



63110A LED Load Simulator

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Instructions for Chroma LED Electronic Load 63110A with 6314A or 6312A Mainframe

6312A Mainframe
Holds 2 Modules and
up to 4 Channels



6314A Mainframe
Holds 4 Modules and
up to 8 Channels



63110A LED Load will work
in either Mainframe

Instructions for Chroma LED Electronic Load 63110A with 6314A or 6312A Mainframe

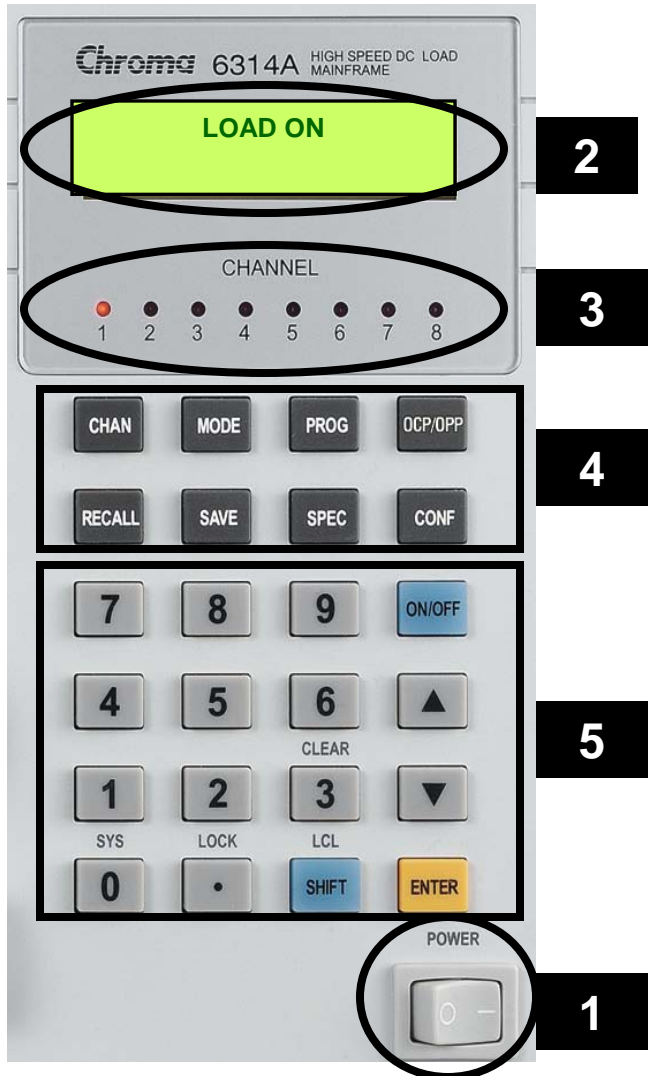


The LED Load 63110A must be used with the 6314A or 6312A Mainframe.

- The following instructions will work for either Mainframe.
- The only difference is the number of Load Channels (6314A has 8 load channels and 6312A has 4 Load Channels).
- The 63110A LED Load Module has 2 Loads in one module and uses 2 Load channel ID's.



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1. Line switch
2. LCD display
3. Channel indicator
4. Function keys

Turn the ac power on/off.
Display channel information normally.
Indicate the active channel settings.

CHAN

To select a channel for settings.

MODE

To select a mode for settings.

PROG

To select a program for settings or running.

OCP/OPP

To select OCP or OPP mode.

RECALL

To recall the saved settings from EEPROM, and all channel's settings from specified files (1 to 101), OCP files (1 to 10) and OPP files (1 to 10). Recalling file 101 recalls the factory default settings. Recalling program is from **PROG**, number 1 to 10.

SAVE

To save all of the present mode settings of all channels in the specified files (1 to 100). To save OCP mode settings of all channels in the OCP files (1 to 10). To save OPP mode settings of all channels in the OPP files (1 to 10). Saving

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4

5

4. cont.

SPEC

program is from 1 to 10. Saving DEFAULT saves the status of all channels for the next time the electronic load is turned on. All saved settings are stored in EEPROM, and will not be lost when the ac power is cycled.

To select specification data for editing, or to enable SPEC function.

CONF

To select configuration data for editing.

