΩ	
	Resistance	300KΩ		≅1MΩ		300KΩ	
	Size(mm)			82*183*573			
Weight			5KG				

*1 Support dynamic distribution power, single way can reach max 250W, two ways total power is no more than 300W, single way average power is 150W.
 *2 Voltage/current input value is not less than 10% FS (FS is full scale).
 *3 Resistance read-back value range: ((1/(1/R+(1/R)*0.01%+0.08),1/(1/R-(1/R)*0.01%-0.08))
 *4 Support dynamic distribution power, single channel can reach max 250W, two way total power is no more than 300W

*5 Voltage/current input values are not less than 10% FS
 *6 Up/down slope: 10% ~ 90% current rising slope when from 0 to maximum current
 *7 The minimum rise time: 10% ~ 90% current rise time
 *8 IT8722 / IT8722B are dual channel dynamic power allocation module, 2 channels' specification is the same.

*This information is subject to change without notice notice

IT8731/32/32B/33B/33 Specification

		IT8731		IT8732		IT8732B		IT8733B		IT8733			
Rated parameter (0~40°C)	Input voltage	0~80V											
	Input current	0~40A		0~60A		0~20A		0~30A		0~120A			
	Input power	200W		400W		300W		500W		600W			
	Min operating voltage	0.12V/4A	1.2V/40A	0.15V/6A	1.5V/60A	0.72V/3A	4.8V/20A	0.54V/3A	5.4V/30A	0.24V/12A	2.4V/120A		
CV mode	Range	L: 0~18V; H: 0~80V											
	Resolution	L: 1mV; H: 10mV											
	Accuracy	±(0.05%+0.025%FS)											
CC mode	Range	0~4A	0~40A	0~6A	0~60A	0~3A	0~20A	0~3A	0~30A	0~12A	0~120A		
	Resolution	L: 0.1mA; H: 1mA											
	Accuracy	±(0.05%+0.05%FS)											
CR mode*1	Range	L: 0.05Ω~10Ω; H: 10Ω~7.5KΩ				0.25Ω~10Ω		10Ω~7.5KΩ		0.2Ω~10Ω		10Ω~7.5KΩ	
	Resolution	16bit											
	Accuracy	L: 0.01%+0.08S; H: 0.01%+0.0008S											
CP mode*2	Range	200W		400W		300W		500W		600W			
	Resolution	10mW											
	Accuracy	±(0.2%+0.2%FS)											
CC mode													
Dynamic mode	T1&T2	20μs~3600s / Res: 1μs											
	Accuracy	5μs±100ppm											
	Rise / fall slope	0.0001 ~0.2A/μs	0.001 ~2A/μs	0.0001 ~0.25A/μs	0.001 ~2.5A/μs	0.0001 ~0.1A/μs	0.001 ~0.8A/μs	0.0001 ~0.08A/μs	0.001 ~0.8A/μs	0.001 ~0.25A/μs	0.01 ~2.5A/μs		
	Min rise time	≈15μs				≈20μs		≈25μs		≈35μs			
Voltage readback value	Range	0~18V	0~80V	0~18V	0~80V	0~18V	0~500V	0~18V	0~500V	0~18V	0~80V		
	Resolution	L: 0.1 mV; H: 1mV											
	Accuracy	±(0.025%+0.025%FS)											
Current readback value	Range	0~4A	0~40A	0~6A	0~60A	0~3A	0~20A	0~3A	0~30A	0~12A	0~120A		
	Resolution	L: 0.1mA; H: 1mA											
	Accuracy	±(0.05%+0.05%FS)											
Power readback value	Range	200W		400W		300W		500W		600W			
	Resolution	10mW											
	Accuracy	±(0.2%+0.2%FS)											
Protected range													
Over power protection	≈210W		≈410W		≈310W		≈510W		≈610W				
Overcurrent protection	≈4.4A	≈44A	≈6.6A	≈66A	≈3.3A	≈22A	≈3.3A	≈33A	≈13.2A	≈132A			
Over voltage protection	≈82V						≈530V			≈82V			
Over temperature protection	≈85°C												
Specification													
Short circuit	Current	≈4.4/4A	≈44/40A	≈6.6/6A	≈66/60A	≈3.3/3A	≈22/20A	≈3.3/3A	≈33/30A	≈13.2/12A	≈132/120A		
	Voltage	0V											
	Resistance	≈30mΩ		≈25mΩ		≈240mΩ		≈180mΩ		≈20mΩ			
Input terminal impedance	300KΩ					1MΩ			300KΩ				
Size(mm)	82*183*573												
Weight	5KG												

*1: Accuracy refers to specifications is %+n%FS (Full Scale) of set value

*2: When input voltage and current value >= 10% of FS

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