

Programmable DC Electronic Load

6310A/6330A Series

Quick Start Guide

Programmable DC Electronic Load 6310A/6330A Series Quick Start Guide



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CHROMA ATE INC.

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Material Contents Declaration

The recycling label shown on the product indicates the Hazardous Substances contained in the product as the table listed below.



: See <Table 1>.



: See <Table 2>.

<Table 1>

Part Name	Hazardous Substances					
	Lead	Mercury	Cadmium	Hexavalent Chromium	Polybrominated Biphenyls	Polybromodiphenyl Ethers
	Pb	Hg	Cd	Cr ⁶⁺	PBB	PBDE
PCBA	O	O	O	O	O	O
CHASSIS	O	O	O	O	O	O
ACCESSORY	O	O	O	O	O	O
PACKAGE	O	O	O	O	O	O

“O” indicates that the level of the specified chemical substance is less than the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

“x” indicates that the level of the specified chemical substance exceeds the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

Disposal

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new one, the retailer is legally obligated to take back your old appliances for disposal at least for free of charge.



<Table 2>

Part Name	Hazardous Substances					
	Lead	Mercury	Cadmium	Hexavalent Chromium	Polybrominated Biphenyls	Polybromodiphenyl Ethers
	Pb	Hg	Cd	Cr ⁶⁺	PBB	PBDE
PCBA	×	○	○	○	○	○
CHASSIS	×	○	○	○	○	○
ACCESSORY	×	○	○	○	○	○
PACKAGE	○	○	○	○	○	○

“○” indicates that the level of the specified chemical substance is less than the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

“×” indicates that the level of the specified chemical substance exceeds the threshold level specified in the standards of SJ/T-11363-2006 and EU 2005/618/EC.

1. Chroma is not fully transitioned to lead-free solder assembly at this moment; however, most of the components used are RoHS compliant.
2. The environment-friendly usage period of the product is assumed under the operating environment specified in each product's specification.

Disposal

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new one, the retailer is legally obligated to take back your old appliances for disposal at least for free of charge.





Declaration of Conformity

For the following equipment :

DC ELECTRONIC LOAD

(Product Name/ Trade Name)

6310A Series:

6312A, 6314A, 63101A, 63102A, 63103A, 63105A, 63106A, 63107A, 63108A, 63112A;

6330A Series:

6332A, 6334A, 63301A, 63302A, 63303A, 63305A, 63306A, 63307A, 63308A, 63312A.

(Model Designation)

Chroma ATE Inc.

(Manufacturer Name)

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan.

(Manufacturer Address)

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC). For the evaluation regarding the Directives, the following standards were applied :

EN 61010-1:2001

EN 61326-1:2006, Table 2

CISPR 11:2003+A1:2004+A2:2006,(Class A); IEC 61000-4-2:1995+A1:1998+A2:2000;

IEC 61000-4-3:2002+A1:2002; IEC 61000-4-4:2004; IEC 61000-4-5:1995+A1:2000;

IEC 61000-4-6:1996+A1:2000; IEC 61000-4-8:1993+A1:2000; IEC 61000-4-11:2004

EN 61000-3-2:2000+A2:2005; EN 61000-3-3:1995+A1:2001+A2:2005

The following importer/manufacturer or authorized representative established within the EUT is responsible for this declaration :

Chroma ATE Inc.

(Company Name)

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan.

(Company Address)

Person responsible for this declaration:

Mr. Benjamin Huang

(Name, Surname)

T & M BU Director

(Position/Title)

Taiwan

2008.10.01

(Place)

(Date)

Benjamin Huang
(Legal Signature)



Declaration of Conformity

For the following equipment :

LED Load Simulator

(Product Name/ Trade Name)

Chroma 63110A, 63310A Load Module

(Model Designation)

Chroma ATE Inc.

(Manufacturer Name)

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan.

(Manufacturer Address)

Is herewith confirmed to comply with the procedures given in European Council Directive (2004/108/EC) and Low-voltage Directive (2006/95/EC). For the evaluation regarding the Directives, the following standards were applied :

EN 61326-1:2006 Class A

EN61000-3-2:2006, EN61000-3-3:1995+A1:2001+A2:2005

EN61326-1:2006 (industrial locations)

IEC 61000-4-2:1995+A1:1998+A2:2000; IEC 61000-4-3:2006; IEC 61000-4-4:2004;

IEC 61000-4-5:2005; IEC 61000-4-6:2006; IEC 61000-4-8:2001; IEC 61000-4-11:2004

EN 61010-1:2001

The following importer/manufacturer or authorized representative established within the EUT is responsible for this declaration :

Chroma ATE Inc.

