Programmable
DC Electronic Load

PROGRAMMABLE DC ELECTRONIC LOAD
MODEL 63200 SERIES

Chroma's 63200 series of programmable electronic loads are designed for a wide variety of dc power conversion products including; DC power sources, battery chargers, server power supplies, dc-dc converters, batteries and many others. The high power rating, parallel and synchronization capabilities, and the ability to provide up to 2.7 times of rated power for short duty cycle loading make 63200 series especially well-suited for high power applications such as switch-mode rectifiers and for discharging batteries packs and fuel cells.

The 63200 series offers 12 different models with power ranges from 2600 watts to 15600 watts, currents from 50A to 1000A and operating voltages from 0 to 1000V. By paralleling modules very large systems can be assembled existing 93.6kW. Four operating modes provide different load simulation methods designed for various applications. The CC/CR modes are designed to test constant voltage power supplies and converters. CV mode simulates the battery for testing battery chargers and current sources, and CP mode is ideal for battery testing by simulating real discharge profiles.

The 63200 series can sink rated current down to 1VDC even under the highest specified rise time. This unique feature guarantees the best loading performance for low voltage/high current applications. With it's unique external waveform simulation and Master / Slave control capability, the 63200 series electronic loads allow users to parallel and synchronize more than one load together using an internal or external loading control signal. This feature provides unlimited load simulation and increased power.

The 63200 series also provides necessary measurement functions and short circuit simulations that extend the test capability for the most demanding engineering and automated test applications.

With front LCD displays and rotary knob, the 63200 loads offer versatile bench top operation. Users are also able to control the loads remotely via GPIB or RS-232 interface or with a USB adapter. Complex waveforms can also be created by driving the loads from an analog programming source (i.e. function generator).

Chroma 63200 loads incorporate built-in fan speed controls to minimize audio noise. The self-diagnosis routines, built-in protection against OC, OP, OT, and an alarm indicating OV reverse polarity to ensure safe operation and reliability.

RS-232 GPIB CE

MODEL 63200 SERIES

Key Features

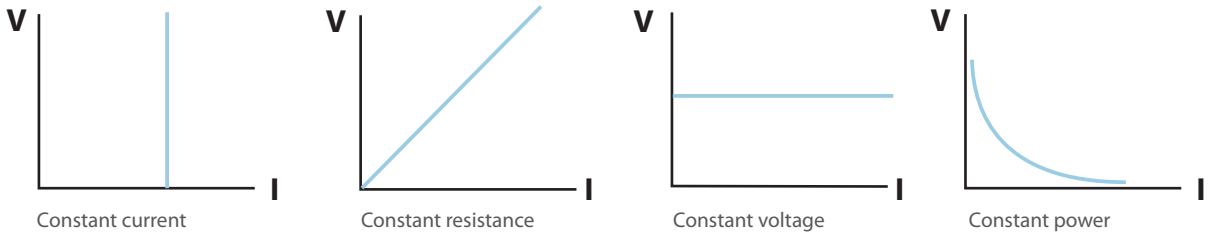
- Power Rating :
  2600W, 5200W, 6500W, 10000W, 10400W, 14500W, 15600W
- Voltage range : 0 ~ 80V/0 ~ 600V/0 ~ 1000V
- Current range : Up to 1000A
- CC, CR, CV, CP load modes
- Master/Slave paralleling control mode, allow synchronous load control under static and dynamic loading mode (Up to 93.6kW)
- Dynamic loading : Up to 20kHz
- Only need 1V to draw rated current
- Programmable slew rate, up to 41A/μs
- Measurement : Voltage/Current/ Power/Resistance
- Large LED/LCD display
- External loading waveform simulation
- Short circuit simulation and short circuit current measurement
- Full protection : OC, OP, OT protection and OV, reverse alarm
- Versatile remote controller
- GPIB & RS-232 interfaces
- Surge load capability
- Battery discharge timer

Chroma

APPLICATION SPECIFIC LOAD SIMULATION

Chroma's 63200 series electronic loads provide constant current, constant resistance, constant voltage and constant power modes.

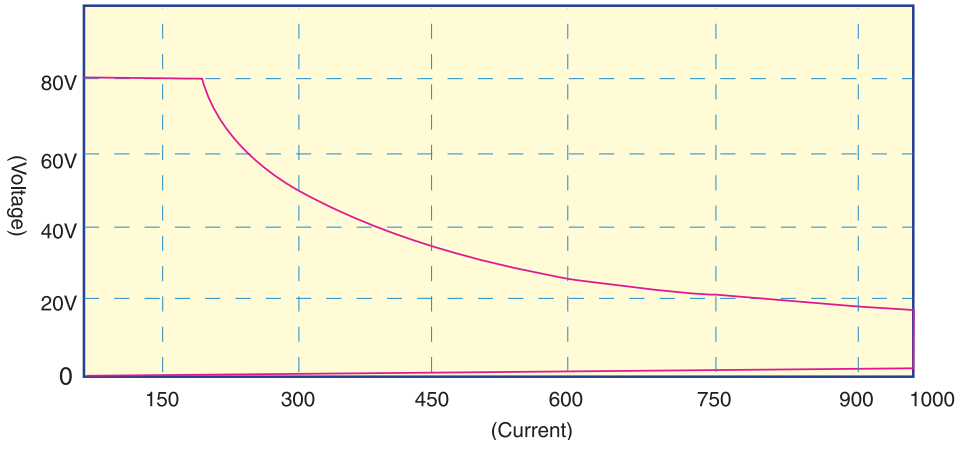
The CC and CR mode load simulation is helpful to test whether the output voltage of the UUT remains stable, or regulated under different load conditions. For battery chargers, CV mode can change the output voltage to test if the battery charger is providing the correct charging current corresponding to the battery voltage. If the UUT is a battery, the electronic load is able to simulate the behavior of the device that uses the battery. For many battery discharge applications, power consumption patterns need to be analyzed. The constant power, or CP mode, is ideal for these applications.



LOW VOLTAGE OPERATING CHARACTERISTICS

For low voltage/high current applications, the 63200 series is available with a low voltage mode, which provides ultra-low voltage operation and in many cases can compensate for large voltage loss in the input wiring.