5. Entry keys

▲ ▼

They let you scroll through choices in a parameter list that is applied to a specific command. Parameter lists are circular. You can return to the starting position by pressing either of the keys continuously.

ON/OFF

It toggles the output of the electronic load between on and off states if channel SYNC. RUN is set at on.

ENTER

It executes the entered value or the parameter of the presently accessed command. The parameters you have entered with other keys are displayed but not entered into the load until you press this key. Before pressing **ENTER** you can change or abort anything previously entered into the display.

SHIFT

It enables a shifted key to function (LOCK, SYS). When in remote control state, this key acts as the local key.

SHIFT + **3**

The "CLEAR" key lets you correct wrong digits before they are entered.

0-9

They are used for entering numeric values.

.

It is a decimal point.

63110A Load Module button information



The 63110A load module has 4 buttons on the front:

L/R : This selects the readings on the display for the Left or Right Load in the Module. Indicated by the L or R LED on the left side of the Display

MEAS : Measure Button will select the type of measurements that will be displayed on the Load Module Display. Indicated by the V / W and A / W LEDs on the Right side of the Display.

SHORT : This turns the Load Module on to its lowest impedance to simulate a Short Circuit.

LOAD : This button activates the Load On or Off.

You will need to know the following parameters based on you LED Driver Specification or from the LED or LED Array specification that you want to simulate.

The Parameters are :

Vo : LED Operating Voltage or Output voltage of the LED driver

Io : LED Array Operating Current or Output Current of the LED Driver

Vf : The Forward bias voltage rating for the LED array to be simulated

You can also use the following in place of the Vf:

Rd : The dissipating resistor for the LED Array

Rd coeff : The Rd coefficient derived by the formula $(V_o - V_f) / I_o$

STEP 1 --- Select the Channel for the load you are setting



- Each Load has a Channel Number based on its location in the 6312A or 6314A Mainframe.
- The Channels are numbered from Left to Right starting with 1
- For the 6314A there are 8 Channels.
- For the 6312A there are 4 Channels.
- The Controller for the Mainframe has indicators to show what Load you are setting and programming.

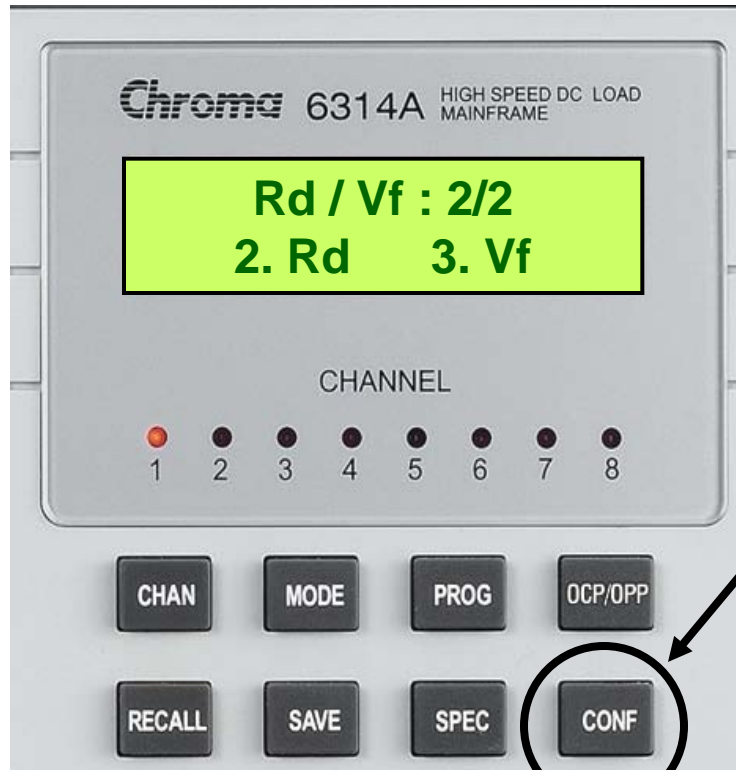
For this example select Channel 1 by pressing the Channel Button until the Channel 1 LED is lit.

