

IT8912E programmable electronic load

About ITECH

ITECH is devoted to research and development in power supply technologies in test and measurement. The company specialized over the years and it is skilled in producing high power electronic testing systems, high-performance automated testing systems, power supplies and electronic loads. Our products are widely used by enterprises in all fields. Our products are well known for high performance and quality which are exported to over twenty countries in Europe, North America and Asia.



Your Best Power Solution

IT8912E programmable electronic load

Feature

- High visibility VFD
- Multiple operating modes: CC/CV/CR/CW/CC+CV/CR-LED
- Voltage current resolution: 10mV/10uA
- Voltage current measurement speed: 50KHZ at maximum
- Dynamic mode with frequency reaching as high as 20KHZ
- Unique CR-LED mode with perfect LED driver test scheme
- Pure hardware circuit design with quick response, applicable for LED driver test with dimming characteristics
- Adjustable frequency, duty ratio PWM dimming output port (frequency: 20HZ-2KHZ)
- Easy programmable parameter setting, applicable for simulating LED lights with different characteristics
- I-pp/I-max measurement function, for testing current ripple and startup surge current of LED constant flow source
- Remote measurement function
- Adjustable current ascending and descending slope
- OCP and OPP test functions
- Battery discharge mode, auto test, short circuit and Measure test functions
- Support VISA/USBTMC/SCPI communication protocols
- Built-in GPIB/RS232/USB communication interfaces
- Smart fan control for noise reduction

 **ITECH ELECTRONICS**

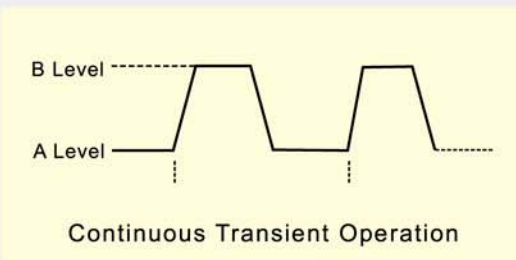
CR-LED mode

The unique CR-LED mode developed by IT8912E 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 mode of 8912E 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 helping realize PWM dimming.

Dynamic test function

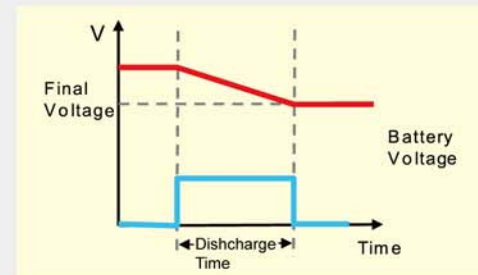
The operation of dynamic load is periodic switch between two levels and the power supply regulation and transient response are in high and low current levels. With the change of lasting time and ascending and descending rate, the output voltage waveform can be monitored.

Dynamic mode of electronic load tests the transient response time of power, reflecting the ability of the power for keeping itself stable during the step change of load current.



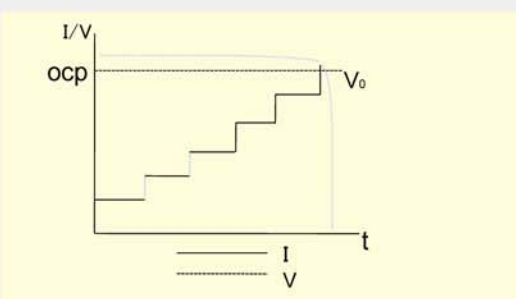
Battery discharge test function

IT8912E series electronic load panel can be programmed to realize battery discharge test and programmable settings include turn-off voltage, turn-off capacity and discharge time. During the test, the voltage, time and discharged capacity of the battery can be observed.



OCP/OPP test

OCP and OPP test functions are particularly suitable for over-current and over-power point tests of products such as lithium battery protection module and power module. Through built-in OCP and OPP functions, the user can set such parameters as the initial current, cutoff current, step current, lasting time of each step current and the voltage drop value for judgement of protection of built-in OCP program for test. This will finally help users to automatically obtain over-current or over-power protection point and to judge if it is within the scope. The user can use it for design validation and production line system to save test time and improve test efficiency.

