

## MODEL 63200A SERIES

### KEY FEATURES

- Rated power : 2kW, 3kW, 4kW, 5kW, 6kW, 8kW, 10kW, 12kW, 15kW, 18kW, 20kW, 24kW, max. 240kW (parallel)
- Voltage range: 60V, 150V, 600V, 1200V
- Current range: 2,000A max. per unit
- 0.6V@1000A (typical) low voltage operating characteristics
- CC, CR, CV & CP operation modes
- CR+CC, CR+CV, CC+CV complex modes
- Up to 10 units master/slave parallel control
- Dynamic synchronous control in static and dynamic loads
- User defined waveform (UDW)
- CZ mode for turn on capacitive load simulation
- External loading current simulation
- Auto frequency sweep up to 50kHz
- Real time power supply load transient response simulation & Vpk+/- measurement
- User programmable 255 sequential front panel input status
- Ultra high precision voltage & current measurement
- Precision high speed digitizing measurement/data capture
- Voltage, current & Pmax measurement for OCP/OLP testing
- Timing & discharging measurement for batteries
- Instant overpower loading
- Short circuit simulation
- Smart fan control
- Full protection: OC (adjustable), OT, OP (adjustable) protection & OV warning
- Standard USB interface
- Optional Ethernet, GPIB and CAN BUS interfaces



## PROGRAMMABLE DC ELECTRONIC LOAD MODEL 63200A SERIES

The 63200A series high power DC electronic loads are designed for testing a wide range of power conversion products including AC/DC and server power supplies, DC/DC converters, EV batteries, automotive charging stations, and other power electronics components. These units can be synchronously paralleled up to 240kW and dynamically synchronized for generating complex multi-channel transient profiles. The 300% peak overpower capability provides extra headroom for fault condition simulations in automotive batteries, fuel cells, and more.

The 63200A series have three operating voltage choices, 60V, 150V, 600V & 1,200V, with models covering power levels from 2kW to 24kW and up to 2,000A in a single unit.

The DC loads have user defined waveform (UDW) capability and external analog modulating input for simulating real-world, custom waveforms. Another distinct feature is the dynamic auto-frequency sweep function, which enables detecting a UUTs worst case output deviation across a wide range of current frequencies. In addition, a 255-set of data storage function has been built in

for recall of the stored settings at any time. For automated testing, the save and recall functions can save a great deal of time.

As each model of the 63200A series has 3 power ranges, they can precisely measure the voltage and current in real time. Since short circuit testing is one of the essential power testing items, the 63200A series provides short circuit simulation to effectively solve the application demands for power and automated testing.

With the vacuum florescent display (VFD) and rotary knob, the 63200A series loads offer versatile front panel operation. Users are able to control the 63200A family remotely via standard USB or optional Ethernet, GPIB and CAN BUS interfaces.

The embedded PWM fan speed control reduces noise caused by fans. The 63200A series also have overcurrent, overpower, and over temperature protections as well as over voltage and polarity reverse alarms to enhance product reliability. These DC loads are reliable products for engineering testing and automated test system's integration.



**Chroma**

## APPLICATIONS



Data Center



Server Power



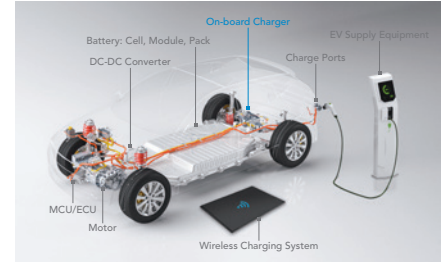
High Voltage UPS



Telecom Power



Solar Panel



On Board Charger



Battery Pack



Energy Storage System

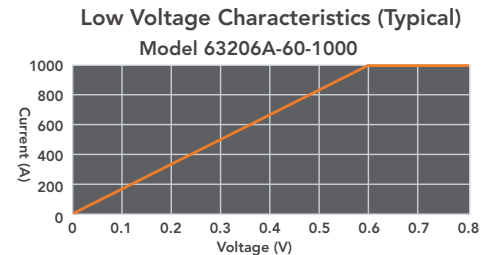


EV Charger Station

## LOW VOLTAGE OPERATION

The 63206A-60-1000 is specially designed with low applied voltage characteristics of 0.6V@1,000A, and low voltage operation is possible towards zero volts with corresponding reduced current levels (refer to de-rating curves). Based on this design, the 63206A-60-1000 is well suited for testing Central Processing Unit (CPU) and Graphics Processing Unit (GPU) required voltage, the voltage range is about 0.6V to 1.5V and the current range is about 400A to 800A, and it is also suited for fuel cells and other low voltage - high current applications.

Note: The 63206A-60-1000 can connect with the low inductance and impedance cable B632008 (option) to test low voltage for DUTs.



Note: The specification was measured at load terminal of Constant Current Mode operation. (Ambient temperature of 25 °C)

## ULTRA HIGH POWER DENSITY & USER-DEFINED HOT KEY DESIGN

Chroma's 63200A series high power electronic loads with digital signal microprocessor (200MHz) built in have the optimal speed and control performance. The ultra high density power (6kW@4U) not only saves room, its super high voltage (0.015%+0.015%F.S.) and current (0.04%+0.04%F.S.) measurement accuracy ensures the fidelity of results. In addition, the entire series can either be operated by hand or controlled remotely. For higher power demands, master/slave control can be used to parallel multiple units for operation. These electronic loads also have synchronous loading capabilities to simulate the actual loading status.

The world leading ultra high power density design overturns the concept of oversize and difficult moving high power electronic load. It saves plenty of room space and solves the space issue when upgrading the electronic load in an automated test system. Moreover, the 63200A provides 4 sets of user-defined hot keys that enable the user to enter the operation mode quickly.

## ICONIC FUNCTION SELECTIONS

The iconic function selections make it easier for users to control/operate the 63200A series. The basic and advance functions are iconized, users can select the functions via the rotary or arrow keys. The abbreviations are shown in the icons and the full descriptions are shown on the VFD display for users to easily operate without the need for an operation manual.



## FLIPPABLE FRONT PANEL

The 63200A series is equipped with flippable front panel for 7U, 10U & 13U height models with maximum flippable angles 70°. This design allows convenient access to controls from any height.



63224A-150-2000

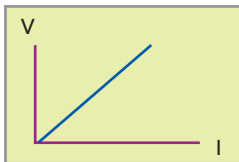
## APPLICATION OF BASIC LOADS

The 63200A series electronic loads operate in constant voltage, current, resistance, or power modes to satisfy a wide range of test requirements. For instance, the CC and CR modes ensure that the UUT voltage outputs remain stable when the load varies. For battery chargers or charging stations, CV mode can change their output voltage to ensure the precision of the charging current. When the UUT is a battery, the electronic load changes to simulate device loading behavior. Many battery discharge applications and power consumption profiles can be simulated for analysis, making the CP mode the best choice for simulating electronic device loads.