The 63200 series loads use a current closed loop design connecting all power MOSFET devices in parallel, to insure high accuracy load control with minimal drift (less than 0.15% of the current setting). The MOSFET technology keeps the input impedance to a minimum and enables the load to draw very high current even at very low voltages. For example, the model 63209 is capable of drawing 1,000A at only 1V input.



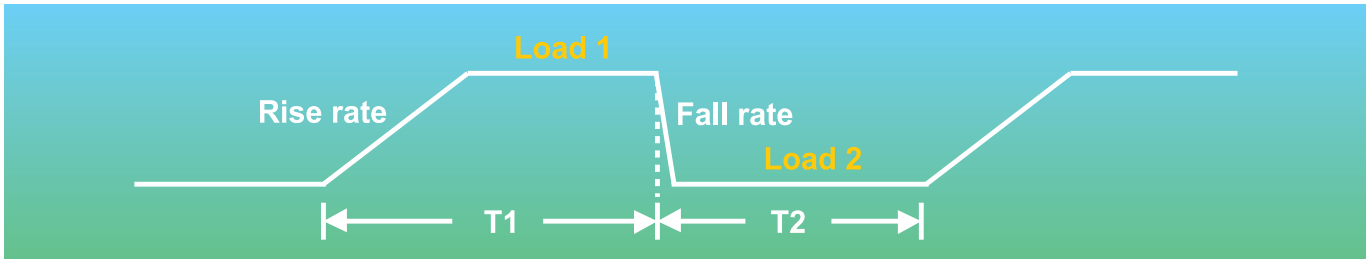
Model 63209(15600W) Input Characteristics

MEASUREMENTS

The Chroma 63200 series loads have a built-in 15-bit precision A/D converter that can achieve 0.05%+0.05% F.S., 0.1%+0.1% F.S. and 0.3%+0.3% F.S. accuracy for voltage, current, and power measurements respectively. These measurements can be displayed simultaneously on three big LED readouts for convenience. In addition to standard measurements, the 63200 series also provides voltage and current monitor outputs, which are useful when the user needs to monitor the voltage and current waveform via a scope.

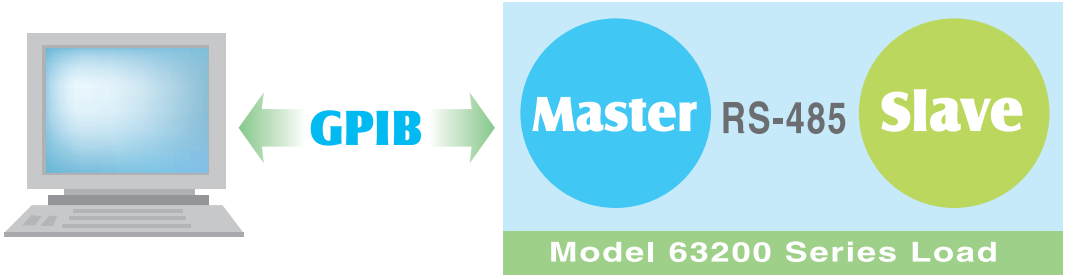
DYNAMIC LOADING AND CONTROL

Modern electronic devices operate at very high speeds; therefore, it is important for an electronic load to perform well during the transient and dynamic testing. To satisfy these testing applications, the 63200 loads offer outstanding high speed, programmable dynamic load simulation and control capabilities. The figure below shows the programmable parameters of the 63200 load modules. The programmable slew rate makes the simulation of transient load changes demanded by the requirement of real life application possible. The internal waveform generator of the 63200 is capable of producing a maximum slew rate of 25A/μs (63208), and dynamic cycling up to 20kHz. Its dedicated remote load sense and control circuitry guarantee the minimum waveform distortion during continuous load changes.



MASTER / SLAVE PARALLEL CONTROL

When higher power is required, it is common to parallel two electronic loads together to draw higher current. The 63200 series high power loads have a smart Master/Slave control mode. When the loads are set to Master/Slave mode, users can program the loading (CC mode only) on the master unit. The loading current values of the slave unit(s) will be calculated and downloaded by the master unit automatically. In short, unlike traditional designs, users now have the option of operating several loads in Master/Slave mode as a single load unit.



EXTERNAL LOADING WAVEFORM SIMULATION

The 63200 series electronic loads can be controlled by an external analog control signal, which is generated by any kind of signal or an arbitrary waveform generator. This makes it capable of simulating any loading waveform observed in the field within the load specifications.

Arbitrary Waveform Generator

SHORT CIRCUIT SIMULATION

Chroma's 63200 series electronic loads can also simulate a short circuit condition. The load can short a DC power source or any power supply that has a built in current limit function and measure its short circuit current so that users can verify if the UUT current limit is functional.

SURGE LOAD CAPABILITY

Chroma's 63200 Series DC Loads provide a unique surge load simulation capability which allows users to overdrive the loads up to 2.7 times their rated power for short periods. This feature is ideal when the average power required by the UUT is low compared to short-term peak power demands. Plasma Display Panel (PDP) testing is one typical applications, others include battery 3C discharge, breaker & fuse over rating (300% to 1000%) tests, car engine startup simulation and DC motor startup simulation.

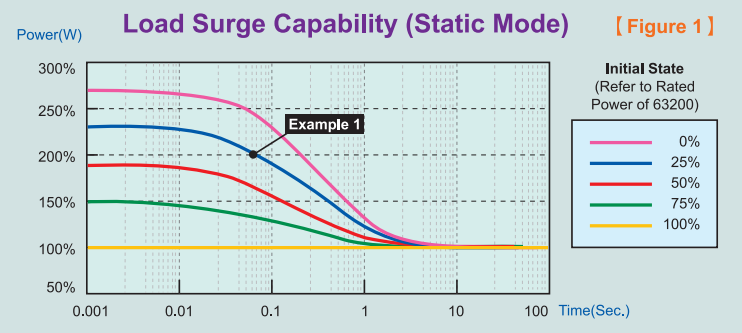
The amount of surge loading available using the 63200 loads is related to initial loading conditions. Figures 1 and 2 show the relationship of the initial state (Load_Low under Dynamic mode) and the maximum acceptable overdrive power. Under this operation, the load will display an Over Power Protection Alarm (OPP) and will disable the load current if the user violates the maximum surge load capability showed in the figures.