STEP 2A --- Configure the LED Settings

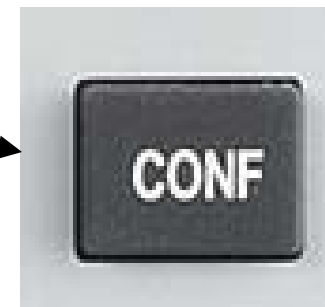


- Using the CONFIGURE Button and the Arrow Keys scroll down until you see the Rd/Vf page 1/2 Select Menu
- By Selecting 0 for Default you will be prompted after selecting the LED Mode to input a value for Rd or Vf which you will select in the next menu
- By selecting 1 for Coefficient you will be prompted, after selecting the LED Mode to enter the Value for Rd Coefficient

STEP 2B --- Configure the LED Settings



- Using the CONFIGURE Button and the Arrow Keys scroll down until you see the Rd/Vf page 2/2 Select Menu
- By Selecting 2 for Rd you will be prompted after selecting the LED Mode to input a value for Rd.
- By selecting 3 for Vf you will be prompted, after selecting the LED Mode to enter the Value for Vf



STEP 3 --- Select the MODE and Range



By Pressing the MODE button you can select the LED Mode:
LEDL = LED Mode Low Range (100V, 2A) 100Watts Max.
LEDH = LED Mode High Range (500V, 600mA) 100Watts Max.

STEP 4 --- Enter LED Operating Voltage V_o and LED Current I_o . If you selected the High Range it will be LEDH V_o and LEDH I_o , for the Low Range it will be LEDL V_o and LEDL I_o . (Note : Max Wattage per load channel is 100Watts)



STEP 5 --- Enter LED Forward Voltage Vf. After entering the Vo and the Io the Vf will be on the next screen.



Vf is the Forward Bias Voltage of the LED Array. For High Intensity LED's the Vf is typically 3.5Vdc per each LED if you have 12 LED's in the Array the Vf would be approximately $(12 \times 3.5) = 42 \text{ Vdc}$

STEP 6 --- Some LED Drivers will go into OVP and shut down if no load is applied. It is practical to have the Load set and activated prior to turning on the LED Driver.

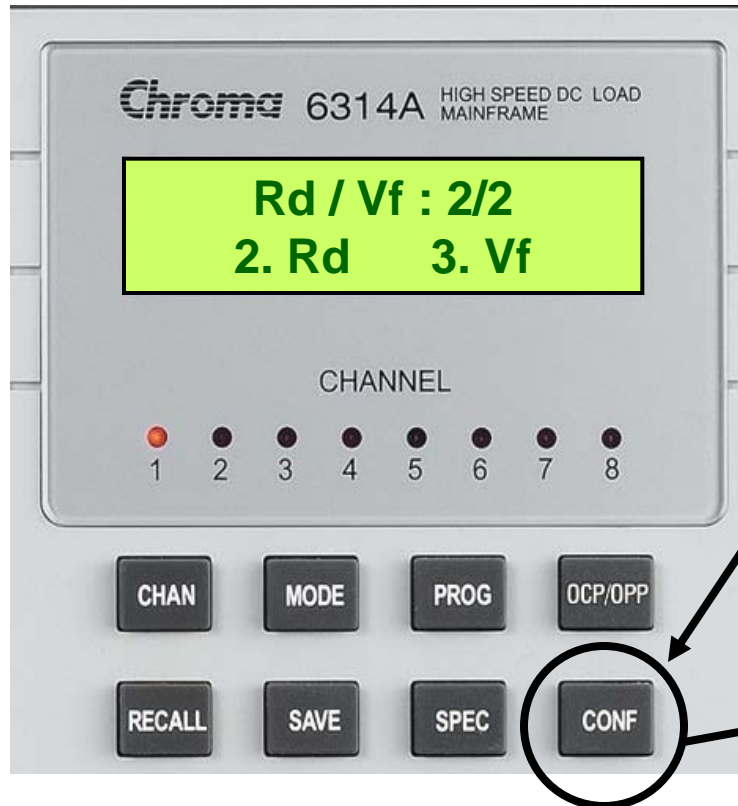


After setting all the load parameters in the previous steps now you can activate the load by pressing the ON/OFF button on the Load Controller and the display will indicate "LOAD ON"



