



KEY FEATURES

- Unique LED mode for LED power driver test
- Programmable LED operating resistance (R_d)
- Programmable internal resistance (R_r) for simulating LED ripple current
- Fast response for PWM dimming test
- Up to eight channels in one mainframe
- 16-bit precision voltage and current measurement with dual-range
- Full Protection: OC, OP, OT protection and OV alarm

As a constant current source, the LED power driver has an output voltage range with a constant output current. LED power drivers are usually tested in one of the following ways :

1. With LEDs
2. Using resistors for loading
3. Using Electronic Loads in Constant Resistance (CR) mode, or Constant Voltage (CV) mode

However, all these testing methods, each of them has their own disadvantages.

As shown on the V-I curve in Figure 1, the LED has a forward voltage V_f and a operating resistance (R_d). When using a resistor as loading, the V-I curve of the resistor is not able to simulate the V-I curve of the LED as shown on Figure 1. This may cause the LED power driver to not start up due to the difference in V-I characteristic between the resistors and the LEDs. When using Electronic Loads, the CR and CV mode settings are set for when the LED is under stable operation and therefore, is unable to simulate turn on or PWM brightness control characteristics. This may cause the LED power driver to function improperly or trigger its protection circuits. These testing requirements can be achieved when using a LEDs as a load; however, issues regarding the LED aging as well as different LED power drivers may require different types of LEDs or a number of LEDs. This makes it inconvenient for mass production testing.

Chroma has created the industries first LED Load Simulator for simulating LED loading with our 63110A load model from our 6310A series Electronic Loads. By setting the LED power driver's output voltage, and current, the Electronic Load can simulate the LED's loading characteristics. The LED's forward voltage and operating resistance can also be set to further adjust the loading current and ripple current to better simulate LED characteristics. The 63110A design also has increased bandwidth to allow for PWM dimming testing.

Figure 2 shows the dimming current waveform of the LED. Figure 3 shows the dimming current waveform when using 63110A as a load. The 6314A holds up to four 63110A load modules, which will result in an 8-channel 100W/channel load with standard front-panel inputs. This makes it ideal for testing single output and multiple output LED driver. Additionally, the GO/NG output port is useful for UUT's pass/fail testing on an automated production line. All modules on the 6314A/6312A mainframe share a common GPIB address to synchronize and speed up the control of the load modules and the read-back of data.