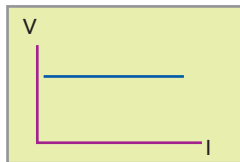
CC Mode



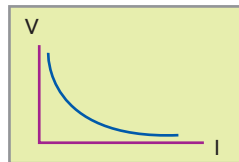
CR Mode



CV Mode

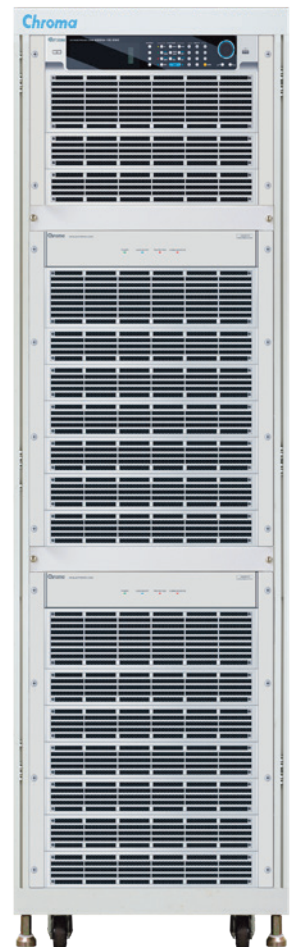


CP Mode



## MASTER/SLAVE PARALLEL CONTROL

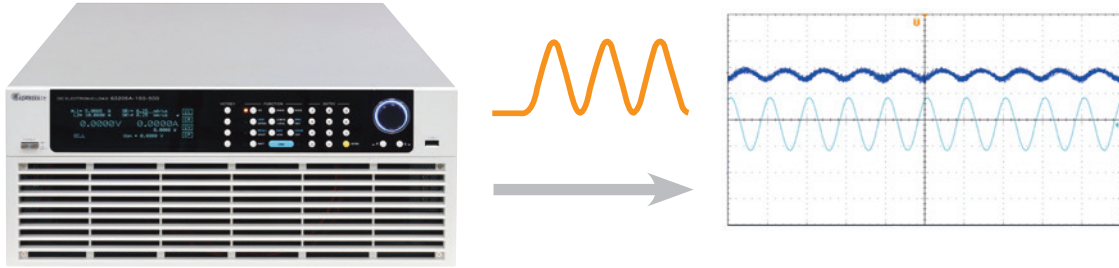
When the need is for increased power, two or more loads can be run in parallel to achieve the desired load current. The 63200A provides the user with smart Master/ Slave mode controls which enables the user to program the load currents of the Master and have them automatically calculated and downloaded to the slave loads. Using several loads in parallel to emulate a single load dramatically simplifies the operation. All models of the series can be integrated into a 19" width standard rack to save space. The slave models, 600V and 1200V, are without control panel and only can be controlled by master models. The 63200A can be controlled and reconfigured with automated testing applications via standard USB or optional Ethernet and GPIB interfaces.



60kW with slave units  
(35U Rack)

## SINE WAVE DYNAMIC LOAD

The 63200A series has a unique sine wave loading function which allows setting of a current bias ( $I_{DC}$ ), a loading sine wave ( $I_{AC}$ ) and sine wave frequency. The sine wave loading must be greater or equal to zero ampere. This function can be used for D/D, server power supplies and fuel cells for DCIR testing.

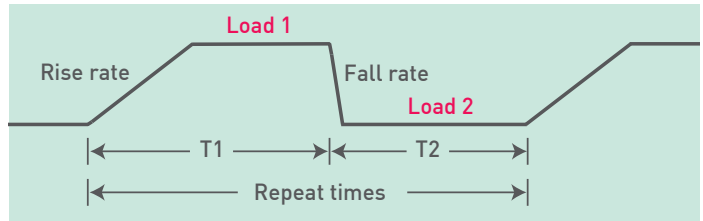


## DYNAMIC LOAD



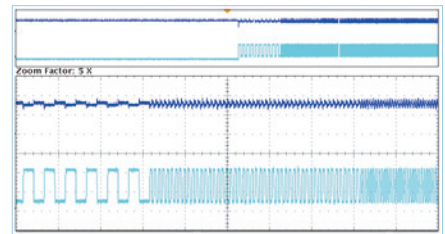
Modern electronic devices operate at very high speeds and demand rapid transient response characteristics. To address these applications, the 63200A series offers high speed, programmable dynamic loading (CCD: Dynamic Current Loading & CRD: Dynamic Resistance Loading) and sweep simulation for testing. The figure shown below exhibits the programmable parameters such as current high/low level, T1/T2, rise/fall rate and execution times. When the load current changes continuously, the internal monitoring mechanism and line circuit can minimize the current waveform distortion. The current rise minimum response time for model150V is 10 $\mu$ s and the dynamic change is up to 50kHz.

The dynamic mode provides a unique simulation capability allowing users to set the number of times each cycle repeats from 1~65535. This feature is very suitable for testing D/D converter and instant large withstand current of batteries.



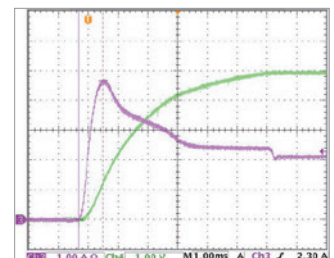
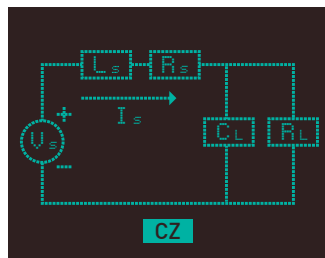
## DYNAMIC FREQUENCY SWEEP CONTROL

The 63200A also offers a unique dynamic frequency sweep (as shown on the right) with variable frequencies up to 50kHz. This capability is ideal for determining worst case voltage peaks. Measurement of the  $V_{peak}$  (+/-) can be achieved using this function with a sampling rate of 500kHz. The dynamic loading mode can simulate different loading conditions for most test requirements. Dedicated remote load sensors and control circuits guarantee minimum waveform distortion during dynamic loading.



## CONSTANT IMPEDANCE MODE (CZ MODE)

There are many capacitors on the mainboard of PC. To prevent the inrush current from occurring and trigger the over current protection of server power (since the server power charges the capacitors on the mainboard). It is necessary to test the capacitive loading when turning on the power supply. Therefore, the 63200A series provides the CZ mode for this test.



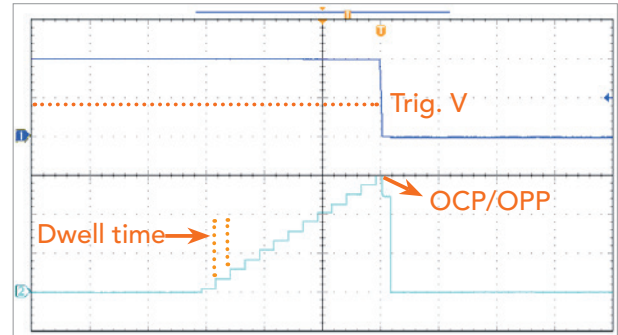
The unique CZ mode designed in 63200A series can improve the loading behavior of CC & CP mode and makes the simulated loading current more realistic.

## ULTRA HIGH PRECISION MEASUREMENT

The 63200A series provides three operating and measuring ranges. Take 63206A-150-600 for example, three voltage ranges of 16V/80V/150V which can meet the requirements of server power or telecom power (12V, 48V, 54V) testing; three current ranges of 60A/300A/600A which can provide different applications of current operating and can minimize the measurement error by selecting the suitable range. Besides, a built-in highly precision A/D converter, achieving 0.015%+0.015%F.S., 0.04%+0.04%F.S. and 0.1%+0.1%F.S. accuracy for voltage, current and power measurement respectively. Precise measurements like these are ideal for testing power efficiency and other critical parameters of the UUT's.