Note 1 :
The Initial state under Static Mode should last at least 1 second.

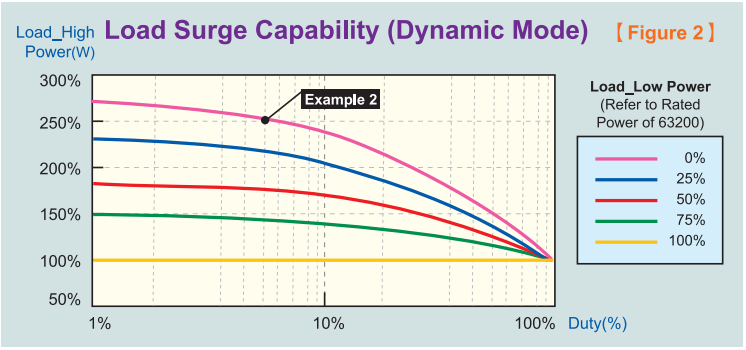
Note 2 :
This surge load capability will be regulated by the temperature de-rating characteristics. (Refer to Note 1 in Specifications)

Note 3 :
Examples below assume the use of the Model 63201 load with a continuous rating of 2600W/300A/1-80VDC

Note 4 :
Model 63211/63212 does not support this feature.



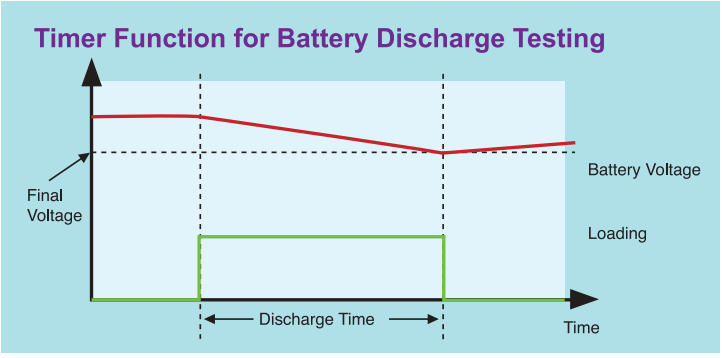
Example 1: STATIC LOADING
The Model 63201 can be overdriven to approximately 5200W (200% of its rated continuous power rating) for 6.0 ms when the starting power is 650W (25% of its rated power). This is represented by DOT on the blue curve in Figure 1.



Example 2: DYNAMIC LOADING
The Model 63201 is capable of a zero - to- 6500W (250%) pulse at a duty cycle of 5%. This is represented by the DOT on the purple curve in Figure 2.

TIMER FUNCTION FOR BATTERY DISCHARGE TESTING

The 63200 loads include a unique timing and measurement function. This allows for precision time settings and measurements in the range of 1s to 99,999s. This feature also allows users to set a final cutoff voltage and timeout value for battery discharge testing and similar applications. For example, the figure to the right shows that the 63200's internal timer can be initiated automatically when starting load on. The timer will stop counting until the cutoff voltage value is reached, or timeout occurs.



APPLICATIONS

Power Supply Testing

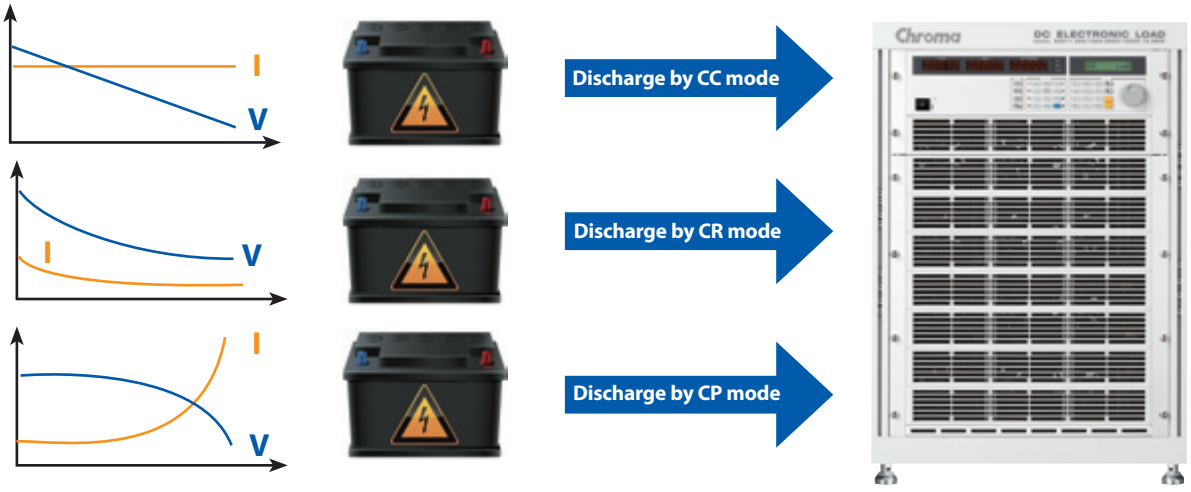
Power supplies play a critical role in electrical and electronic devices. They have diversified into several different configurations for various applications. For example, AC/AC power supplies are used for UPS and AVR, AC/DC power supplies are used for server power supplies, and DC/AC power supplies are used for inverters that transfer battery power to AC for home appliances. Lastly, DC/DC converters are widely used in battery powered devices such as cellular phones and laptop computers. With four different load modes, Chroma 63200 series electronic loads are capable of testing many different DC output power supplies either directly or via a rectifier. They can also be used to test AC output power supplies.

Electronic & Electrical Devices Testing

Almost all modern electronic equipment have a built in power supply. Therefore, a DC electronic load is an important instrument for these devices during the R/D and Q/A phases. For example, A/D, D/D and D/A stages are normally integrated within a UPS. The Chroma 63200 electronic loads are helpful in testing the internal A/D and D/D boards of UPS devices.

Battery Testing

For most applications, power consumption patterns are based on constant power. Therefore, the CP mode of the 63200 series electronic load is ideal to use as a discharge load for battery testing.