(Company Name)

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(Company Address)

Person responsible for this declaration:

Mr. Benjamin Huang

(Name, Surname)

T & M BU Director

(Position/Title)

Taiwan

2010.05.18

(Place)

(Date)

Benjamin Huang
(Legal Signature)



Declaration of Conformity

For the following equipment :

DC Electronic Load

(Product Name/ Trade Name)

63123A, 63323A Load Module

(Model Designation)

Chroma ATE Inc.

(Manufacturer Name)

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan.

(Manufacturer Address)

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC). For the evaluation regarding the Directives, the following standards were applied :

EN 61010-1:2001

EN 61326-1: 2006, Table 2

EN 61000-3-2:2006, Class A; EN 61000-3-3:1995+A1:2001+A2:2005

CISPR 11:2003+A1:2004+A2:2006,(Class A); IEC 61000-4-2:1995+A1:1998+A2:2000;

IEC 61000-4-3:2006; IEC 61000-4-4:2004; IEC 61000-4-5:2005; IEC 61000-4-6:2007

IEC 61000-4-8:1993+A1:2000;IEC 61000-4-11:2004

The following importer/manufacturer or authorized representative established within the EUT is responsible for this declaration :

Chroma ATE Inc.

(Company Name)

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan.

(Company Address)

Person responsible for this declaration:

Mr. Benjamin Huang

(Name, Surname)

T & M BU Director

(Position/Title)

Taiwan

2010.07.08

(Place)

(Date)

Benjamin Huang
(Legal Signature)

WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or specific WARNINGS given elsewhere in this manual will violate safety standards of design, manufacture, and intended use of the instrument. *Chroma* assumes no liability for the customer's failure to comply with these requirements.



BEFORE APPLYING POWER

Verify that the power is set to match the rated input of this power supply.



PROTECTIVE GROUNDING

Make sure to connect the protective grounding to prevent an electric shock before turning on the power.



NECESSITY OF PROTECTIVE GROUNDING

Never cut off the internal or external protective grounding wire, or disconnect the wiring of protective grounding terminal. Doing so will cause a potential shock hazard that may bring injury to a person.



FUSES

Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired fuses or short-circuited fuse holders. To do so could cause a shock or fire hazard.



DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the instrument in the presence of flammable gases or fumes.



DO NOT REMOVE THE COVER OF THE INSTRUMENT

Operating personnel must not remove the cover of the instrument. Component replacement and internal adjustment can be done only by qualified service personnel.

Precautions before Use

1. The Electronic Load is for indoor use only.
2. The altitude up to 2000 meters is allowed to use the Electronic Load.
3. All specifications are tested under 20°C ~ 30°C except stated otherwise.
4. The range of operating temperature is 0°C ~ 40°C.
5. The range of storage temperature is 0°C ~ 60°C.
6. The operating relative humidity is from 30% to 90%.
7. The storage relative humidity is from 10% to 95%.
8. The transient overvoltage at Mains supply is 2500V.
9. To meet the safety requirements, load wires must be thick enough not to overheat while carrying the short-circuit output current of the device connected to the electronic load.
10. The load module can be damaged by electronic discharge (static electricity). Use standard anti-static work practices when handling and installing the modules. Avoid touching the connectors and the circuit board.
11. The electronic load must be installed in a location that has enough space at the top, around the sides, and the rear of the unit for adequate air flow. At least 15 cm (5 inch) space above the unit is required for adequate air circulation. Note that the unit must have enough vertical space for air circulation when it is stacked.
12. If equipment is installed on top of the electronic load in a cabinet, the user must install a filter panel above the unit to ensure adequate air circulation. A 1U (EIA standard) panel is sufficient.
13. The electronic load can operate with a 115/230 Vac input as indicated on the rear LINE label. The 100/200 line voltage input model is used in Japan only. If the factory set switch on this label that does not correspond to the local nominal line voltage, turn off the Mainframe power and disconnect the power cord.
14. When connecting the load cable to the load module, do not use a load cable to connect a load module and short circuit other load modules, or it may cause the load cable to burn out when loading larger current.
15. This equipment is not intended for performing measurements on CAT I, II, III or IV.
 - * CAT IV – is for measurements performed at the source of the low-voltage installation.
 - * CAT III – is for measurements performed in the building installation.