## OVER CURRENT & OVER POWER TESTING

To ensure user safety and minimize power supply failure rates, overcurrent and overpower protections have to be taken into consideration during design. The 63200A enables the user to set current and power orders to test overcurrent and overpower protections, also to judge the test result as Pass or Fail on electronic load. The maximum power ( $P_{max}$ ) during testing can be captured and showed on the display without using an oscilloscope to verify the correctness of designed overcurrent and overpower. It can save a lot of testing time for the user.



OCP Test

## USER DEFINED WAVEFORMS

In addition to common CC, CV, CP and CR loading modes of conventional loads, the 63200A accepts digital data from DAQ cards or analog data from function generators to allow for complex waveforms to be created as depicted below.



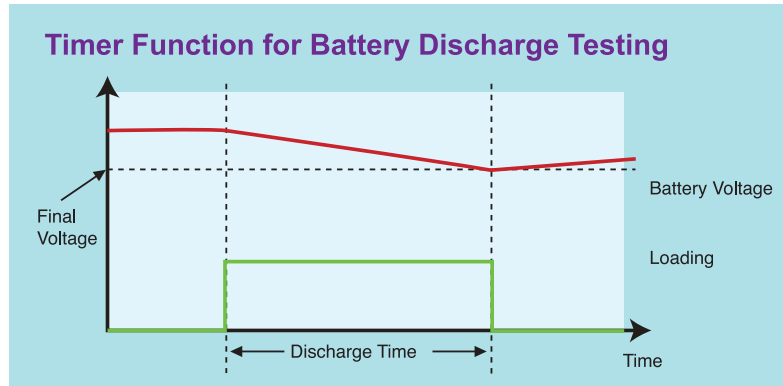
The 63200A also provides an enhanced feature, User Defined Waveform (UDW), to simulate the actual current profiles and waveforms. To reconstruct the actual current waveform, the user can upload captured waveform data into any load via a Chroma softpanel. Each load is capable of storing up to 10 sets of waveforms with each comprising up to 1.5 millions data points to meet the more strenuous test requirements.

In addition, 63200A series also provides voltage peak measurement during actual loading conditions. Avoiding the need for using an oscilloscope to capture the voltage peak, saving time and costs.



## BATTERY DISCHARGE TESTING

The 63200A has three discharge modes: CC, CR and CP. The electronic load can set cut off voltage and time (1~100,000 sec.) to stop loading correctly and make sure the battery is not damaged due to over discharge. In addition it can measure the battery discharge power (WH, AH) and total discharge time. For example, when Load ON is pressed, the 63200A internal clock will start counting until the battery voltage is dropped to cut off voltage or Load OFF is pressed. The battery discharge testing can also apply to super capacitor for discharge time testing and so on.

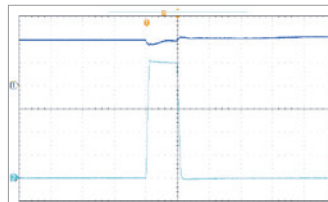
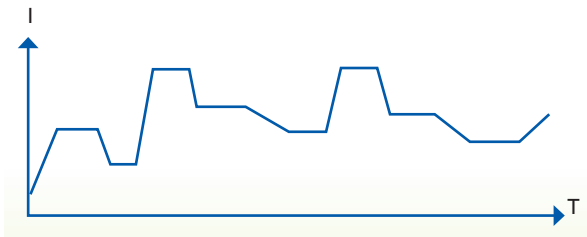


Battery Discharge Testing

## PROGRAMMABLE LOAD TIMING

The 63200A series electronic load has built in 255 programmable timings for various loading conditions simulation. Following lists the applications of common programmed timings.

1. Battery discharge & other applications (NPC, electric car and electric locomotive) to simulate various dynamic loading current waveform, that is to provide two levels above dynamic current simulation or one shot loading simulation.
2. Server/ Telecom power supply mixed load modulation. (For multi channels output UUT.)

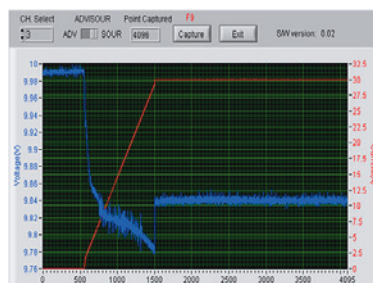


## DIGITIZING FUNCTION

The 63200A series offers a digitizing function convenient for the recording of transients in both voltage and current waveforms. The following are the specifications for setting the parameters:

Sampling time :  $2\mu\text{s}$  ~ 40ms / resolution:  $2\mu\text{s}$  (Setting the interval of sampling time)

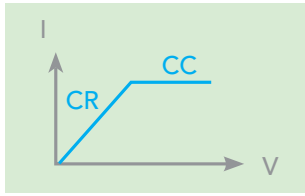
Sampling point : 1 ~ 15,000 (Setting the total sampling points)



## COMPLEX OPERATING MODE

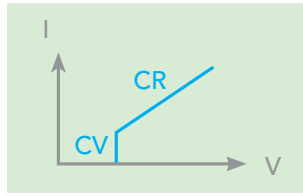
New complex operating modes include CR+CC, CV+CR and CV+CC modes. The CR+CC mode is suitable for power on testing and the CV+CR mode can replace Von setting while the CV+CC mode can be used for battery discharge testing.

I/V Curve



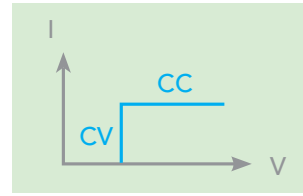
CR+CC Mode

I/V Curve



CV+CR Mode

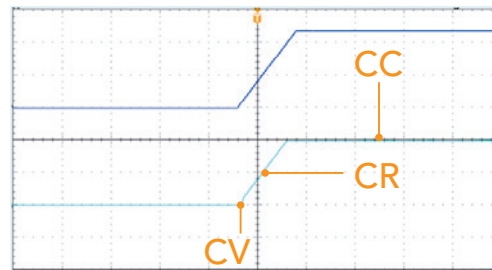
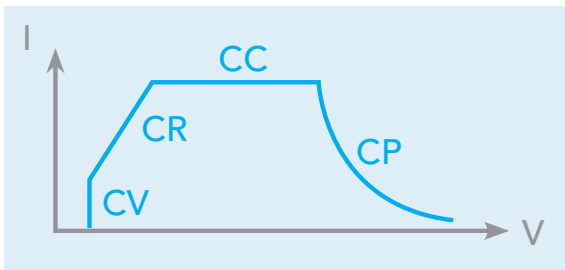
I/V Curve



CV+CC Mode

## AUTO MODE

This mode automatically switches among CV, CR, CC and CP modes. It is suitable for lithium ion battery charger testing to get a complete V-I charging curve. Moreover, the auto mode can avoid damaging the UUT when the protection circuit is damaged.



## SOFTPANEL

The 63200A series loads can be operated from the front panel controls or from available softpanel. This user friendly software includes all functions of the 63200A series loads and is easy to understand and operate. The 63200A loads can be controlled via GPIB, USB and Ethernet interfaces for remote control and automated testing applications.