System integration

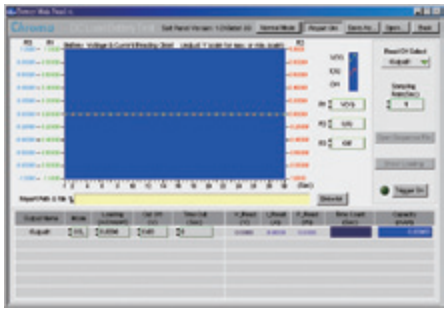
Chroma 63200 series electronic loads provide GPIB, RS-232 and RS-485 PC controllable interfaces. These features combined with the external waveform simulation and voltage / current monitoring capability make Chroma 63200 series ideal for automatic system integration.

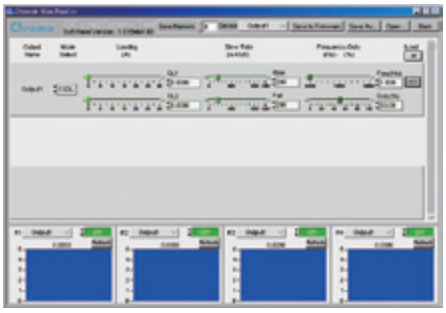
SOFTPANEL

The 63200 series can be operated from the front panel or controlled by softpanel software. The user friendly software includes all the functions of 63200 series, and is easy to understand and operate. The 63200 series can be configured with either GPIB or RS-232 interfaces as an option for remote control and automated testing applications.

Main Operation Menu

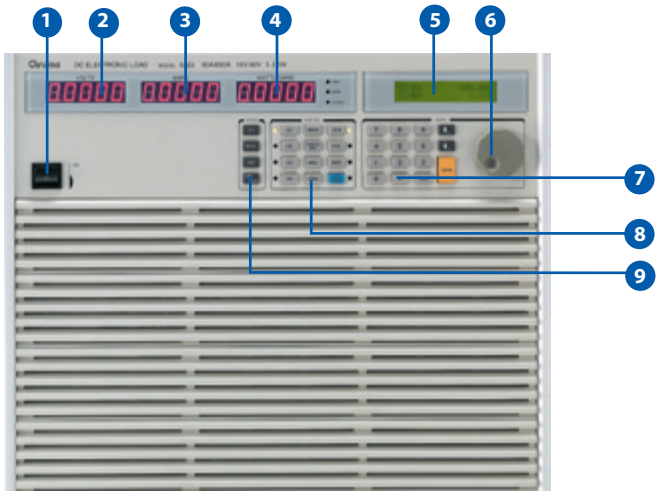

Sequence Test


Battery Discharge Test

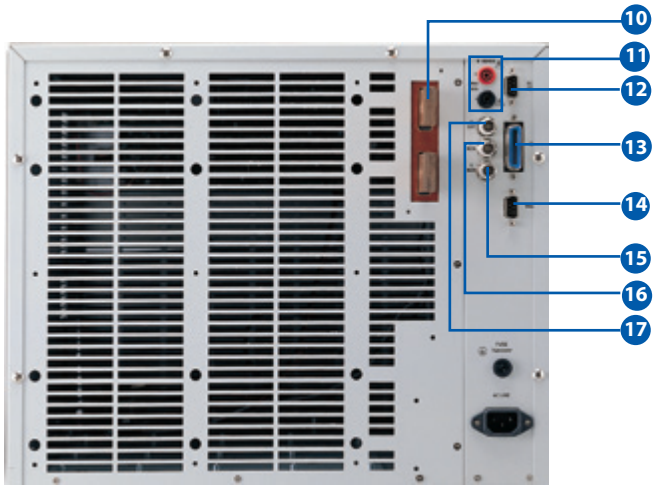

Dynamic Test


OCP Test

PANEL DESCRIPTION



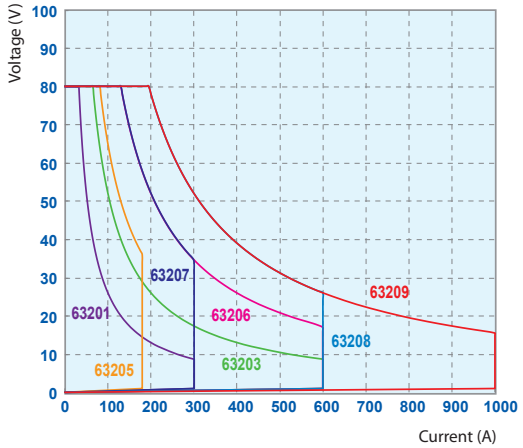
Model: 63203, 63204



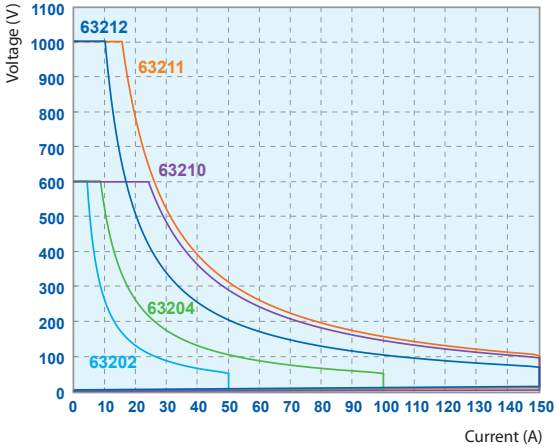
1. **Power Switch**
2. **LED Display:**
   Voltage read back
3. **LED Display:**
   Current/ ohm read back
4. **LED Display:**
   Power read back
5. **LCD Display:**
   For setting and editing
6. **Rotary knob:**
   To adjust the loading and parameter setting
7. **Numeric key:**
   For data setting
8. **Function key:**
   To select load mode, control mode, and define the reading specification
9. **System key:**
   For system config and data store, recall
10. **Load terminal**
11. **Voltage sense terminal**
12. **RS-485 connector**
13. **GPIB connector**
14. **RS-232C connector**
15. **Voltage monitor output:**
    Analog output which indicates the voltage waveform
16. **Current monitor output:**
    Analog output which indicates the current waveform
17. **External V reference:**
    External programming voltage input