- * CAT II – is for measurements performed on circuits directly connected to the low-voltage installation.
- * CAT I – is for measurements performed on circuits directly connected to mains.

Safety Symbols



DANGER – High voltage.



Explanation: To avoid injury, death of personnel, or damage to the instrument, the operator must refer to an explanation in the instruction manual.



High temperature: This symbol indicates the temperature is now higher than the acceptable range of human. Do not touch it to avoid any personal injury.



Protective grounding terminal: To protect against electrical shock in case of a fault. This symbol indicates that the terminal must be connected to ground before operation of equipment.



The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.



The **CAUTION** sign denotes a hazard. It may result in personal injury or death if not noticed timely. It calls attention to procedures, practices and conditions.

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1. Overview of Key Features

A. Configuration of Mainframe

- Flexible configuration with plug-in electronic load modules in mainframes.
- Local operation via front panel keypad.
- Remote control via optional GPIB/USB or standard RS-232C interface.
- Photocoupler isolation offers true floating Load.
- Automatic fan speed control to reduce noise.
- Up to 8 channels in one Mainframe.

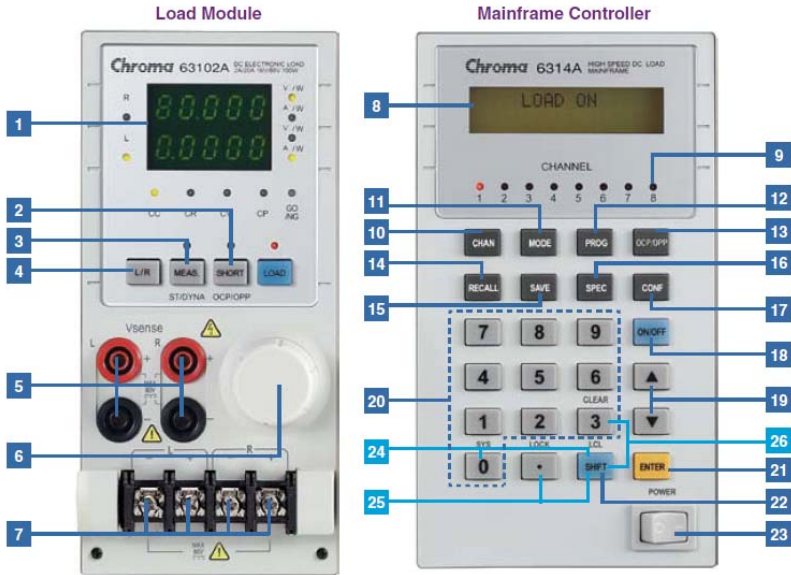
B. Function of Load Module

- Constant current (CC), constant resistance (CR), constant voltage (CV), and constant power (CP) operation modes.
- Programmable slew rate, load levels, load periods and conduct voltage (Von).
- Programmable dynamic loading with speeds up to 20kHz.
- Minimum input resistance allows load to sink high current even with low input voltage (1 V).
- Selective voltage and current ranges.
- Remote sensing capability.
- 100 sets of memories to save/recall user-definable setups.
- 10 sets of OCP memories to save/recall user-definable setups.
- 10 sets of OPP memories to save/recall user-definable setups.
- 10 sets of programs to link files for automatic test.
- 16-bit A/D converter offers precision measurements.
- Short circuit simulation.
- Automatic GO/NG inspection to confirm UUT is within spec.
- Independent GO/NG signals for each channel.


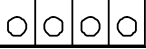





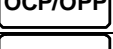
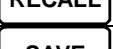





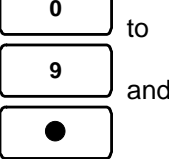


2. Function Keys

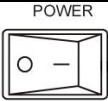
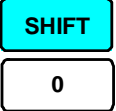
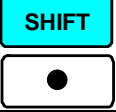