Main



Over Current Protection



User Defined Waveform



Battery Discharge

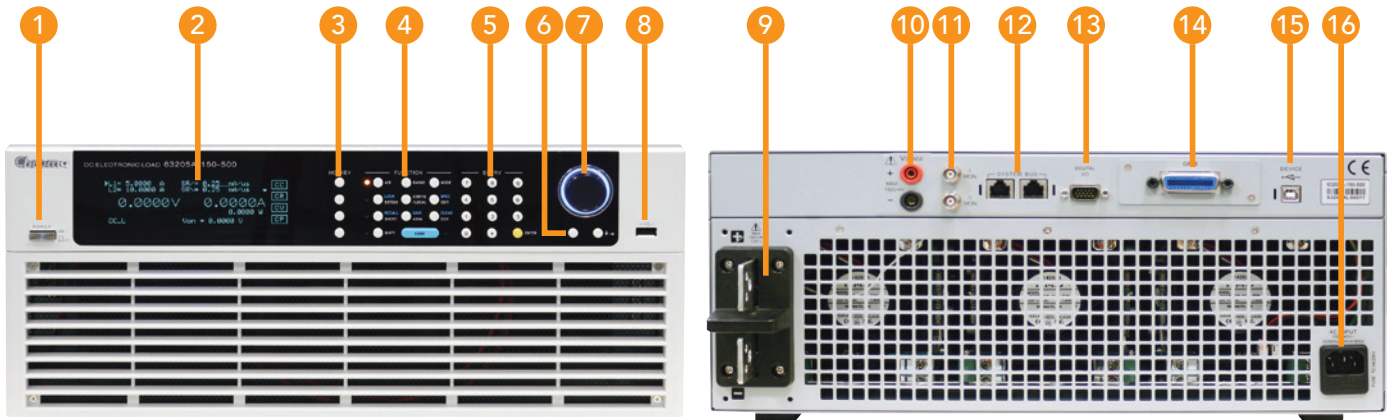


Sine Wave



Program

## PANEL DESCRIPTION



1. **Power Switch** : Electronic load AC power switch
2. **Vacuum Fluorescent Display** : Setup information display
3. **Shortcut Keys** : Loading mode switch
4. **Function Keys** : Including A/B key, RANGE, MODE, EXTEND, LOCK, COFIG./LOCAL, EDIT, SPEC, SHORT, RECALL, ADVA, SAVE & CLEAR
5. **ENTRY Keys** : Numerical keys and ENTER key
6. **Arrow Keys** : Changing and selecting menu
7. **Push-on Knob** : Editing parameter setup page, push the knob again to confirm the input value when the setting is done
8. **USB Host (not ready yet)** : For user defined waveform and programmed sequence data download as well as firmware upgrade
9. **Load Positive/Negative Terminal**
10. **Remote Sense Connections**
11. **Analog Outputs** : Proportional voltage and current waveforms
12. **System BUS** : For master/slave system data transmission
13. **System I/O** : For system input/output signal control
14. **GPIB, Ethernet Card & CAN BUS slot**
15. **USB Port**
16. **AC Input Connector**

## SPECIFICATIONS-1 (60V)

60V Models	63206A-60-1000		
Voltage*2	0~60V		
Current	0~100A	0~500A	0~1,000A
Power*3	0~6,000W		
<b>Static Mode</b>			
Min. Operating Voltage (DC)	0.6V@1,000A		
<b>Constant Current Mode</b>			
Range	0~100A	0~500A	0~1,000A
Accuracy*4	0.05%+0.05%F.S.		
<b>Constant Resistance Mode</b>			
Range	0.0012Ω~12Ω (6V/6kW) ; 0.0048Ω~48Ω (30V/6kW) ; 0.12Ω~240Ω (60V/6kW)		
Accuracy	Vin/Rset*(0.2%)+0.5% I.F.S.		
<b>Constant Voltage Mode</b>			
Range	0~6V	0~30V	0~60V
Accuracy	0.025%+0.025%F.S.		
<b>Constant Power Mode</b>			
Range	0~600W	0~3,000W	0~6,000W
Accuracy *5	0.2%+0.2%F.S.		
<b>Dynamic Mode</b>			
Slew rate	1mA/μs~2A/μs	5mA/μs~10A/μs	10mA/μs~20A/μs
Resolution	1mA/μs	5mA/μs	10mA/μs
Accuracy	5% ± 10μs		
<b>Others</b>			
Power Consumption	200VA(max)		
Dimension (HxWxD)	177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch		
Weight	35kg / 77.2 lbs		



## SPECIFICATIONS-2 (150V)

150V Models	63202A-150-200			63203A-150-300			63204A-150-400		
Voltage*2	0~150V			0~150V			0~150V		
Current	0~20A	0~100A	0~200A	0~30A	0~150A	0~300A	0~40A	0~200A	0~400A
Power*3	0~2,000W			0~3,000W			0~4,000W		
Static Mode									
Min. Operating Voltage (DC)	1.8V@200A			1.8V@300A			1.8V@400A		
Constant Current Mode									
Range	0~20A	0~100A	0~200A	0~30A	0~150A	0~300A	0~40A	0~200A	0~400A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.015Ω~150Ω (16V/2kW) 0.06Ω~600Ω (80V/2kW) 1.5Ω~3,000Ω (150V/2kW)			0.01Ω~100Ω (16V/3kW) 0.04Ω~400Ω (80V/3kW) 1Ω~2,000Ω (150V/3kW)			0.0075Ω~75Ω (16V/4kW) 0.03Ω~300Ω (80V/4kW) 0.75Ω~1,500Ω (150V/4kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~200W	0~1,000W	0~2,000W	0~300W	0~1,500W	0~3,000W	0~400W	0~2,000W	0~4,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.2mA/μs~ 2A/μs	1mA/μs~ 7A/μs	2mA/μs~ 14A/μs	0.2mA/μs~ 3A/μs	1mA/μs~ 10.5A/μs	2mA/μs~ 21A/μs	0.5mA/μs~ 4A/μs	2mA/μs~ 14A/μs	5mA/μs~ 28A/μs
Resolution	0.2mA/μs	1mA/μs	2mA/μs	0.2mA/μs	1mA/μs	2mA/μs	0.5mA/μs	2mA/μs	5mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	160VA(max)			160VA(max)			200VA(max)		
Dimension (HxWxD)	132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			177 x 428 x 647 mm / 6.97 x 16.85 x 25.47 inch		
Weight	30kg / 66 lbs			30kg / 66 lbs			35kg / 77.2 lbs		

## SPECIFICATIONS-3 (150V)

150V Models	63205A-150-500			63206A-150-600			63208A-150-800		
Voltage*2	0~150V			0~150V			0~150V		
Current	0~50A	0~250A	0~500A	0~60A	0~300A	0~600A	0~80A	0~400A	0~800A
Power*3	0~5,000W			0~6,000W			0~8,000W		
Static Mode									
Min. Operating Voltage (DC)	1.8V@500A			1.8V@600A			1.8V@800A		
Constant Current Mode									
Range	0~50A	0~250A	0~500A	0~60A	0~300A	0~600A	0~80A	0~400A	0~800A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.005Ω~50Ω (16V/5kW) 0.02Ω~200Ω (80V/5kW) 0.5Ω~1,000Ω (150V/5kW)			0.005Ω~50Ω (16V/6kW) 0.02Ω~200Ω (80V/6kW) 0.5Ω~1,000Ω (150V/6kW)			0.0038Ω~37.5Ω (16V/8kW) 0.015Ω~150Ω (80V/8kW) 0.375Ω~750Ω (150V/8kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~500W	0~2,500W	0~5,000W	0~600W	0~3,000W	0~6,000W	0~800W	0~4,000W	0~8,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.5mA/μs~ 5A/μs	2mA/μs~ 17.5A/μs	5mA/μs~ 35A/μs	0.5mA/μs~ 6A/μs	2mA/μs~ 21A/μs	5mA/μs~ 42A/μs	1mA/μs~ 8A/μs	5mA/μs~ 24A/μs	10mA/μs~ 48A/μs
Resolution	0.5mA/μs	2mA/μs	5mA/μs	0.5mA/μs	2mA/μs	5mA/μs	1mA/μs	5mA/μs	10mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	200VA(max)			200VA(max)			400VA(max)		
Dimension (HxWxD)	177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch		
Weight	35kg / 77.2 lbs			35kg / 77.2 lbs			70kg / 154.3 lbs		

