

New member joins in the load with analog control

The power industry always needs keep cost under control, while offering reliable products. Under these pressure, strict product testing, dynamic application simulation and quality assurance measures are essential. ITECH is deeply aware of the importance of reliability and performance as we have provided the industry with a variety of power supplies and loads, including the brand new high-power density electronic load IT8900A/E which has both the high-performance and cost-effective strengths.

Most test instruments have RS232, USB, GPIB or LAN communication interfaces, through which the instruments can be controlled by the computer via PC software, with the drawbacks of long communication time delay. Analog interface control can overcome the shortcomings of long delay time, which can be used in battery and motor simulation, replacing the internal programming function, i.e. list function. In other words, analog control has strengths of unlimited steps, short delay time and flexible.

ITECH DC power supply IT6500, IT6900B, AC power IT7600, and DC electronic load IT8800, IT8700, IT8900, IT8300 series all have analog control interface. IT8900A/E series electronic load launched this year also has analog interface, which can not only be used for synchronous control of analog signals after paralleling, but also be used to control constant current 0 ~ full scale loading with 0-10V input signals, whose control accuracy can reach 1%. As usual, analog voltage signal is generated by PLC or signal generator (waveform generator), as shown in Figure 1.

Signal generator



Figure 1. Load arbitrary waveforms via analog interface of IT8900A

In countries with extremely advanced industrial automation, such as Germany, analog interfaces for power supplies and loads are almost indispensable, enabling unmanned and automated instrument control. The analog control of IT8900A/E has extremely fast dynamic response. As shown in Fig. 2 and Fig. 3, when the frequency of the analog signal is less than 10 kHz, the phase and amplitude of the load output waveform are in high sync with the analog input signal. The amplitude has little attenuation and the phase lag is less than $\pi/2$.