2.1 Front Panel

PANEL DESCRIPTION

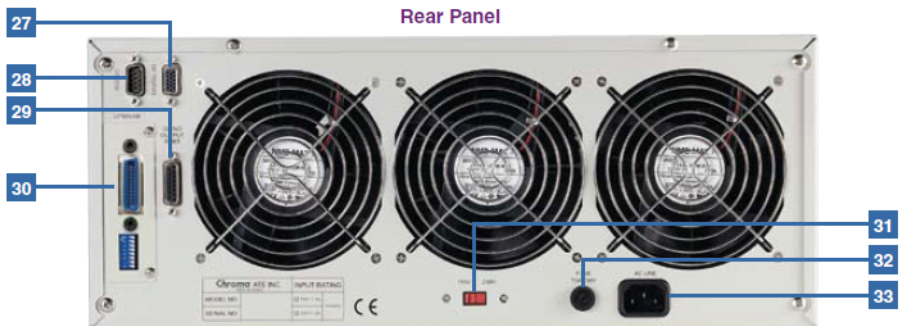


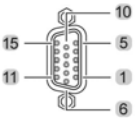

Item	Symbol	Description
1		It is the LED Indicator.
2	SHORT	It applies a short circuit across the input.
3	MEAS.	It changes measurement V/A, W/A, V/W.
4	L/R or A/B	L/R key: It selects left or right channel of input load (63102A, 63107A). A/B key: It selects left or right channel of input load (other models).
5		V terminal: It measures the UUT's output voltage using remote sense.

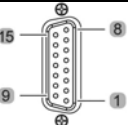
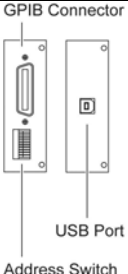
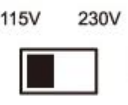

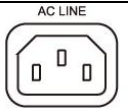
Item	Symbol	Description
6		Rotary knob: It adjusts the load setting continuously.
7		Load terminal: It connects the cable.
8		It is the LCD Display.
9		LED Indicator: It displays the channel at which load is set.
10		It selects the input load channel.
11		It selects the operation mode of CC, CR, CV, or CP.
12		It sets the program data.
13		It is for Over current protection / Over power protection testing.
14		It recalls the front panel input status from memory.
15		It saves the front panel input status to the memory.
16		It sets up the High/Low limits for GO/NG test.
17		It sets the configuration.
18		It enables or disables the load input.
19		Up/Down key: It selects the next or previous display in edit mode.
20		Numeric keys: They are for data setting.
21		It confirms the editing data on the instrument
22		It is as LOCAL key when in remote mode.

Item	Symbol	Description
23		It is the power switch.
24		It activates the system function.
25		It enables the lock function.
26		It clears the currently edited data.

2.2 Rear Panel



Item	Symbol	Description
27		Digital I/O: Used for system input/output control signals
28		RS-232C connector

Item	Symbol	Description
29		GO/NG output port
30		GPIB or USB slot
31		AC Input voltage switch
32		AC Input fuse
33		AC Input

3. Installation

 **Notice**

1. The equipment is for indoor use only.
2. The altitude up to 2000 meters is allowed to use the equipment.
3. All specifications are tested under 20°C ~ 30°C except stated otherwise.
4. The range of operating temperature is 0°C ~ 40°C.
5. The range of storage temperature is 0°C ~ 60°C.
6. The operating relative humidity is from 30% to 90%.
7. The storage relative humidity is from 10% to 95%.
8. The specifications of DC current accuracy are tested after the input is applied for 30 seconds.
9. The power of the load module of 6310A (6330A) series is supplied from 6314A/6312A (6334A/6332A) mainframe.
10. The typical temperature coefficient is 100ppm.
11. The specifications of CR mode accuracy: mho(S) means 1/ohm.
12. The transient overvoltage at Mains supply is 2500V.
13. Pollution Degree: 2.

 **CAUTION**

- This equipment is not intended for performing measurements on CAT I, II, III or IV.
- * CAT IV – is for measurements performed at the source of the low-voltage installation.
 - * CAT III – is for measurements performed in the building installation.
 - * CAT II – is for measurements performed on circuits directly connected to the low-voltage installation.
 - * CAT I – is for measurements performed on circuits directly connected to mains.

3.1 Inspection & Standard Accessories

As soon as the device is unpacked, inspect any damage that might have occurred during shipment. Keep all packing materials in case the Load or the Mainframe has to be returned. If any damage is found, please file a claim with the carrier immediately. Do not return the instrument to Chroma without prior approval.

Please ensure that the following items are received along with the Mainframe and Load.