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## SPECIFICATIONS-4 (150V)

150V Models	63210A-150-1000			63212A-150-1200			63215A-150-1500		
Voltage*2	0~150V			0~150V			0~150V		
Current	0~100A	0~500A	0~1,000A	0~120A	0~600A	0~1,200A	0~150A	0~750A	0~1,500A
Power*3	0~10,000W			0~12,000W			0~15,000W		
Static Mode									
Min. Operating Voltage (DC)	1.8V@1,000A			1.8V@1,200A			1.8V@1,500A		
Constant Current Mode									
Range	0~100A	0~500A	0~1,000A	0~120A	0~600A	0~1,200A	0~150A	0~750A	0~1,500A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.0025Ω~25Ω (16V/10kW) 0.01Ω~100Ω (80V/10kW) 0.25Ω~500Ω (150V/10kW)			0.0025Ω~25Ω (16V/12kW) 0.01Ω~100Ω (80V/12kW) 0.25Ω~500Ω (150V/12kW)			0.0017Ω~16.6667Ω (16V/15kW) 0.0067Ω~66.6667Ω (80V/15kW) 0.167Ω~333.334Ω (150V/15kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,000W	0~5,000W	0~10,000W	0~1,200W	0~6,000W	0~12,000W	0~1,500W	0~7,500W	0~15,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	1mA/μs~ 10A/μs	5mA/μs~ 27.5A/μs	10mA/μs~ 55A/μs	1mA/μs~ 12A/μs	5mA/μs~ 30A/μs	10mA/μs~ 60A/μs	2mA/μs~ 15A/μs	10mA/μs~ 32A/μs	20mA/μs~ 64A/μs
Resolution	1mA/μs	5mA/μs	10mA/μs	1mA/μs	5mA/μs	10mA/μs	2mA/μs	10mA/μs	20mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	400VA(max)			400VA(max)			600VA(max)		
Dimension (HxWxD)	307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch		
Weight	70kg / 154.3 lbs			70kg / 154.3 lbs			97kg / 213.8 lbs		

## SPECIFICATIONS-5 (150V)

150V Models	63218A-150-1800			63220A-150-2000			63224A-150-2000		
Voltage*2	0~150V			0~150V			0~150V		
Current	0~180A	0~900A	0~1,800A	0~200A	0~1,000A	0~2,000A	0~200A	0~1,000A	0~2,000A
Power*3	0~18,000W			0~20,000W			0~24,000W		
Static Mode									
Min. Operating Voltage (DC)	1.8V@1,800A			1.8V@2,000A			1.8V@2,000A		
Constant Current Mode									
Range	0~180A	0~900A	0~1,800A	0~200A	0~1,000A	0~2,000A	0~200A	0~1,000A	0~2,000A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.0017Ω~16.6667Ω (16V/18kW) 0.0067Ω~66.6667Ω (80V/18kW) 0.167Ω~333.334Ω (150V/18kW)			0.0013Ω~12.5Ω (16V/20kW) 0.005Ω~50Ω (80V/20kW) 0.125Ω~250Ω (150V/20kW)			0.0013Ω~12.5Ω (16V/24kW) 0.005Ω~50Ω (80V/24kW) 0.125Ω~250Ω (150V/24kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V	0~16V	0~80V	0~150V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,800W	0~9,000W	0~18,000W	0~2,000W	0~10,000W	0~20,000W	0~2,400W	0~12,000W	0~24,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	2mA/μs~ 18A/μs	10mA/μs~ 36A/μs	20mA/μs~ 72A/μs	2mA/μs~ 20A/μs	10mA/μs~ 40A/μs	20mA/μs~ 80A/μs	2mA/μs~ 20A/μs	10mA/μs~ 40A/μs	20mA/μs~ 80A/μs
Resolution	2mA/μs	10mA/μs	20mA/μs	2mA/μs	10mA/μs	20mA/μs	2mA/μs	10mA/μs	20mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	600VA(max)			800VA(max)			800VA(max)		
Dimension (HxWxD)	441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch		
Weight	97kg / 213.8 lbs			125kg / 275.6 lbs			125kg / 275.6 lbs		

## SPECIFICATIONS-6 (600V)

600V Models	63202A-600-140			63203A-600-210			63204A-600-280		
Voltage*2	0~600V			0~600V			0~600V		
Current	0~14A	0~70A	0~140A	0~21A	0~105A	0~210A	0~28A	0~140A	0~280A
Power*3	0~2,000W			0~3,000W			0~4,000W		
Static Mode									
Min. Operating Voltage (DC)	14V@140A			14V@210A			14V@280A		
Constant Current Mode									
Range	0~14A	0~70A	0~140A	0~21A	0~105A	0~210A	0~28A	0~140A	0~280A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.15Ω~1,500Ω (80V/2kW) 0.6Ω~6,000Ω (150V/2kW) 6Ω~12,000Ω (600V/2kW)			0.1Ω~1,000Ω (80V/3kW) 0.4Ω~4,000Ω (150V/3kW) 4Ω~8,000Ω (600V/3kW)			0.075Ω~750Ω (80V/4kW) 0.3Ω~3,000Ω (150V/4kW) 3Ω~6,000Ω (600V/4kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~200W	0~1,000W	0~2,000W	0~300W	0~1,500W	0~3,000W	0~400W	0~2,000W	0~4,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.2mA/μs~ 0.6A/μs	1mA/μs~ 3A/μs	2mA/μs~ 6A/μs	0.2mA/μs~ 0.9A/μs	1mA/μs~ 4.5A/μs	2mA/μs~ 9A/μs	0.4mA/μs~ 1.2A/μs	2mA/μs~ 6A/μs	4mA/μs~ 12A/μs
Resolution	0.2mA/μs	1mA/μs	2mA/μs	0.2mA/μs	1mA/μs	2mA/μs	0.4mA/μs	2mA/μs	4mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	160VA(max)			160VA(max)			200VA(max)		
Dimension (HxWxD)	132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			177 x 428 x 647 mm / 6.97 x 16.85 x 25.47 inch		
Weight	30kg / 66 lbs			30kg / 66 lbs			35kg / 77.2 lbs		