LOW VOLTAGE & V-I CURVE OPERATING CHARACTERISTICS (TYPICAL) OF 63200 SERIES

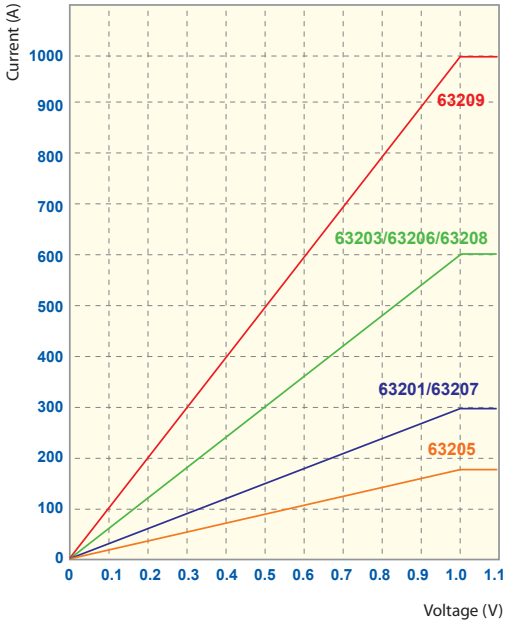
V-I Curve :
Model 63201/ 63203/ 63205/ 63206/ 63207/ 63208/ 63209



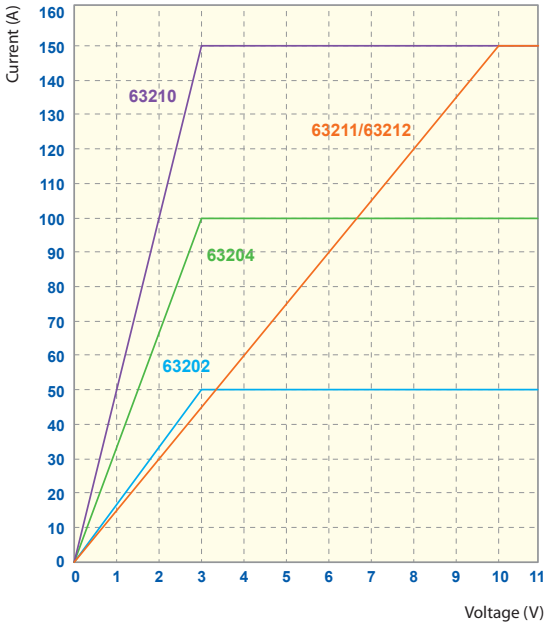
V-I Curve :
Model 63202/ 63204/ 63210/ 63211/ 63212



Low Voltage Operating :
Model 63201/ 63203/ 63205/ 63206/ 63207/ 63208/ 63209



Low Voltage Operating :
Model 63202/ 63204/ 63210/ 63211/ 63212



Note: All specifications are measured at load input terminals. (Ambient temperature of +25˚C)

Model 63208 / 63209 / 63210

Model 63211 / 63212

Model 63201 / 63202

Model 63203 / 63204

Model 63205

Model 63206 / 63207

SPECIFICATIONS-1

Model	63201		63202		63203	
Power *1	260W	2600W	260W	2600W	520W	5200W
Current	0~30A	0~300A	0~5A	0~50A	0~60A	0~600A
Voltage *2	0~80V		0~600V		0~80V	
Min. Operating voltage	0.5V @ 15A 1V @ 30A	0.5V @ 150A 1V @ 300A	1.5V @ 2.5A 3V @ 5A	1.5V @ 25A 3V @ 50A	0.5V @ 30A 1V @ 60A	0.5V @ 300A 1V @ 600A
Constant Current mode						
Range	0~30A	0~300A	0~5A	0~50A	0~60A	0~600A
Resolution	7.7mA	77mA	1.4mA	14mA	16mA	160mA
Accuracy	0.1%+0.1%F.S.	0.2%+0.1%F.S.	0.1%+0.1%F.S.	0.2%+0.1%F.S.	0.1%+0.1%F.S.	0.2%+0.1%F.S.
Constant Resistance Mode						
Range	0.005~20Ω	0.25~1000Ω	0.25~1000Ω	10~40000Ω	0.0025~10Ω	0.125~500Ω
Resolution*3	52mS	1.04mS	1.2mS	28.8μS	104mS	2.1mS
Accuracy*4	0.104S+0.35%	0.9S+0.1%	0.0046S+0.35%	0.04S+0.1%	0.208S+0.35%*5	1.2S+0.1%
Accuracy*6 (Vin>7V)	0.104S+0.35%	0.0021S+0.35%	0.0046S+0.35%	114μS+0.35%	0.208S+0.35%	0.0042S+0.35%
Constant Voltage mode						
Range	0~16V	0~80V	0~150V	0~600V	0~16V	0~80V
Resolution	4mV	20mV	40mV	162mV	4mV	20mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant Power mode						
Range	0.6~260W	6~2600W	0.625~260W	6.25~2600W	1.2~520W	12~5200W
Resolution	7.5mW	75mW	3.125mW	31.25mW	22.5mW	225mW
Accuracy	0.5%+0.5%F.S.		0.5%+0.5%F.S.		0.5%+0.5%F.S.	
Dynamic mode						
Timing						
T1&T2	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s
Resolution	1μs	1ms	1μs	1ms	1μs	1ms
Accuracy	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm
Slew rate	5mA~1.25A/μs	50mA~12.5A/μs	0.8mA~0.2A/μs	8mA~2A/μs	10mA~2.5A/μs	100mA~25A/μs
Resolution	5mA/μs	50mA/μs	0.8mA/μs	8mA/μs	10mA/μs	100mA/μs
Accuracy	10% ± 20μs		10% ± 20μs		10% ± 20μs	
Min. Rise Time	24μs (typical)		24μs (typical)		24μs (typical)	
Current						
Range	0~30A	0~300A	0~5A	0~50A	0~60A	0~600A
Resolution	7.7mA	77mA	1.4mA	14mA	16mA	160mA
Accuracy	0.4%F.S.		0.4%F.S.		0.4%F.S.	
Measurement						
Voltage Read Back						
Range	0~16V	0~80V	0~150V	0~600V	0~16V	0~80V
Resolution	0.6mV	2.6mV	5.1mV	21mV	0.6mV	2.6mV
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Current Read Back						
Range	0~30A	0~300A	0~5A	0~50A	0~60A	0~600A
Resolution	1mA	10mA	0.18mA	1.8mA	2mA	20mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Power Read Back						
Range	0~260W	0~2600W	0~260W	0~2600W	0~520W	0~5200W
Accuracy*7	0.3%+0.3%F.S.		0.3%+0.3%F.S.		0.3%+0.3%F.S.	
General						
Short Circuit						
current	30A	300A	5A	50A	60A	600A
Input Rating	1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz	
Dimension (H x W x D)	177 x 440 x 589 mm / 6.9 x 17.3 x 23.2 inch		177 x 440 x 589 mm / 6.9 x 17.3 x 23.2 inch		353 x 440 x 589 mm / 13.9 x 17.3 x 23.2 inch	
Weight	30 kg / 66.13 lbs		30 kg / 66.13 lbs		62 kg / 136.68 lbs	
Safety & EMC	CE		CE		CE	