Load Frame: 6312A, 6314A, 6332A, 6334A Standard Accessory

Item	Qty	Remarks
6312A/6314A E-file CD	1	Chinese/English
Quick Start Guide	1	Chinese/English
US Standard Power Cord	1	Length 1.8 meter

Load Module: 63101A, 63103A, 63105A, 63113A, 63123A, 63301A, 63303A, 63305A, 63313A, 63323A Standard Accessory

Item	Qty	Remarks
Measurement Cable	1	Red and black in a set
Load Cable	2	Length 75 cm

Load Module: 63102A, 63107A, 63110A, 63302A, 63307A, 63310A Standard Accessory

Item	Qty	Remarks
Measurement Cable	1	Red and black in a set
Load Cable	2	Length 75 cm


Load Module: 63106A, 63108A, 63306A, 63308A Standard Accessory

Item	Qty	Remarks
Measurement Cable	1	Red and black in a set
Load Cable	2	Length 75 cm


Load Module: 63112A, 63312A Standard Accessory

Item	Qty	Remarks
Measurement Cable	1	Red and black in a set
Load Cable	2	Length 80 cm

3.2 Installing the Modules

 **CAUTION** ■ The load module can be damaged by electronic discharge (static electricity). Use standard anti-static work practices when handling and installing the modules. Avoid touching the connectors and the circuit board.

The Chroma 6314A/6334A Mainframe has room for four single-width Loads (63102A/63302A, 63103A/63303A), or two double-width Loads (63106A/63306A). The Loads can be combined in the Mainframe in any order. The Chroma 6312A/6332A mainframe has room for only two single-width Loads or one double-width Load. The procedures for the module installation in both Mainframes are the same. Only a screwdriver is required to install the Load to the Mainframe. The LED simulation load 63110A can only be placed in the frame of 6312A and 6314A for use. The frame of 6312 and 6314 is invalid. The LED mode only appears when the 6312A and 6314A frame detects the LED simulation load.

 **Notice** ■ 6310A Series load module can be installed in the frame of 6310 Series; however, the operation modes and functions are limited to 6310 Series. The 6310 Series module is unable to use the frame of 6314A & 6312A.

Procedures:

1. Disconnect the power cord with the Mainframe power off.
2. Remove any packing materials from the Mainframe.
3. Start installing the modules in the slot (see Figure 3-1).
4. Insert the load module into the slot of the Mainframe along the rail.
5. Lock the module in place with a screwdriver (see Figure 3-1).
6. Install each additional module in the slot next to the previous one, likewise if applicable.

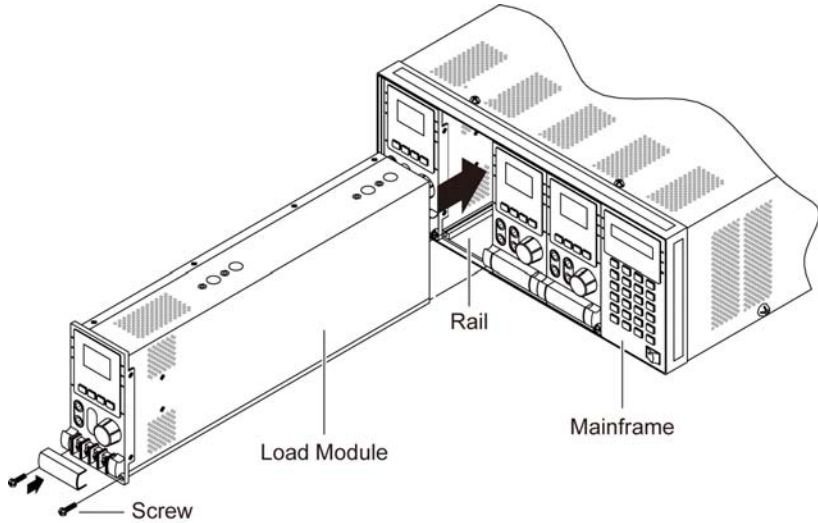


Figure 3-1 Installing Modules in the Electronic Load

3.2.1 Channel Number

The channel number of a specific Load is determined by the location of that module in relation to the leftmost position in the Mainframe. As some Loads 63102A/63302A have two channels in one module, channel 1 and 2 are always on the leftmost slot of the Mainframe, and channel 7 and 8 on the rightmost. The channel number is fixed for the Mainframe even if the Load module is empty. Figure 3-2 shows the channel assignments for a Chroma 6314A/6334A Mainframe containing two Loads, 63103A/63303A single channel/module, and two Loads 63102A/63302A double channel/module. Channel number is automatically assigned to each channel: 1, 3, 5, 6, 7, 8. In this example channels 2 and 4 are not used because they are reserved for multiple channel modules and a single channel module is in that slot. The 6312A/6332A Mainframe has only four channels (1, 2, 3, 4).