## SPECIFICATIONS-7 (600V)

600V Models	63205A-600-350			63206A-600-420			63208A-600-560		
Voltage*2	0~600V			0~600V			0~600V		
Current	0~35A	0~175A	0~350A	0~42A	0~210A	0~420A	0~56A	0~280A	0~560A
Power*3	0~5,000W			0~6,000W			0~8,000W		
Static Mode									
Min. Operating Voltage (DC)	14V@350A			14V@420A			14V@560A		
Constant Current Mode									
Range	0~35A	0~175A	0~350A	0~42A	0~210A	0~420A	0~56A	0~280A	0~560A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.05Ω~500Ω (80V/5kW) 0.2Ω~2,000Ω (150V/5kW) 2Ω~4,000Ω (600V/5kW)			0.05Ω~500Ω (80V/6kW) 0.2Ω~2,000Ω (150V/6kW) 2Ω~4,000Ω (600V/6kW)			0.038Ω~375Ω (80V/8kW) 0.15Ω~1,500Ω (150V/8kW) 1.5Ω~3,000Ω (600V/8kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~500W	0~2,500W	0~5,000W	0~600W	0~3,000W	0~6,000W	0~800W	0~4,000W	0~8,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.4mA/μs~ 1.5A/μs	2mA/μs~ 7.5A/μs	4mA/μs~ 15A/μs	0.4mA/μs~ 1.8A/μs	2mA/μs~ 9A/μs	4mA/μs~ 18A/μs	0.5mA/μs~ 1.8A/μs	2mA/μs~ 9A/μs	5mA/μs~ 18A/μs
Resolution	0.4mA/μs	2mA/μs	4mA/μs	0.4mA/μs	2mA/μs	4mA/μs	0.5mA/μs	2mA/μs	5mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	200VA(max)			200VA(max)			400VA(max)		
Dimension (HxWxD)	177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch		
Weight	35kg / 77.2 lbs			35kg / 77.2 lbs			70kg / 154.3 lbs		

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## SPECIFICATIONS-8 (600V)

600V Models	63210A-600-700			63212A-600-840			63215A-600-1050		
Voltage*2	0~600V			0~600V			0~600V		
Current	0~70A	0~350A	0~700A	0~84A	0~420A	0~840A	0~105A	0~525A	0~1,050A
Power*3	0~10,000W			0~12,000W			0~15,000W		
Static Mode									
Min. Operating Voltage (DC)	14V@700A			14V@840A			14V@1,050A		
Constant Current Mode									
Range	0~70A	0~350A	0~700A	0~84A	0~420A	0~840A	0~105A	0~525A	0~1,050A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.025Ω~250Ω (80V/10kW) 0.1Ω~1,000Ω (150V/10kW) 1Ω~2,000Ω (600V/10kW)			0.025Ω~250Ω (80V/12kW) 0.1Ω~1,000Ω (150V/12kW) 1Ω~2,000Ω (600V/12kW)			0.017Ω~166.667Ω (80V/15kW) 0.067Ω~666.667Ω (150V/15kW) 0.67Ω~1,333.34Ω (600V/15kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,000W	0~5,000W	0~10,000W	0~1,200W	0~6,000W	0~12,000W	0~1,500W	0~7,500W	0~15,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.5mA/μs~ 2.1A/μs	2.5mA/μs~ 10.5A/μs	5mA/μs~ 21A/μs	1mA/μs~ 2.4A/μs	5mA/μs~ 12A/μs	10mA/μs~ 24A/μs	1mA/μs~ 2.7A/μs	5mA/μs~ 13.5A/μs	10mA/μs~ 27A/μs
Resolution	0.5mA/μs	2.5mA/μs	5mA/μs	1mA/μs	5mA/μs	10mA/μs	1mA/μs	5mA/μs	10mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	400VA(max)			400VA(max)			600VA(max)		
Dimension (HxWxD)	307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch		
Weight	70kg / 154.3 lbs			70kg / 154.3 lbs			97kg / 213.8 lbs		

## SPECIFICATIONS-9 (600V)

600V Models	63218A-600-1260			63220A-600-1400			63224A-600-1680		
Voltage*2	0~600V			0~600V			0~600V		
Current	0~126A	0~630A	0~1,260A	0~140A	0~700A	0~1,400A	0~168A	0~840A	0~1,680A
Power*3	0~18,000W			0~20,000W			0~24,000W		
Static Mode									
Min. Operating Voltage (DC)	14V@1,260A			14V@1,400A			14V@1,680A		
Constant Current Mode									
Range	0~126A	0~630A	0~1,260A	0~140A	0~700A	0~1,400A	0~168A	0~840A	0~1,680A
Accuracy*4	0.05%+0.05%F.S.			0.05%+0.05%F.S.			0.05%+0.05%F.S.		
Constant Resistance Mode									
Range	0.017Ω-166.667Ω (80V/18kW) 0.067Ω-666.667Ω (150V/18kW) 0.67Ω-1,333.34Ω (600V/18kW)			0.013Ω-125Ω (80V/20kW) 0.05Ω-500Ω (150V/20kW) 0.5Ω-1,000Ω (600V/20kW)			0.013Ω-125Ω (80V/24kW) 0.05Ω-500Ω (150V/24kW) 0.5Ω-1,000Ω (600V/24kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V	0~80V	0~150V	0~600V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,800W	0~9,000W	0~18,000W	0~2,000W	0~10,000W	0~20,000W	0~2,400W	0~12,000W	0~24,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	1mA/μs~ 3A/μs	5mA/μs~ 15A/μs	10mA/μs~ 30A/μs	2mA/μs~ 3.3A/μs	10mA/μs~ 16.5A/μs	20mA/μs~ 33A/μs	2mA/μs~ 3.6A/μs	10mA/μs~ 18A/μs	20mA/μs~ 36A/μs
Resolution	1mA/μs	5mA/μs	10mA/μs	2mA/μs	10mA/μs	20mA/μs	2mA/μs	10mA/μs	20mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	600VA(max)			800VA(max)			800VA(max)		
Dimension (HxWxD)	441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch		
Weight	97kg / 213.8 lbs			125kg / 275.6 lbs			125kg / 275.6 lbs		

## SPECIFICATIONS-10 (1,200V)

1,200V Models	63202A-1200-80			63203A-1200-120			63204A-1200-160		
Voltage*2	0~1,200V			0~1,200V			0~1,200V		
Current	0~8A	0~40A	0~80A	0~12A	0~60A	0~120A	0~16A	0~80A	0~160A
Power*3	0~2,000W			0~3,000W			0~4,000W		
Static Mode									
Min. Operating Voltage (DC)	20V@80A			20V@120A			20V@160A		
Constant Current Mode									
Range	0~8A	0~40A	0~80A	0~12A	0~60A	0~120A	0~16A	0~80A	0~160A
Accuracy*4	0.04%+0.06%F.S.			0.04%+0.06%F.S.			0.04%+0.06%F.S.		
Constant Resistance Mode									
Range	0.3Ω-3kΩ (150V/2kW) 1.2Ω-12kΩ (600V/2kW) 30Ω-60kΩ (1,200V/2kW)			0.2Ω-2kΩ (150V/3kW) 0.8Ω-8kΩ (600V/3kW) 20Ω-40kΩ (1,200V/3kW)			0.15Ω-1.5kΩ (150V/4kW) 0.6Ω-6kΩ (600V/4kW) 15Ω-30kΩ (1,200V/4kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~200W	0~1,000W	0~2,000W	0~300W	0~1,500W	0~3,000W	0~400W	0~2,000W	0~4,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.1mA/μs~ 0.4A/μs	0.5mA/μs~ 2A/μs	1mA/μs~ 4A/μs	0.1mA/μs~ 0.6A/μs	0.5mA/μs~ 3A/μs	1mA/μs~ 6A/μs	0.2mA/μs~ 0.8A/μs	1mA/μs~ 4A/μs	2mA/μs~ 8A/μs
Resolution	0.1mA/μs	0.5mA/μs	1mA/μs	0.1mA/μs	0.5mA/μs	1mA/μs	0.2mA/μs	1mA/μs	2mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	160VA(max)			160VA(max)			200VA(max)		
Dimension (HxWxD)	132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			132.5 x 428 x 647mm / 5.22 x 16.85 x 25.47 inch			177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch		
Weight	30kg / 66 lbs			30kg / 66 lbs			35kg / 77.2 lbs		