SPECIFICATIONS-2

Model	63204		63205		63206	
Power*1	520W	5200W	650W	6500W	1040W	10400W
Current	0~10A	0~100A	0~18A	0~180A	0~60A	0~600A
Voltage*2	0~600V		0~80V		0~80V	
Min. Operating voltage	1.5V @ 5A 3V @ 10A	1.5V @ 50A 3V @ 100A	0.5V @ 9A 1V @ 18A	0.5V @ 90A 1V @ 180A	0.5V @ 30A 1V @ 60A	0.5V @ 300A 1V @ 600A
Constant Current mode						
Range	0~10A	0~100A	0~18A	0~180A	0~60A	0~600A
Resolution	2.8mA	28mA	5.2mA	52mA	21mA	170mA
Accuracy	0.1%+0.1%F.S.	0.2%+0.1%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.
Constant Resistance Mode						
Range	0.125~500Ω	5~20000Ω	0.008~32Ω	0.4~1600Ω	0.0025~10Ω	0.125~500Ω
Resolution*3	2.3mS	57.56μS	35mS	0.7mS	112.5mS	2.25mS
Accuracy*4	0.0046S+0.35%	0.08S+0.1%	0.07S+0.35%	0.75S+0.1%	0.225S+0.35% *5	1.2S+0.1%
Accuracy*6 (Vin>7V)	0.0046S+0.35%	115.51μS+0.35%	0.07S+0.35%	0.0014S+0.35%	0.225S+0.35%	0.0045S+0.35%
Constant Voltage mode						
Range	0~150V	0~600V	0~16V	0~80V	0~16V	0~80V
Resolution	40mV	162mV	4mV	20mV	4mV	20mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant Power mode						
Range	1.25~520W	12.5~5200W	0.36~650W	3.6~6500W	1.2~1040W	12~10400W
Resolution	6.25mW	62.5mW	4.6mW	46mW	22.5mW	225mW
Accuracy	0.5%+0.5%F.S.		0.5%+0.5%F.S.		0.5%+0.5%F.S.	
Dynamic mode						
Timing						
T1&T2	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s
Resolution	1μs	1ms	1μs	1ms	1μs	1ms
Accuracy	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm
Slew rate	1.6mA~0.4A/μs	16mA~4A/μs	3mA~0.75A/μs	30mA~7.5A/μs	10mA~3A/μs	100mA~25A/μs
Resolution	1.6mA/μs	16mA/μs	3mA/μs	30mA/μs	12mA/μs	100mA/μs
Accuracy	10% ± 20μs		10% ± 20μs		10% ± 20μs	
Min. Rise Time	24μs (typical)		24μs (typical)		20μs (typical)	
Current						
Range	0~10A	0~100A	0~18A	0~180A	0~60A	0~600A
Resolution	2.8mA	28mA	5.2mA	52mA	21mA	170mA
Accuracy	0.4%F.S.		0.4%F.S.		0.4%F.S.	
Measurement						
Voltage Read Back						
Range	0~150V	0~600V	0~16V	0~80V	0~16V	0~80V
Resolution	5.1mV	21mV	0.6mV	2.6mV	0.6mV	2.6mV
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Current Read Back						
Range	0~10A	0~100A	0~18A	0~180A	0~60A	0~600A
Resolution	0.35mA	3.5mA	0.7mA	7mA	2.6mA	21mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Power Read Back						
Range	0~520W	0~5200W	0~650W	0~6500W	0~1040W	0~10400W
Accuracy*7	0.3%+0.3%F.S.		0.3%+0.3%F.S.		0.3%+0.3%F.S.	
General						
Short Circuit						
current	10A	100A	18A	180A	60A	600A
Input Rating	1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz	
Dimension (H x W x D)	353 x 440 x 589 mm / 13.9 x 17.3 x 23.2 inch		310 x 440 x 589 mm / 12.2 x 17.3 x 23.2 inch		443.7 x 440 x 589 mm / 17.5 x 17.3 x 23.2 inch	
Weight	62 kg / 136.68 lbs		62 kg / 136.68 lbs		90 kg / 198.41 lbs	
Safety & EMC	CE		CE		CE	