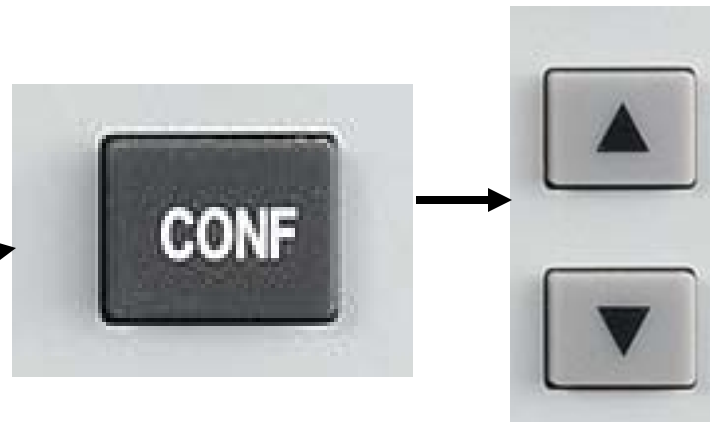
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STEP 7 --- Change the settings from Vf to Rd or Rd coef



Using the CONFIGURE Button and the Arrow Keys scroll down until you see the Rd/Rf Select Menu

- By Selecting 2 for Rd you will be prompted after selecting the LED Mode to input a value for Rd.



STEP 8 --- Select the MODE and Range



By Pressing the MODE button you can select the LED Mode:
LEDH = LED Mode High Range (500V, 600mA) 100Watt Max.
LEDL = LED Mode Low Range (100V, 2A) 100Watt Max.

STEP 9 --- Enter LED Impedance Rd. After selecting the Mode in step 8 you will see the Vo and Io settings as shown on Step 4 and the next display will be for the Rd setting.



Rd is the dynamic impedance of the LED at its operating point.

Example: $V_o = 45V_{dc}$

$V_f = 42V_{dc}$

$I_o = 0.35Amps$

Then $R_d = (45V - 42V) / 0.35A$

$R_d = 8.6 \Omega$

STEP 10 --- Some LED Drivers will go into OVP and shut down if no load is applied. It is practical to have the Load set and activated prior to turning on the LED Driver.



After setting all the load parameters in the previous steps now you can activate the load by pressing the ON/OFF button on the Load Controller and the display will indicate "LOAD ON"



STEP 11 --- With the Load Parameters set and the load activated now you can turn on the LED Driver. The 63110A Load Module display will show the actual Current from the LED Driver and the Voltage. These readings are the actual output from the LED Driver and will not match the settings.



The readings that appear on the 63110A Load Display are based on the current supplied by the LED Driver and the Voltage supplied from the LED Driver to maintain the current through the load. The Voltage and Current DO NOT match the settings for V_o , V_f , or I_o

STEP 12 --- Using the Rr setting on the 63110A to measure the Ripple current on the LED Driver under test.



Rr is the setting for the internal impedance for ripple current testing. Rr should be off when testing the LED Driver for Load Reg. Line Reg. and PWM Dimming. Only set the Rr on when testing output ripple current.

STEP 13 --- Using the Rr setting on the 63110A to measure the Ripple current on the LED Driver under test.



To select the Default or Setting for the Rr mode you need to press the CONF key and then select 1 for default or 2 for Set.
Default will set the Rr to the same value as the Rd. Set allows you to set the Rr value.

STEP 14A --- Using the Rr setting on the 63110A to measure the Ripple current on the LED Driver under test.

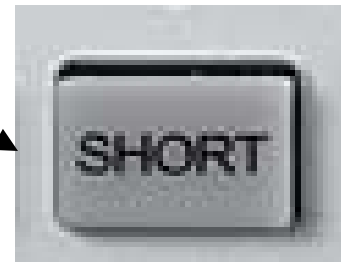


The Rr value can be set from 5Ω to 125Ω. When Rr is on the SHORT key on the LED Load Module becomes the activation key for the Rr. SHORT key pressed will allow you to see the ripple current of the high frequency portion of the output voltage.