## SPECIFICATIONS-11 (1,200V)

1,200V Models	63205A-1200-200			63206A-1200-240			63208A-1200-320		
Voltage*2	0~1,200V			0~1,200V			0~1,200V		
Current	0~20A	0~100A	0~200A	0~24A	0~120A	0~240A	0~32A	0~160A	0~320A
Power*3	0~5,000W			0~6,000W			0~8,000W		
Static Mode									
Min. Operating Voltage (DC)	20V@200A			20V@240A			20V@320A		
Constant Current Mode									
Range	0~20A	0~100A	0~200A	0~24A	0~120A	0~240A	0~32A	0~160A	0~320A
Accuracy*4	0.04%+0.06%F.S.			0.04%+0.06%F.S.			0.04%+0.06%F.S.		
Constant Resistance Mode									
Range	0.1Ω-1kΩ (150V/5kW) 0.4Ω-4kΩ (600V/5kW) 10Ω-20kΩ (1200V/5kW)			0.1Ω-1kΩ (150V/6kW) 0.4Ω-4kΩ (600V/6kW) 10Ω-20kΩ (1200V/6kW)			0.075Ω-0.75kΩ (150V/8kW) 0.3Ω-3kΩ (600V/8kW) 7.5Ω-15kΩ (1200V/8kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~500W	0~2,500W	0~5,000W	0~600W	0~3,000W	0~6,000W	0~800W	0~4,000W	0~8,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.2mA/μs~ 1A/μs	1mA/μs~ 5A/μs	2mA/μs~ 10A/μs	0.2mA/μs~ 1.2A/μs	1mA/μs~ 6A/μs	2mA/μs~ 12A/μs	0.4mA/μs~ 1.2A/μs	2mA/μs~ 6A/μs	4mA/μs~ 12A/μs
Resolution	0.2mA/μs	1mA/μs	2mA/μs	0.2mA/μs	1mA/μs	2mA/μs	0.4mA/μs	2mA/μs	4mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	200VA(max)			200VA(max)			400VA(max)		
Dimension (HxWxD)	177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			177 x 428 x 647mm / 6.97 x 16.85 x 25.47 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch		
Weight	35kg / 77.2 lbs			35kg / 77.2 lbs			70kg / 154.3 lbs		

## SPECIFICATIONS-12 (1,200V)

1,200V Models	63210A-1200-400			63212A-1200-480			63215A-1200-600		
Voltage*2	0~1,200V			0~1,200V			0~1,200V		
Current	0~40A	0~200A	0~400A	0~48A	0~240A	0~480A	0~60A	0~300A	0~600A
Power*3	0~10,000W			0~12,000W			0~15,000W		
Static Mode									
Min. Operating Voltage (DC)	20V@400A			20V@480A			20V@600A		
Constant Current Mode									
Range	0~40A	0~200A	0~400A	0~48A	0~240A	0~480A	0~60A	0~300A	0~600A
Accuracy*4	0.04%+0.06%F.S.			0.04%+0.06%F.S.			0.04%+0.06%F.S.		
Constant Resistance Mode									
Range	0.05 Ω~0.5k Ω (150V/10kW) 0.2 Ω~2k Ω (600V/10kW) 5 Ω~10k Ω (1,200V/10kW)			0.05 Ω~0.5k Ω (150V/12kW) 0.2 Ω~2k Ω (600V/12kW) 5 Ω~10k Ω (1,200V/12kW)			0.034 Ω~0.333334k Ω (150V/15kW) 0.14 Ω~1.33334k Ω (600V/15kW) 3.34 Ω~6.6667k Ω (1,200V/15kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,000W	0~5,000W	0~10,000W	0~1,200W	0~6,000W	0~12,000W	0~1,500W	0~7,500W	0~15,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.4mA/μs~ 1.4A/μs	2mA/μs~ 7A/μs	4mA/μs~ 14A/μs	0.4mA/μs~ 1.6A/μs	2mA/μs~ 8A/μs	4mA/μs~ 16A/μs	0.5mA/μs~ 1.8A/μs	2mA/μs~ 9A/μs	5mA/μs~ 18A/μs
Resolution	0.4mA/μs	2mA/μs	4mA/μs	0.4mA/μs	2mA/μs	4mA/μs	0.5mA/μs	2mA/μs	5mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	400VA(max)			400VA(max)			600VA(max)		
Dimension (HxWxD)	307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			307.6 x 428 x 670.5 mm / 12.11 x 16.85 x 26.40 inch			441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch		
Weight	70kg / 154.3 lbs			70kg / 154.3 lbs			97kg / 213.8 lbs		

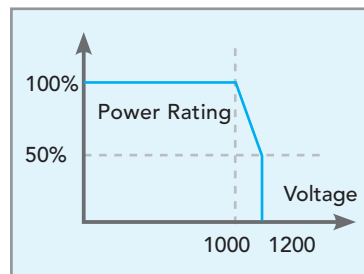
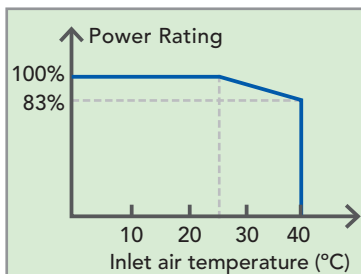
## SPECIFICATIONS-13 (1,200V)

1,200V Models	63218A-1200-720			63220A-1200-800			63224A-1200-960		
Voltage*2	0~1,200V			0~1,200V			0~1,200V		
Current	0~72A	0~360A	0~720A	0~80A	0~400A	0~800A	0~96A	0~480A	0~960A
Power*3	0~18,000W			0~20,000W			0~24,000W		
Static Mode									
Min. Operating Voltage (DC)	20V@720A			20V@800A			20V@960A		
Constant Current Mode									
Range	0~72A	0~360A	0~720A	0~80A	0~400A	0~800A	0~96A	0~480A	0~960A
Accuracy*4	0.04%+0.06%F.S.			0.04%+0.06%F.S.			0.04%+0.06%F.S.		
Constant Resistance Mode									
Range	0.034 Ω~0.333334k Ω (150V/18kW) 0.14 Ω~1.33334k Ω (600V/18kW) 3.34 Ω~6.6667k Ω (1,200V/18kW)			0.025 Ω~0.25k Ω (150V/20kW) 0.1 Ω~1k Ω (600V/20kW) 2.5 Ω~5k Ω (1,200V/20kW)			0.025 Ω~0.25k Ω (150V/24kW) 0.1 Ω~1k Ω (600V/24kW) 2.5 Ω~5k Ω (1,200V/24kW)		
Accuracy	Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.			Vin/Rset*(0.2%)+0.2% I.F.S.		
Constant Voltage Mode									
Range	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V	0~150V	0~600V	0~1,200V
Accuracy	0.025%+0.025%F.S.			0.025%+0.025%F.S.			0.025%+0.025%F.S.		
Constant Power Mode									
Range	0~1,800W	0~9,000W	0~18,000W	0~2,000W	0~10,000W	0~20,000W	0~2,400W	0~12,000W	0~24,000W
Accuracy *5	0.2%+0.2%F.S.			0.2%+0.2%F.S.			0.2%+0.2%F.S.		
Dynamic Mode									
Slew rate	0.5mA/μs~ 2A/μs	2mA/μs~ 10A/μs	5mA/μs~ 20A/μs	1mA/μs~ 2.2A/μs	5mA/μs~ 11A/μs	10mA/μs~ 22A/μs	1mA/μs~ 2.4A/μs	5mA/μs~ 12A/μs	10mA/μs~ 24A/μs
Resolution	0.5mA/μs	2mA/μs	5mA/μs	1mA/μs	5mA/μs	10mA/μs	1mA/μs	5mA/μs	10mA/μs
Accuracy	5% ± 10μs			5% ± 10μs			5% ± 10μs		
Others									
Power Consumption	600VA(max)			800VA(max)			800VA(max)		
Dimension (HxWxD)	441.1 x 428 x 670.5 mm / 17.37 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch			574.6 x 428 x 670.5 mm / 22.64 x 16.85 x 26.40 inch		
Weight	97kg / 213.8 lbs			125kg / 275.6 lbs			125kg / 275.6 lbs		

