

IT8912E High Accuracy DC Electronic Load



Applications

LED test, power supply test, etc.

Feature

- Up to 20kHz CC dynamic mode
- Voltage resolution up to 10mV, current resolution up to 0.01mA (10uA)
- Voltage/current measurement speed up to 50kHz
- Various working modes CR-LED/CC/CV+CC/CR/CW etc,to protect LED driving power supply.
- Unique CR-LED mode, providing the perfect PWM-LED Driver test solution
- Easy programmable parameter setting, applicable for simulating LED lights with different characteristics
- Automatically judge whether the test results beyond the set specifications according to high / low limit specifications of the test parameters
- Adjustable frequency,duty ratio PWM dimming output port
- I-pp/I-max measurement function can test current ripple and start up surge current of LED constant flow source
- Battery test, auto test, short circuit and dynamic test function
- Built-in USB/RS232 interface, support VISA/USBTMC/SCPI protocol

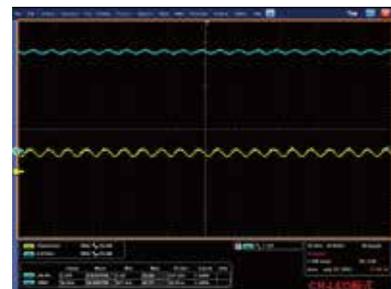
*For any GPIB interface option request , check with ITECH for availability.

Model	Voltage	Current	Power	Size
IT8912E	500V	15A	300W	1/2 2U

IT8900 series high accuracy testing electronic loads can simulate the real output of LED lights with different characteristics. Their specific circuit can realize CR-LED mode, adjustable frequency, duty ratio PWM dimming output port(frequency:20Hz-2kHz). I-pp/I-max measurement function can test current ripple and start up surge current of LED constant flow source. Voltage and current testing speed can reach 50kHz. IT8900 series provides CR-LED / CC / CV + CC / CR / CW and other working modes, built-in USB / RS232 communication interface. Widely used in LED driver power dimming test.

CR-LED mode

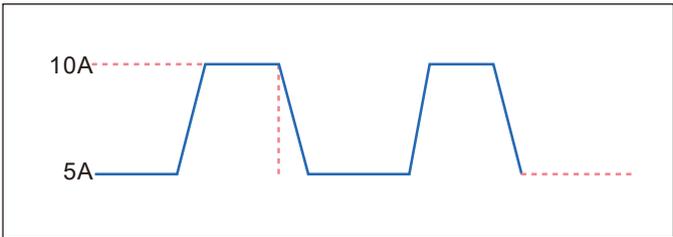
The unique CR-LED mode developed by IT8900 series is especially applicable for LED driver test. The user only needs to set the operating voltage, current and coefficient of LED driver to obtain real output parameter of LED driver. Different from universal electronic load, this adopts pure hardware circuit design without software operation by MCU module, thus increasing the speed and stability of CR mode control circuit, solving voltage and current jitter during LED driver test, increasing frequency width and realizing the load dynamic PWM dimming test.



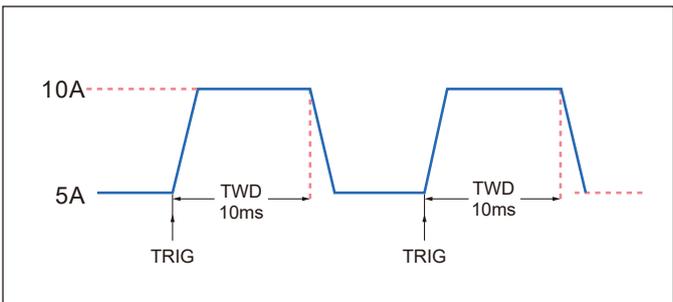
Dynamic test function (Tran)

The operation of dynamic load is periodic switch between two levels and the power supply regulation and transient response are in high and low current levels. With the change of lasting time and ascending and descending rate, the output voltage waveform can be monitored. Dynamic mode can test transient response time of power, reflecting the ability of the power for keeping itself stable during the step change of load current.

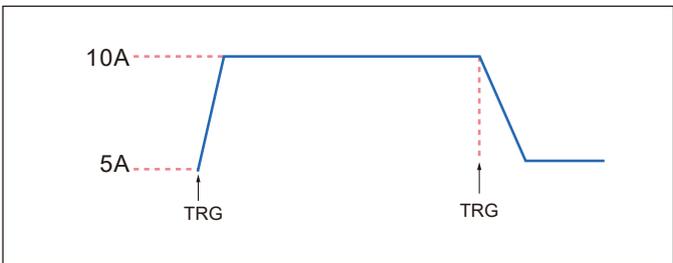
Dynamic test modes can be divided into continuous transient operation, pulsed transient operation and toggled transient operation.