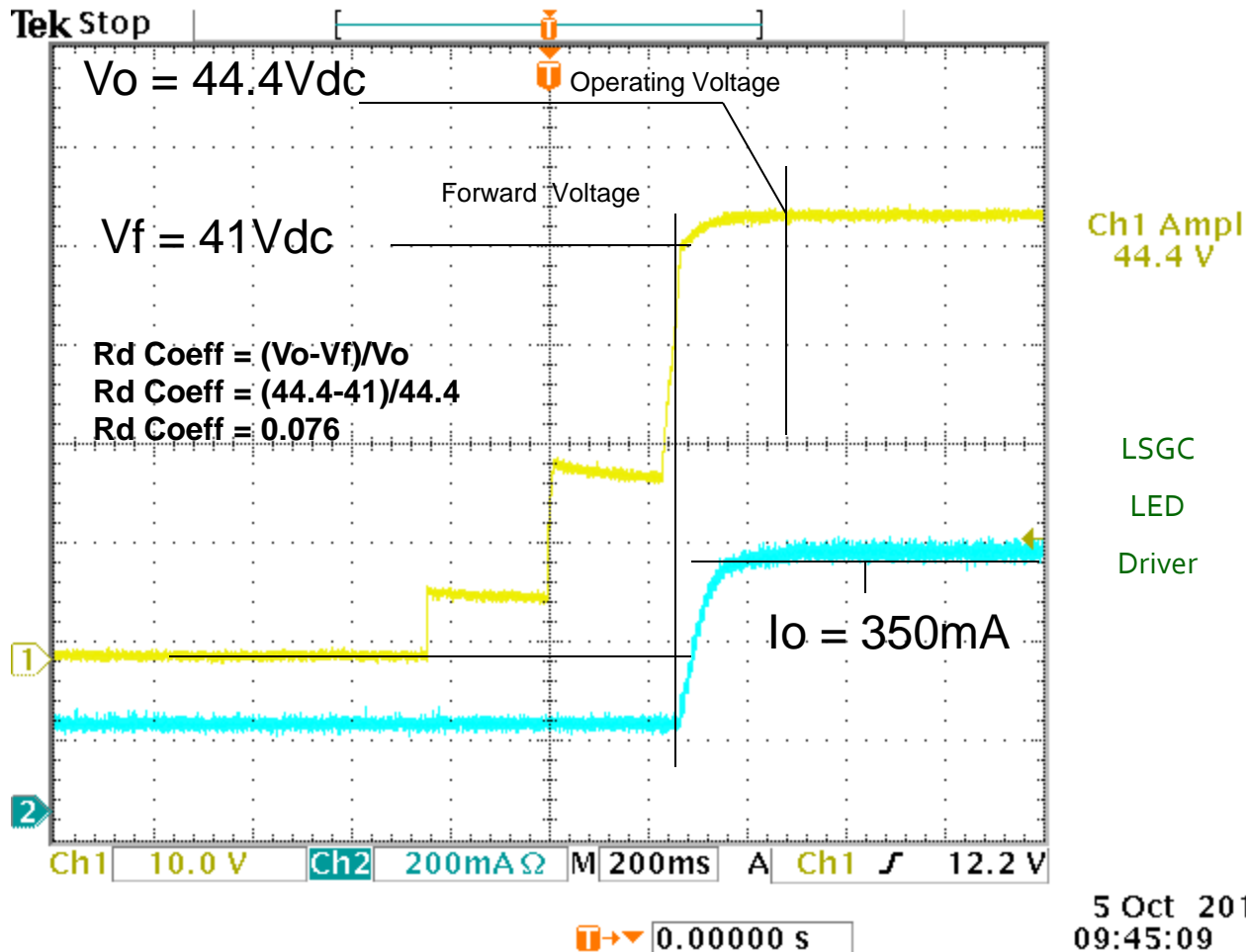
STEP 14B --- Using the Rr setting on the 63110A to measure the Ripple current on the LED Driver under test.



After the Rr value is set. The SHORT key on the LED Load Module becomes the activation key for the Rr. SHORT key pressed will allow you to see the ripple current of the high frequency portion of the output current.



Observing the Turn-On Voltage and current from the LED driver with the Chroma 63110A Load attached, shows the characteristic Voltage ramp up and the current starting at the point where V_f occurs.



Thank you for thinking of Chroma Systems Solutions



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