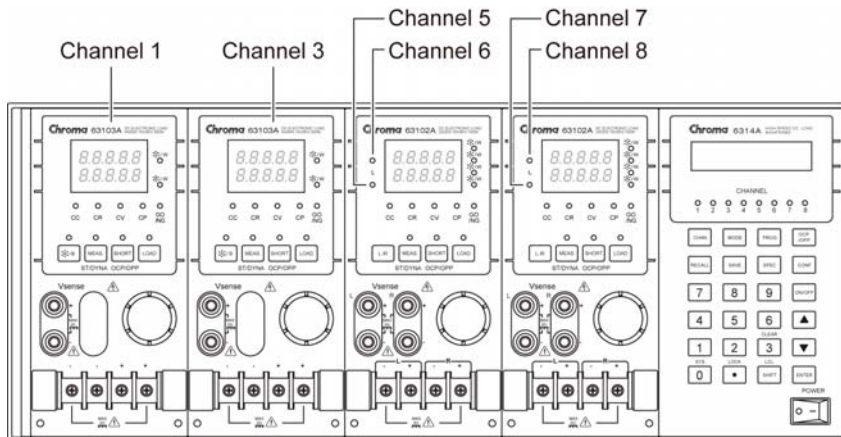


Figure 3-2 Channel Number Example

3.3 Installing the Mainframe

The electronic load can operate well within the temperature range of 0 to 40 degree C. However, the electronic load must be installed in a location that has enough space at the top, around the sides, and the rear of the unit for adequate air flow. At least 15 cm (5 inch) space above the unit is required for adequate air circulation. Note that the unit must have enough vertical space for air circulation when it is stacked. The feet of the Mainframe can be removed for rack mounting.

If equipment is installed on top of the electronic load in a cabinet, the user must install a filter panel above the unit to ensure adequate air circulation. A 1U (EIA standard) panel is sufficient.

3.3.1 Changing Line Voltage

The electronic load can operate with a 115/230 Vac input as indicated on the rear LINE label. The 100/200 line voltage input model is used only in Japan. If the factory set switch on this label does not correspond to the local nominal line voltage, turn off the Mainframe power and disconnect the power cord. Set switch to the correct line voltage as shown in Figure 3-3.

Notice

Line fuses do not need to be changed when the line voltage is changed. The line fuses will protect the electronic load voltage input settings.

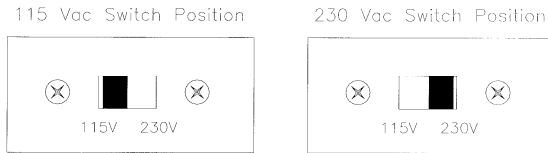


Figure 3-3 Line Voltage Switch

3.3.2 Turn-On Self-Test

Check the following things before turning on the Load.

1. The unit has been set to the correct line voltage. Refer to the line voltage on the rear panel.
2. The power cord is connected to the AC input socket.

Notice

The power provides a chassis ground through a third connector. Be sure that the outlet is a three-conductor type with the correct pin connected to earth ground.

Turn on the Load's power switch on the front panel of the Mainframe and observe the display. Immediately after turning on, the electronic load executes a self-test, which checks the GPIB interface board and the input circuitry of the installed modules. All of the LED segments on the front panel are momentarily activated. The Mainframe displays

GPIB ADDRESS = 1

and then

LOAD MODULE
CHANNEL SCANNING

The LCD displays the GPIB address for power-on condition. The GPIB address switch is on the rear panel if the GPIB card is installed. If the

GPIB card is not installed, the LCD will show LOAD MODULE CHANNEL SCANing and checks the existing channels. The LED segments on the front panel are momentarily activated. If the Mainframe fails any portion of the self-test, the LED will blink and the LCD will have no display. When the self-test completes, the Mainframe will display the active channel.

The Load module also executes a self-test that checks firmware and communicates with the Mainframe. All of the LEDs on the front panel are momentarily activated, and the 7-segment LED displays the model number as well as the firmware version. If any error is found in self-test, the display will stop here. Check the Load and Mainframe connections if an error occurs. When the self-test completes, the 7-segment will display V & I measurements. The double channel/module goes to the L channel.

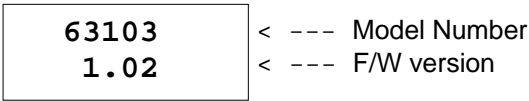


Figure-3-4 Module Panel Self-test Display

In case of failure, return the Mainframe or Load module to Chroma sales or service office for repair services.