SPECIFICATIONS-3

Model	63207		63208		63209	
Power *1	1040W	10400W	1560W	15600W	1560W	15600W
Current	0~30A	0~300A	0~60A	0~600A	0~100A	0~1000A
Voltage*2	0~80V		0~80V		0~80V	
Min. Operating voltage	0.5V @ 15A 1V @ 30A	0.5V @ 150A 1V @ 300A	0.5V @ 30A 1V @ 60A	0.5V @ 300A 1V @ 600A	0.5V @ 50A 1V @ 100A	0.5V @ 500A 1V @ 1000A
Constant Current mode						
Range	0~30A	0~300A	0~60A	0~600A	0~100A	0~1000A
Resolution	10.3mA	82mA	21mA	163mA	34.2mA	274mA
Accuracy	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.	0.1%+0.2%F.S.
Constant Resistance Mode						
Range	0.005~20Ω	0.25~1000Ω	0.0025~10Ω	0.125~500Ω	0.0015~6Ω	0.075~300Ω
Resolution*3	55.7mS	1.1mS	110mS	2.22mS	186.5mS	3.73mS
Accuracy *4	0.111S+0.35%	0.9S+0.1%	0.22S+0.35% *5	1.2S+0.1%	0.373S+0.35% *5	1.2S+0.1%
Accuracy *6 (Vin>7V)	0.111S+0.35%	0.0022S+0.35%	0.22S+0.35%	0.0044S+0.35%	0.373S+0.35%	0.0075S+0.35%
Constant Voltage mode						
Range	0~16V	0~80V	0~16V	0~80V	0~16V	0~80V
Resolution	4mV	20mV	4mV	20mV	4mV	20mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant Power mode						
Range	0.744~1040W	6~10400W	1.2~1560W	12~15600W	2.5~1560W	20~15600W
Resolution	9.3mW	75mW	22.5mW	225mW	31.255mW	250mW
Accuracy	0.5%+0.5%F.S.		0.5%+0.5%F.S.		0.5%+0.5%F.S.	
Dynamic mode						
Timing						
T1&T2	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s
Resolution	1μs	1ms	1μs	1ms	1μs	1ms
Accuracy	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm
Slew rate	6mA~1.5A/μs	50mA~12.5A/μs	12mA~3A/μs	100mA~25A/μs	20mA~5A/μs	166mA~41.6A/μs
Resolution	6mA/μs	50mA/μs	12mA/μs	100mA/μs	20mA/μs	166mA/μs
Accuracy	10% ± 20μs		10% ± 20μs		10% ± 20μs	
Min. Rise Time	20μs (typical)		20μs (typical)		20μs (typical)	
Current						
Range	0~30A	0~300A	0~60A	0~600A	0~100A	0~1000A
Resolution	10.3mA	82mA	21mA	163mA	34.2mA	274mA
Accuracy	0.4%F.S.		0.4%F.S.		0.4%F.S.	
Measurement						
Voltage Read Back						
Range	0~16V	0~80V	0~16V	0~80V	0~16V	0~80V
Resolution	0.6mV	2.6mV	0.6mV	2.6mV	0.6mV	2.6mV
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Current Read Back						
Range	0~30A	0~300A	0~60A	0~600A	0~100A	0~1000A
Resolution	1.3mA	11mA	2.7mA	21mA	4.5mA	36mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Power Read Back						
Range	0~1040W	0~10400W	0~1560W	0~15600W	0~1560W	0~15600W
Accuracy*7	0.3%+0.3%F.S.		0.3%+0.3%F.S.		0.3%+0.3%F.S.	
General						
Short Circuit						
Current	30A	300A	60A	600A	100A	1000A
Input Rating	1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz	
Dimension (H x W x D)	443.7 x 440 x 589 mm / 17.5 x 17.3 x 23.2 inch		762.8 x 546 x 700 mm / 30 x 21.5 x 27.6 inch		762.8x546x700mm/ 30x21.5x27.6inch(cabinet)	
Weight	90 kg / 198.24 lbs		170 kg / 374.45 lbs		170 kg / 374.45 lbs	
Safety & EMC	CE		CE		CE	

SPECIFICATIONS-4

Model	63210		63211		63212	
Power *1	1450W	14500W	15600W	15600W	10000W	10000W
Current	0~15A	0~150A	0~30A	0~150A	0~30A	0~150A
Voltage*2	0~600V		10~1000V		10~1000V	
Min. Operating voltage	1.5V @ 7.5A 3V @ 15A	1.5V @ 75A 3V @ 150A	5V @ 15A 10V @ 30A	5V @ 75A 10V @ 150A	5V @ 15A 10V @ 30A	5V @ 75A 10V @ 150A
Constant Current mode						
Range	0~15A	0~150A	0~30A	0~150A	0~30A	0~150A
Resolution	4.9mA	39mA	7.5mA	37.5mA	7.5mA	37.5mA
Accuracy	0.1%+0.1%F.S.	0.2%+0.1%F.S.	0.1%+0.1%F.S.	0.2%+0.1%F.S.	0.1%+0.1%F.S.	0.2%+0.1%F.S.
Constant Resistance Mode						
Range	0.1~400Ω	5~20000Ω	0.2~200Ω	8~8000Ω	0.2~200Ω	8~8000Ω
Resolution*3	3.21mS	80.1μS	14.3mS	360μS	14.3mS	360μS
Accuracy *4	0.0128S+0.35%	0.092S+0.1%	28.7mS+0.5%	715μS+0.5%	28.7mS+0.5%	715μS+0.5%
Accuracy *6 (Vin>7V)	0.0128S+0.35%	317.7μS+0.35%	--	--	--	--
Constant Voltage mode						
Range	0~150V	0~600V	0~250V	0~1000V	0~250V	0~1000V
Resolution	40mV	162mV	62.5mV	250mV	62.5mV	250mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant Power mode						
Range	5~1450W	50~14500W	2.5~1560W	20~15600W	2.5~1000W	20~10000W
Resolution	25mW	250mW	390mW	3.9W	25mW	2.5W
Accuracy	0.5%+0.5%F.S.		0.5%+0.5%F.S.		0.5%+0.5%F.S.	
Dynamic mode						
Timing						
T1&T2	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s	0.025~10ms	1ms~30s
Resolution	1μs	1ms	1μs	1ms	1μs	1ms
Accuracy	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm	1μs+100ppm	1ms+100ppm
Slew rate	3mA~0.75A/μs	25mA~6A/μs	5mA~1.25A/μs	25mA~6.25A/μs	5mA~1.25A/μs	25mA~6.25A/μs
Resolution	3mA/μs	25mA/μs	5mA/μs	25mA/μs	5mA/μs	25mA/μs
Accuracy	10% ± 20μs		10% ± 20μs		10% ± 20μs	
Min. Rise Time	150 μs (typical)		24 μs (typical)		24 μs (typical)	
Current						
Range	0~15A	0~150A	0~30A	0~150A	0~30A	0~150A
Resolution	4.9mA	39mA	0.6mA	3mA	0.6mA	3mA
Accuracy	0.4%F.S.		0.4%F.S.		0.4%F.S.	
Measurement						
Voltage Read Back						
Range	0~150V	0~600V	0~250V	0~1000V	0~250V	0~1000V
Resolution	5.1mV	21mV	5mV	20mV	5mV	20mV
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Current Read Back						
Range	0~15A	0~150A	0~30A	0~150A	0~30A	0~150A
Resolution	0.64mA	5.1mA	0.6mA	3mA	0.6mA	3mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Power Read Back						
Range	0~1450W	0~14500W	0~1560W	0~15600W	0~1000W	0~10000W
Accuracy*7	0.3%+0.3%F.S.		0.3%+0.3%F.S.		0.3%+0.3%F.S.	
General						
Short Circuit						
Current	15A	150A	30A	150A	30A	150A
Input Rating	1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz		1Ø 100/200Vac ± 10% V_{LN}, 47~63Hz ; 1Ø 115/230Vac ± 10% V_{LN}, 47~63Hz	
Dimension (H x W x D)	762.8x546x700mm/ 30x21.5x27.6inch(cabinet)		762.8x546x700mm/ 30x21.5x27.6inch(cabinet)		762.8x546x700mm/ 30x21.5x27.6inch(cabinet)	
Weight	170 kg / 374.45 lbs		170 kg / 374.45 lbs		170 kg / 374.45 lbs	
Safety & EMC	CE		CE		CE	

