

The Application of Jartul JT63 Series Electronic loads in

ATE automatic test system

Jartul JT631 series electronic load, with its outstanding innovation, can greatly simplify the ATE hardware framework, and reduce the system integration costs and software workload when applied in the ATE automatic test system.

Jartul electronic load, with synchronous 500KHz sampling technology and built-in intelligence analysis to the voltage and current signals, can achieve ripple test, transient response test, timing measurements, digitizing measurement, etc. So in the comprehensive automatic test, users don't need to spend extra money in buying the oscilloscope and timing acquisition card.

1、Improve the test efficiency

Jartul electronic load provides high accurate & stable measurements with 15Hz output frequency, provides high-speed isolated interface, supports up to 115200 baud rate, provides 512 bytes receiving buffer and significantly shortens the command response time (the longest response time is no longer than the 30mS), so it can effectively reduce test time and improve the test efficiency.

2、Support the transient test

The transient response test is a dynamic test, providing the stable output for the measured power supply periodically switching between two programmed load conditions.

In response to the current jump of the electronic load, the CV power supply will output ring voltage which causes the power supply feedback loop in disorder and forms voltage overshoot and voltage drop, thereby affecting the equipment operation reliability, and even damaging the voltage sensitive components. The transient response test can not only assess this performance from application aspect, but also reveal the critical defects causing the instability from the production aspect, such as the output capacitance's ESR, ESL, capacity, the feedback loop response time, phase margin and the system maximum transient output current, etc.

The transient test has a very high requirement for the speed of the electronic load. It requires the electronic load, in dynamic load, support current slew rate programmable and have the fast current rising time. Jartul electronic load not only supports current slew rate programmable, but also is one of the electronic loads with fastest current rising time. The full range current rising time of the JT63 series electronic load is 10uS.

The transient test also needs to detect the voltage overshoot and voltage drop. The traditional ATE system needs to use the high-end digital oscilloscopes to capture the voltage overshoot and voltage drop. But if using Jartul electronic load, the oscilloscope is not needed. Users can use Jartul electronic load's innovative peak detection function to directly read the voltage overshoot value (Vp +) and the voltage drop value (Vp-)

3. Support the ripple test

Ripple test has always been a difficult point of ATE system. The traditional ATE systems must use the oscilloscope to detect the ripple, but since the oscilloscope cannot differentiate the ripple from the PARD and the PARD is closely related with the test methods, equipment, and electromagnetic environment, so it is difficult to achieve a reliable automatic test.

Jartul electronic load not only supports ripple voltage (Vpp) and ripple current (Ipp) real-time measurement, but also filters the high-frequency PARD. The measured value is the result of the AC power ripple and switching ripple. It can from the production level reveal some critical defects such as the secondary inductor and output capacitance.

4. Support Timing Test

Timing test is also a difficult point of the ATE system. The traditional ATE system can achieve the timing test by using a timing acquisition card, supplemented by professional data processing. Both the hardware and software cost is very high.

Jartul electronic load, built-in timing test function, can capture the voltage and current signals and make a level trigger to the trigger input port at the rear panel edge, and automatically calculate the time difference between these two trigger signals with 1mS accuracy. This function can make users get rid of the timing acquisition card and easily achieve the power supply startup time / hold time measurement, etc.

5. Support multi-channel power supply test

Testing the multi-channel power supply requires the synchronous control of several loads. The traditional ATE system often adopts modular electronic load. But modular electronic loads are very expensive. Jartul electronic load, equipped with synchronous control function, can achieve up to 16 loads master-slave synchronous control, satisfying the ATE system requirement for testing the multi-channel power supply.

6. Support digitalizing measurement

In some complicated intelligent application, it requires the electronic load can capture and analyze the waveform of the voltage and the current. Jartul electronic load supports such innovative function with 500 kHz sampling / 16 bits accuracy / 4096 points.

7. Interfaces

Jartul electronic load supports standard SCPI protocols. It can exchange the information with other devices synchronically by matching the trigger input (TRIG) signal, remote disable (RI) signal, Device failure indication (DFI), and trigger output (TRIG_OUT) signal.

Jartul electronic load provides a high-speed isolated standard RS232 interface and a 5V/200mA isolated power source. It can help users to build the system and covert the interface conveniently.

As for RS485 application, Jartul electronic load also provides an extensible SCPI protocol to support the application of multi devices' RS485 bus.

8. Other intelligence applications

Jartul electronic load also supports built-in OCP test. ATE engineers do not need to operate the load frequently and do not need do some professional algorithm processing. Instead, they can easily read the OCP protection point and maximum power protection point when using OCP test function. This can also be applied to the solar battery's ATE.

Jartul electronic load also supports the built-in load regulation test. ATE engineers do not need to know the complex algorithm. They can easily know the load regulation or the power supply's resistance. This can also be applied to the battery's resistance test.

The peak detection function of the Jartul electronic load can be used to the power supply's overshoot detection when doing the start-up test.

Jartul electronic load also support OVP test. It can automatically capture the OVP working point.