3.4 Application Connection

3.4.1 Load Connections



- To meet the safety requirements, load wires must be
- thick enough not to overheat while carrying the
- short-circuit output current of the device connected to
- the electronic load.

Before connecting the load wires to the Load module, remove the terminal cover from the Load. Re-install the cover after the load wires are connected. Input connections are made to the + and – terminal block on the front of each Load module. The major considerations in making the input connections are the wire size, length and polarity. The minimum wire size required to prevent the overheating may not be enough to maintain good regulation, so ensure that the wires are thick enough to limit the voltage drop to no more than 0.5V per lead. The wires should be as short as possible and bundled or tied together to minimize inductance and

noise picked up by them. Connect the wire from the PLUS (+) terminal on the module to the HIGH potential output terminal of the power supply (UUT). Connect the wire from the MINUS (–) terminal on the module to the LOW potential output terminal of the power supply (UUT). Figure 3-5 illustrates the typical setup for the Load module to the UUT.



CAUTION

To prevent accidental contact with hazardous voltage, the terminal cover must be installed correctly. Each terminal can carry 40 Amps at most. If the input current of Load is over 40 Amps, you must use multiple terminals for connection.

Recommended safety precautions:

Ensure wiring, external circuit elements, etc are sized to the maximum rating of the LOAD even if intended UUTs are smaller. This provides protection in the event that users inadvertently apply full rated voltage, current or power or larger UUTs are tested in the future.

User should take into account the power dissipated in the output cable under worse case conditions to ensure the wire the gauge and cooling is adequate.

Ensure the load always receives adequate ambient cooling air at all times and air filters, ducts, etc are maintained regularly. If loads are used with a cabinet, precautions should be taken to minimize heating within the cabinet.

If the UUT may be damaged or an unsafe condition may occur in the event of a load short circuit (e.g. certain types of batteries), or if there is no means of de-energizing the UUT in the event of a load failure, user may consider including a suitably rated circuit breaker, fuse or other means of disconnecting the load from the UUT under emergency conditions.

* If there are any questions regarding safe operation of the equipment or adding external protection circuits, please contact Chroma's service personnel.

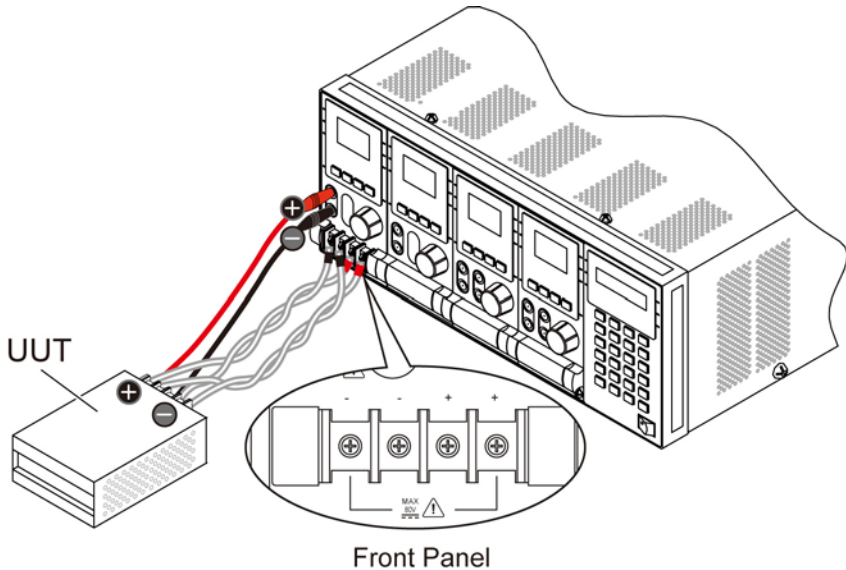


Figure 3-5 Load & Remote Sensing Connection

⚡ CAUTION When connecting the load cable to the load module, do not use a load cable to connect a load module and short circuit other load modules, or it may cause the load cable to burn out when loading larger current.

3.4.2 Remote Sensing Connections

There are two sensing points on the electronic load module. One is the measurement at Load, terminal, and the other is the measurement at Vsense. The Load module will automatically switch to Vsense when the Vsense terminals are connected to the UUT, otherwise it will measure at the Load terminals. Remote sensing compensates for voltage drops in applications that require long lead lengths. It is useful when a module is operating in CV, CR or CP mode, or when it needs precise measurement. Figure 3-5 also illustrates a typical setup for remote sensing operation.

👉 Notice The potential of Vsense red connector must be higher than that of Vsense black connector.