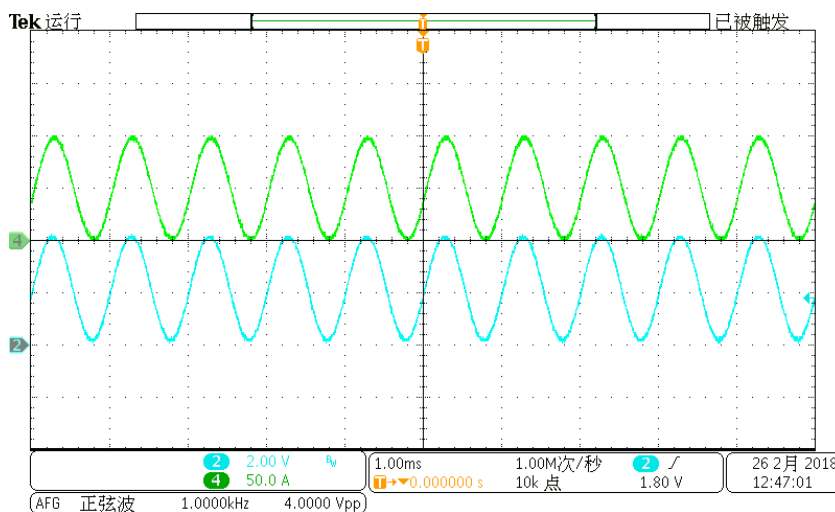


Figure 2. 1 kHz sine wave analog input loading

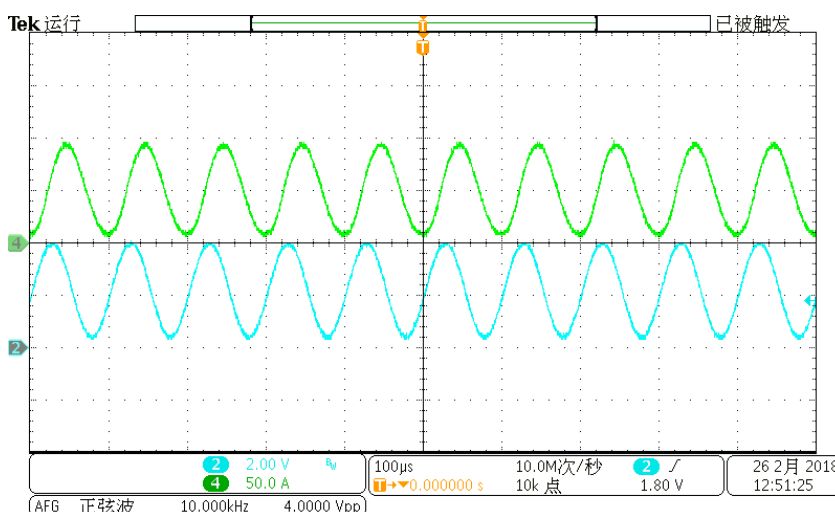


Figure 3. 10 kHz sine wave analog input loading

When testing kilowatt-level and higher power battery products, there are occasions where simulating real-world applications are required for test. ITECH loads all have the list function to edit multiple load current levels, with adjustable frequency, duty cycle, and slope rate. However, when the waveform is extremely complicated, as shown in Figure 4, analog programming can be adopted.

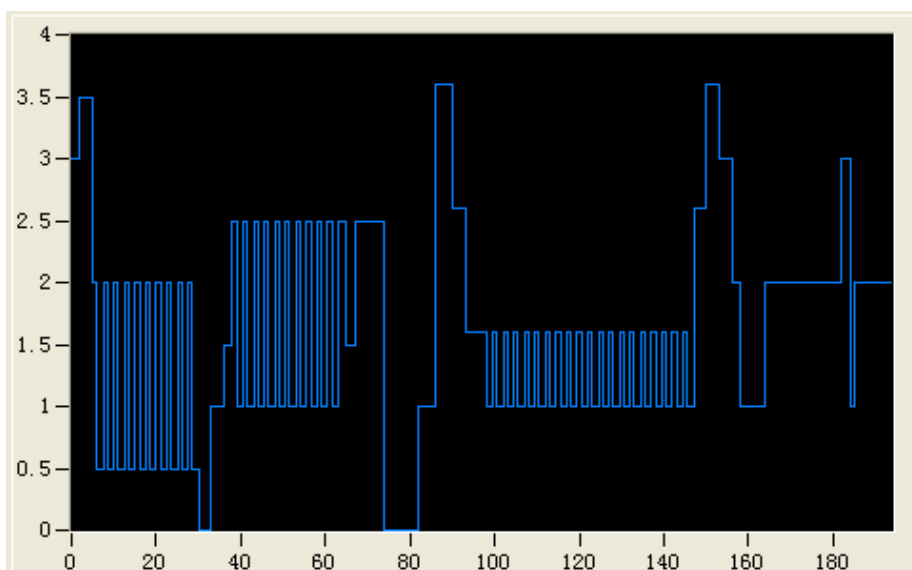


Figure 4. Multi-level current loading of battery test

Note: You must be especially careful when connect an energy storage device such as a battery to the load. With the reverse diode, the load is protected against polarity reversal within the rated current. Because the reverse energy device is similar to a short circuit, we recommend adding an external diode or fuse in the load loop circuit when wiring, as shown in Figure 5.

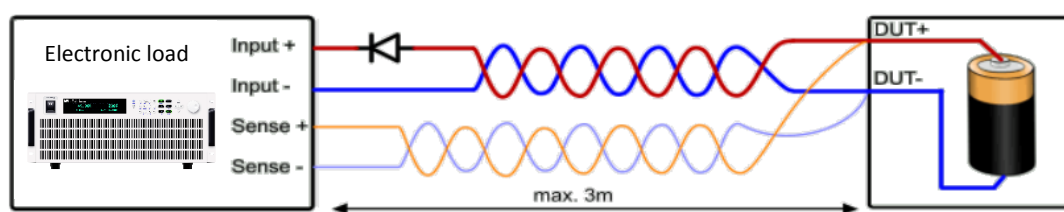


Figure. 5 Connect diode to prevent battery explodes

ITECH offers a wide selection of electronic test equipment, deeply recognizing the test requirement of the market all over the world. The join of IT8900A/E will undoubtedly increase customer selectivity and provide more application possibilities.