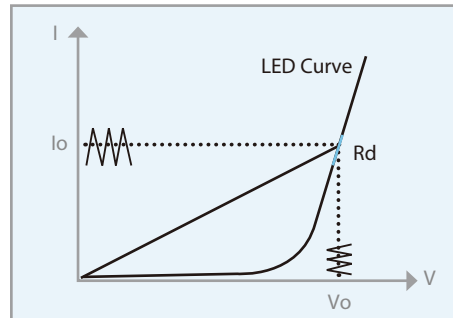


Figure 1 LED V-I Characteristics

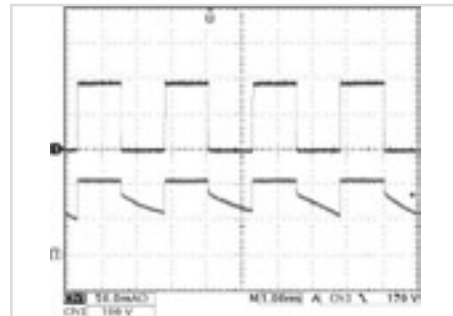


Figure 2 LED dimming test

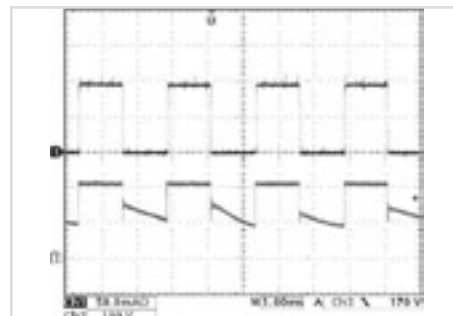


Figure 3 63110A dimming test

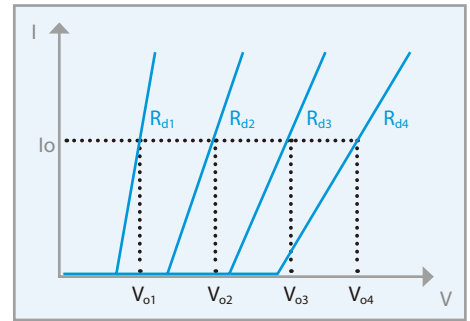


Figure 4 Simulate different number of LEDs

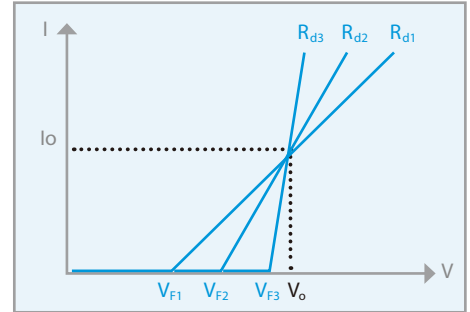


Figure 5 Simulate different characteristic of LEDs



6312A : 2 in 1 Mainframe



6314A : 4 in 1 Mainframe

SPECIFICATIONS				
Model	63110A (100Wx2)		63113A *3	
Power	100W		300W	
Current	0~0.6A	0~2A	0~5A	0~20A
Voltage *1	0~500V		0~300V	
Min. Operating Voltage	6V@2A		4V@20A	
LED Mode				
Range	Operation Voltage: 0~100V/0~500V R _d Coefficient : 0.001~1 V _F : 0~100V/0~500V Current : 0~2A R _d : 1 Ω~1kΩ/10Ω~10kΩ		Operating Voltage : 0~60V/0~300V R _d Coefficient : 0.001~1 V _F : 0~60V/0~300V LEDL @ CCH : 0~60V- 0~20A (R _d : 0.05 Ω~50 Ω) LEDL @ CCL : 0~60V- 0~5A (R _d : 0.8 Ω~800 Ω) LEDH @ CCL : 0~300V- 0~5A (R _d : 4 Ω~4k Ω)	
Resolution *2	V _o : 4mV/20mV I _o : 0.1mA R _d Coefficient : 0.001 R _d : 62.5μs/6.25μs V _F : 4mV/20mV		V _o : 1.2mV/6mV I _o : 100μA/400μA R _d Coefficient : 0.001 R _d : 400μs / 25μs / 5μs V _F : 1.2mV/ 6mV	
Constant Resistance Mode				
Range	CRL : 3 Ω~1k Ω (100W/100V) CRH : 10 Ω~10k Ω (100W/500V)		CRL @ CCH : 0.2 Ω~200 Ω (300W/60V) CRL @ CCL : 0.8 Ω~800 Ω (300W/60V) CRH @ CCL : 4 Ω~4k Ω (300W/300V)	
Resolution*2	CRL : 62.5μS CRH : 6.25μS		CRL @ CCH : 100μS CRL @ CCL : 25μS CRH @ CCL : 5μS	
Accuracy	1kΩ : 4mS+0.2% 10kΩ : 1mS+0.1%		200 Ω : 0.2% (setting + range) 800 Ω : 0.2% (setting + range) 4k Ω : 0.2% (setting + range)	
Constant Voltage Mode				
Range	0~500V		0~300V	
Resolution	20mV		6mV	
Accuracy	0.05% + 0.1%F.S.		0.05% + 0.1%F.S.	
Constant Current Mode				
Range	0~0.6A	0~2A	0~5A	0~20A
Resolution	12μA	40μA	100μA	400μA
Accuracy	0.1%+0.1% F.S.		0.1%+0.1% F.S.	0.1% ± 0.2% F.S.
Measurement Section				
Voltage Read Back				
Range	0~100V	0~500V	0~60V	0~300V
Resolution	2mV	10mV	1.2mV	6mV
Accuracy	0.025%+0.025% F.S.		0.025%+0.025% F.S.	
Current Read Back				
Range	0~0.6A	0~2A	0~5A	0~20A
Resolution	12μA	40μA	100μA	400μA
Accuracy	0.05%+0.05% F.S.		0.05%+0.05% F.S.	

NOTE*1 : If the operating voltage exceeds 1.1 times of the rated voltage, it would cause permanent damage to the device.

NOTE*2 : S (siemens) is the SI unit of conductance, equal to one reciprocal ohm.

NOTE*3 : Call for availability