3.4.3 Parallel Connections

Figure 3-6 illustrates how modules can be paralleled for increased power dissipation. Modules can be directly paralleled in CC, CR, CP modes of static operation, but cannot be paralleled in CV mode. Each module will dissipate the power that has been programmed. For example, if two modules are connected in parallel, one is programmed to 10A, and another is 15A, the total current drawn from the source is 25A.

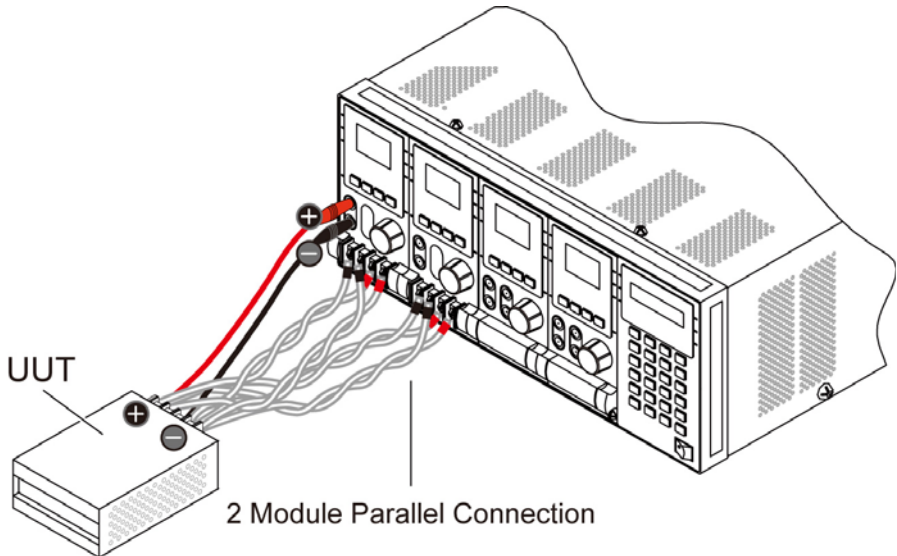
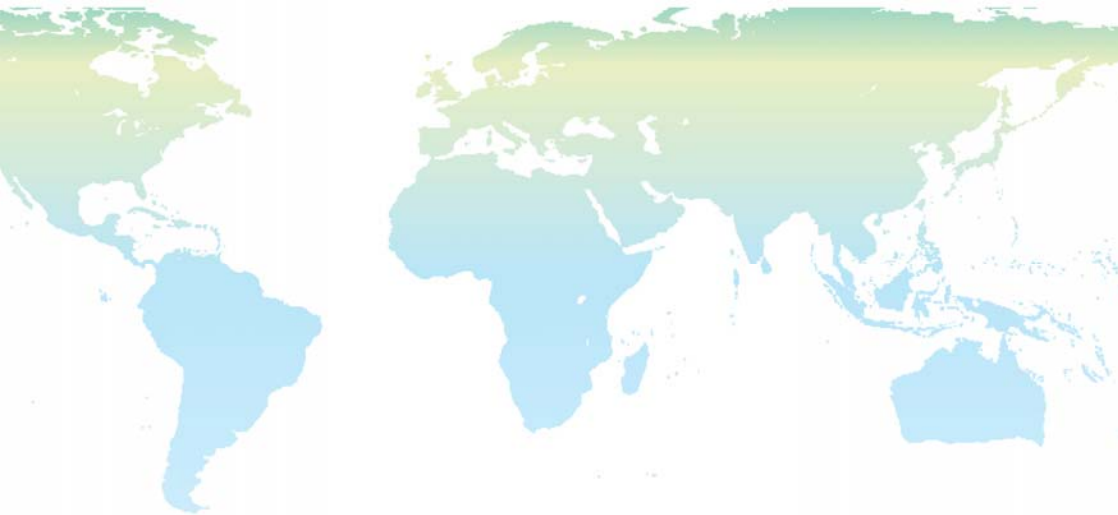


Figure 3-6 Parallel Connection

3.5 Remote Control Connection

The remote operation of the Load can be accomplished through GPIB, USB or RS-232C. The interface connectors on the rear panel connect the Load to the controller or a computer. The GPIB or USB interface of the electronic load is optional. The 6310A Series Remote Controller can control the load through RS-232C port standard. Connect the Remote Controller to the electronic load before powering on. If this is not done, the Load will shut down, or the fuse for the remote controller in the Mainframe will be broken.



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