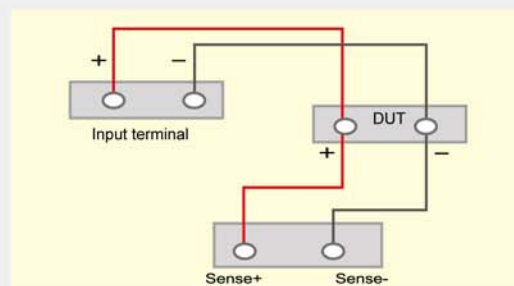


Remote compensation function

Under CC, CV or CW mode, when the load consumes a large amount of current or the connection conductor is too long, pressure drop will occur on the connection line between the instrument in the north and the load terminal.

To ensure measurement precision, there is a remote measurement terminal at the back of the load which can be used by the user to measure the output terminal voltage of the instrument in the north.

SENSE(+) and SENSE(-) are remote measurement terminals. Before using the remote measurement function, the user must set the load in remote measurement mode.





Advantages of IT8912E in LED test

■ CR-LED mode for pure hardware circuit design

CR or LED mode for main load products on the market generally uses AD sampling voltage and current and the value of R is obtained by software operation through MCU processing unit with slow response speed. Most universal load CR modes are not supported by actual hardware circuit and the constant resistance is obtained by operation through detection of voltage and current. Theoretically, there is a certain delay characteristic and the CR mode is only suitable for products which feature slow input change and response speed. The IT8912E (500V/15A/300W) electronic load newly launched by ITECH adopts pure hardware circuit design and is compatible with LED constant flow source test of varied specifications, providing perfect PWM-LED driver solution.

■ Unique CV+CC mode

CR or CV mode can only test stable operating points and cannot actually simulate LED of different characteristics. For CV+CC operating mode, if it is CV mode at startup, LED driver IC or concatenated current-limiting resistor should be used. When the output current exceeds the rated value and reaches constant current interval, CC mode will be triggered for directly driving LED. This CV+CC can be used for various LED configuration modes, contributing to the flexibility of system design as well as protection for LED driver source.

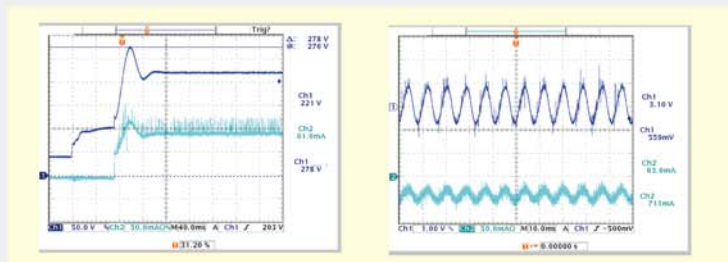
■ PWM dimming test

LED lights are widely used in different occasions such as street lighting, LED searchlight, stage lighting and tunnel lighting. Illumination regulation is required in many applications according to the actual situations. General electronic load has a response speed so slow that LED driver PWM dimming test cannot be carried out. PWM (Pulse Width Modulation) is the most common digital dimming method and can regulate the illumination by changing the set cycle and duty ratio. When PWM is high, the LED is on, otherwise, the LED is off. The frequency change is so fast that we cannot feel intermittent on/off. Therefore, illumination regulation is realized by regulating the duty ratio of PWM.

■ Actual simulation of LED light characteristics

The operating current of LED light is generally tens of milliampere to hundred of milliampere. Over-large startup current will shorten the service life of LED light or even burn it down. Therefore, at the beginning of design of LED constant flow source, there are strict indicators for startup transient surge current. IT8912E electronic load voltage current measurement speed is 50KHZ. It can automatically collect and compare the maximum current for a certain period. The user only need to read the maximum current value to the PC through instructions in order to obtain startup transient surge current value and complete the analysis of LED constant flow source design indexes.

It can test current ripple and startup surge current of LED constant flow source



The user can read the MAX current through communication instruction `measure:current:max?` to obtain startup transient surge current. The current ripple can be tested by the reading of Min value.

To sum up, the new LED special electronic load developed by ITECH with innovative design concept and rigorous LED market research analysis can be applied in the research and development, production and quality analysis stages of LED constant flow source manufacturers for completing the analysis of LED constant flow output parameter (voltage, current) and startup characteristic index. For LED driver with dimming characteristics, the user does not need to prepare a digital signal source as 8912E can output PWM pulse wave, thus significantly reducing the cost and simplifying test procedures. 8912E is a product which can truly satisfy various tests in LED field.