Continuous Transient Operation



Pulsed Transient Operation



Toggled Transient Operation

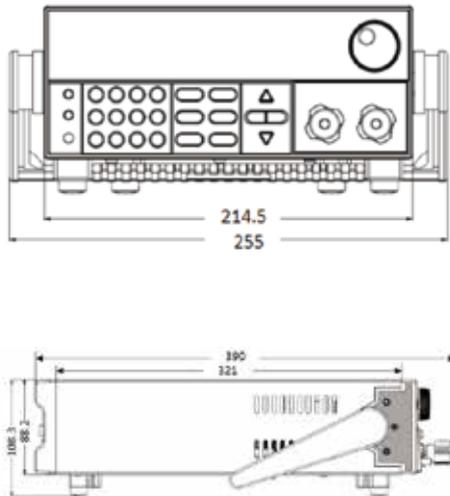
CC+CV mode

For CV + CC operation mode, it will be under CV mode when start up, LED driver IC or concatenated current-limiting resistor should be used. When the output current exceeds the rated value and reached constant current interval, CC mode will be triggered for directly driving LED. This CV+CC can be used for various LED configuration models, contributing to the flexibility of system design as well as protection for LED driver source.

PWM dimming test

For LED driver power with complex dimming technology, in addition to the conventional electrical load test, dimming test is needed. In order to realize the dimming test, it is necessary to provide the PWM pulse signal to the corresponding pin. Therefore, signal generator equipment is needed during experiment. In addition to IT8912E itself CR-LED mode, IT8912E also can output external 20Hz ~ 2kHz PWM pulse waveform for dimming features drive source testing, saving cost.

IT8912E Dimension figure



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IT8912E Specification

Model		IT8912E							
Rated parameter (0~40°C)	Input voltage	0~500V							
	Input current	0~3A				0~15A			
	Input power	300W							
	Min operating voltage	0.72V/3A				3.6V/15A			
	Temperature Coefficient	≤100ppm/°C							
CV mode	Range	0.1~500V							
	Resolution	10mV							
	Accuracy	±(0.05%+0.05%FS)							
CC mode	Range	0~3A				0~15A			
	Resolution	0.1mA				1mA			
	Accuracy	±(0.05%+0.1%FS)				±(0.05%+0.05%FS)			
CR-LED mode	Range	Uo-L Uo-H							
	Option	Uo	Io	coef	Rd	Uo	Io	coef	Rd
CR mode*1	Range	0.1~100V	0~15A	0.01~1	0.08~30Ω	0.1~500V	0~3A	0.01~1	1.8~1600Ω
	Resolution	0.3Ω~300Ω 【0~100V/0~15A】				8Ω~7.5KΩ 【0~500V/0~3A】			
	Accuracy	0.2%+0.01s ^{*2}				0.2%+0.001s ^{*3}			
CP mode*4	Range	300W							
	Resolution	10mW							
	Accuracy	0.2%+0.2%FS							
		CC mode							
Dynamic mode	T1&T2	20μs~3600s / Res: 1μs							
	Accuracy	5μs±100ppm							
	Rise / fall slope*5	0.0001~0.3A/μs				0.001~1.5A/μs			
	Min rise time *6	≅10μs				≅10μs			
		PWM Dimming output							
Output voltage		10V							
Frequency		20Hz~2kHz							
RangeDuty cycle		10%~100%							
		Measuring range							
Voltage readback value	Range	0~500V							
	Resolution	10mV							
	Accuracy	±(0.025%+0.025%FS)							
Current readback value	Range	0~3A				0~15A			
	Resolution	0.01mA				0.1mA			
	Accuracy	±(0.05%+0.05%FS)							
Power readback value	Range	300W							
	Resolution	10mW							
	Accuracy	±(0.2%+0.2%FS)							
		Protected range							
Over power protection		≅310W							
Overcurrent protection		≅3.3A				≅16.5A			
Over voltage protection		≅530V							
Over temperature protection		≅85°C							
		Specification				300kΩ			
Short circuit	Current	≅3.3A				≅16.5A			
	Voltage	0V				0V			
	Resistance	≅240mΩ							
Input terminal impedance		≅500kΩ							
		External analog monitoring							
I-Monitor		0~10V							
Corresponding to the current		0~15A							
		AC power supply							
Voltage		110V				220V			
Frequency		50/60Hz							
Inspecting power		Max: 50VA							
Size		214.5mm*88.2mm*354.6mm							
Weight		5Kg							
Storage temperature		-20°C~70°C							

*1 Voltage/current input value is not less than 10% FS (FS for full scale)

*2 Resistance readback value range: $(1/(1/R+(1/R)*0.2\%+0.01), 1/(1/R-(1/R)*0.2\%-0.01))$

a) When voltage input value is less than 10% FS: $0.2\%+0.1\text{Vin}$ (s);

b) When current input value is less than 10% FS, loading current precision is: $\pm(0.2\% \times \text{Vin}/R_{\text{setting}}+3\text{mA})$;

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* This information is subject to change without notice

*3 Resistance readback value range: $(1/(1/R+(1/R)*0.2\%+0.001), 1/(1/R-(1/R)*0.2\%-0.001))$

a) When voltage input value is less than 10% FS: $0.2\%+0.05\text{Vin}$ (s);

b) When current input value is less than 10% FS, loading current precision is: $\pm(0.2\% \times \text{Vin}/R_{\text{setting}}+10\text{mA})$;

*4 Voltage/current input values are not less than 10% FS

*5 Up/down slope: 10% ~ 90% current rising slope when from 0 to the maximum current

*6 The minimum rise time: 10% to 90% current rise time