NOTE*1 : The power rating specifications at ambient temperature=25˚C and see the diagram below for power derating.
NOTE*2 : If the operating voltage exceeds the rated voltage for 1.1 times, it would cause permanent damage to the device.
NOTE*3 : S (siemens) is the SI unit of conductance, equal to one reciprocal ohm.
NOTE*4 : The Vin must be greater than min. operating voltage of each model.
NOTE*5 : Setting error will be 1% for R<0.005Ω at CRL range.
NOTE*6 : The Vin must be greater than 7V of each model.
NOTE*7 : Power F.S. = Vrange x Irange F.S.

SELECTION GUIDE

Model / Power / Voltage	2600W	5200W	6500W	10000W	10400W	14500W	15600W
80V	63201	63203	63205	--	63206/63207	--	63208/63209
600V	63202	63204	--	--	--	63210	--
1000V	--	--	--	63212	--	--	63211

NUMBER OF PARALLEL LOAD UNITS AND RATING

Model / Rating / Units	63201	63202	63203	63204	63205	63206
2	600A/5.2kW	100A/5.2kW	1200A/10.4kW	200A/10.4kW	360A/13kW	1200A/20.8kW
3	900A/7.8kW	150A/7.8kW	1800A/15.6kW	300A/15.6kW	540A/19.5kW	1800A/31.2kW
4	1200A/10.4kW	200A/10.4kW	2400A/20.8kW	400A/20.8kW	720A/26kW	2400A/41.6kW
5	1500A/13kW	250A/13kW	3000A/26kW	500A/26kW	900A/32.5kW	3000A/52kW
6	1800A/15.6kW	300A/15.6kW	3600A/31.2kW	600A/31.2kW	1080A/39kW	3600A/62.4kW

Model / Rating / Units	63207	63208	63209	63210	63211	63212
2	600A/20.8kW	1200A/31.2kW	2000A/31.2kW	300A/29kW	300A/31.2kW	300A/20kW
3	900A/31.2kW	1800A/46.8kW	3000A/46.8kW	450A/43.5kW	450A/46.8kW	450A/30kW
4	1200A/41.6kW	2400A/62.4kW	4000A/62.4kW	600A/58kW	600A/62.4kW	600A/40kW
5	1500A/52kW	3000A/78kW	5000A/78kW	750A/72.5kW	750A/78kW	750A/50kW
6	1800A/62.4kW	3600A/93.6kW	6000A/93.6kW	900A/87kW	900A/93.6kW	900A/60kW

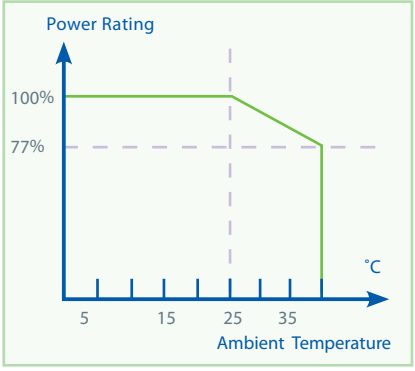
ORDERING INFORMATION

63201 : DC Electronic Load 80V/300A/2.6kW
63202 : DC Electronic Load 600V/50A/2.6kW
63203 : DC Electronic Load 80V/600A/5.2kW
63204 : DC Electronic Load 600V/100A/5.2kW
63205 : DC Electronic Load 80V/180A/6.5kW
63206 : DC Electronic Load 80V/600A/10.4kW
63207 : DC Electronic Load 80V/300A/10.4kW
63208 : DC Electronic Load 80V/600A/15.6kW
63209 : DC Electronic Load 80V/1000A/15.6kW
63210 : DC Electronic Load 600V/150A/14.5kW
63211 : DC Electronic Load 1000V/150A/15.6kW
63212 : DC Electronic Load 1000V/150A/10kW
A632001 : Remote Controller
A632002 : Load Cable 38mm/242A/200cmx2
A632003 : Load Cable 80mm/390A/200cmx2
A632004 : Sync. Link Box for 6330A & 63200 series
A632005 : Softpanel for 63200 series
A632006 : NI USB-6211 Bus-Powered Multifunction DAQ


A632001


A632004


A632006



Developed and Manufactured by :
HEADQUARTERS
CHROMA ATE INC.
66 Hwaya 1st Rd., Kueishan Hwaya Technology Park, Taoyuan County 33383, Taiwan
Tel: +886-3-327-9999
Fax: +886-3-327-8898
http://www.chromaate.com
E-mail: info@chromaate.com

CHINA
CHROMA ELECTRONICS (SHENZHEN) CO., LTD.
8F, No.4, Nanyou Tian An Industrial Estate, Shenzhen, China PC: 518052
Tel: +86-755-2664-4598
Fax: +86-755-2641-9620

JAPAN
CHROMA JAPAN CORP.
472 Nippa-cho, Kouhoku-ku, Yokohama-shi, Kanagawa, 223-0057 Japan
Tel: +81-45-542-1118
Fax: +81-45-542-1080
http://www.chroma.co.jp
E-mail: info@chromaate.com

U.S.A.
CHROMA SYSTEMS SOLUTIONS, INC.
19772 Pauling, Foothill Ranch, CA 92610
Tel: +1-949-600-6400
Fax: +1-949-600-6401
http://www.chromausa.com
E-mail: sales@chromausa.com

Worldwide Distribution and Service Network

EUROPE
CHROMA ATE EUROPE B.V.
Morsestraat 32, 6716 AH Ede, The Netherlands
Tel: +31-318-648282
Fax: +31-318-648288
http://www.chromaeu.com
E-mail: sales@chromaeu.com