## GENERAL SPECIFICATIONS

Voltage	60V	150V	600V	1,200V
<b>Static mode</b>				
CZ				
Range	CL : 30 $\mu$ F~50,000 $\mu$ F ; RL : as CR ; Ls : 0.1 $\mu$ H~16 $\mu$ H ; Rs : 30m $\Omega$ ~20 $\Omega$			
Resolution	CL : 1 $\mu$ F ; Ls : 0.1 $\mu$ H ; Rs : as CR ; RL : as CR			
CC+CV	Refer to CC & CV specifications			
CR+CV	Refer to CR & CV specifications			
CR+CC	Refer to CR & CC specifications			
<b>Dynamic mode</b>				
T1 & T2	0.020ms~99.999ms/100ms~99,999ms			
Resolution	1 $\mu$ s/1ms			
Accuracy	1 $\mu$ s+100ppm			
Min. rise time *7	20 $\mu$ s (Typical)	10 $\mu$ s (Typical)	20 $\mu$ s (Typical)	20 $\mu$ s (Typical)
<b>Measurement</b>				
Voltage read back				
Range *8	0 ~ rated voltage (three ranges)			
Accuracy	0.015%+0.015%F.S.			
Current read back				
Range	0 ~ rated current (three ranges)			
Accuracy	0.05%+0.05%F.S.	0.04%+0.04%F.S.		
Power read back				
Range	0 ~ rated power (three ranges)			
Accuracy *5	0.1%+0.1%F.S.			
<b>Battery Discharge</b>				
Range	1s~100,000s			
Resolution	1s			
<b>Monitor</b>				
Voltage Monitor				
Bandwidth	20kHz			
Range	0~60V	0~150V	0~600V	0~1,200V
Output	0~10V			
Accuracy	0.5%F.S.			
Output impedance	10k $\Omega$			
Resolution	4mV			
Current Monitor				
Bandwidth	20kHz			
Range	0 ~ rated current			
Output	0~10V			
Accuracy	0.5%F.S.			
Output impedance	10k $\Omega$			
Resolution	4mV			
<b>Protection</b>				
Over Current	Yes (Settable)			
Over Power	Yes (Settable)			
Over Temperature	Yes			
Over Voltage Alarm	Yes			
Reverse Alarm	Yes			
<b>Interfaces</b>				
Standard	Front USB (Host), Rear USB (Device)			
Option	Ethernet, GPIB, CAN BUS			
System Bus	Master/Slave			
<b>General</b>				
Input Resistance (Load Off)	600k $\Omega$ (Typical)	800k $\Omega$ (Typical)	1M $\Omega$ (Typical)	2M $\Omega$ (Typical)
Operating Temp	0~40 $^{\circ}$ C			
Storage Temp	-20~80 $^{\circ}$ C			
Line Voltage	100~240 VAC / 47~63Hz			

1. The specifications are guaranteed to meet specified performance at temperature range of  $25 \pm 5^{\circ}$ C.
2. If the operating voltage exceeds the rated voltage for 1.05 times, it would cause permanent damage to the device.
3. The power rating specifications at ambient temperature =  $25^{\circ}$ C and see the diagram below for power derating.
4. If the operating current is below range 0.2%, the accuracy specification is 0.1% F.S.
5. Power F.S. = Vrange F.S.x Irang F.S.
6. The specification is valid only for loading current > 4% F.S.
7. The short circuit function simulates full power loading and thus it cannot perform mechanical short circuit.
8. Example : 63200A-1200-400, the voltage ranges are 150V, 600V, and 1,200V.
9. For the power rating specifications of 1200V models, see the diagram below for power derating.



\* All specifications are subject to change without notice.

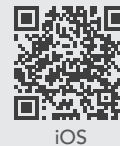
## ORDERING INFORMATION

63200A Series High Power DC Electronic Load					
Model	Voltage	Current	Power	Height	
63206A-60-1000	60V	1000A	6kW	4U	
63202A-150-200		200A	2kW	3U	
63203A-150-300		300A	3kW		
63204A-150-400		400A	4kW	4U	
63205A-150-500		500A	5kW		
63206A-150-600		600A	6kW	7U	
63208A-150-800		800A	8kW		
63210A-150-1000		1000A	10kW	10U	
63212A-150-1200		1200A	12kW		
63215A-150-1500		1500A	15kW	13U	
63218A-150-1800		1800A	18kW		
63220A-150-2000		2000A	20kW	13U	
63224A-150-2000		2000A	24kW		
63202A-600-140		600V	140A	2kW	3U
63203A-600-210	210A		3kW	4U	
63204A-600-280	280A		4kW		
63205A-600-350	350A		5kW	7U	
63206A-600-420	420A		6kW		
63208A-600-560	560A		8kW	10U	
63210A-600-700	700A		10kW		
63212A-600-840	840A		12kW	13U	
63215A-600-1050	1050A		15kW		
63218A-600-1260	1260A		18kW	13U	
63220A-600-1400	1400A		20kW		
63224A-600-1680	1680A		24kW		
63202A-1200-80	1200V		80A	2kW	3U
63203A-1200-120			120A	3kW	4U
63204A-1200-160		160A	4kW		
63205A-1200-200		200A	5kW	7U	
63206A-1200-240		240A	6kW		
63208A-1200-320		320A	8kW	10U	
63210A-1200-400		400A	10kW		
63212A-1200-480		480A	12kW	13U	
63215A-1200-600		600A	15kW		
63218A-1200-720		720A	18kW	13U	
63220A-1200-800		800A	20kW		
63224A-1200-960		960A	24kW		

options	
A600009	GPIB cable (200cm)
A600010	GPIB cable (60cm)
A632000	Softpanel for 63200A Series
A632006	NI USB-6211 Bus-Powered Multifunction DAQ
A632007	Over voltage protection box (for 1200V models only)
A632009	Slave model (600V/1680A/24kW)
A632010	Slave model (1200V/960A/24kW)
A632013	CAN BUS interface
A636000	GPIB interface
A636010	Ethernet interface
B632000	Handle for 3U models (2kW/3kW)
B632001	Handle for 4U models (4kW/5kW/6kW)
B632002	Rack mounting kit for 7U models (8kW/10kW/12kW)
B632003	Rack mounting kit for 10U models (15kW/18 kW)
B632004	Rack mounting kit for 13U models (20kW/24kW)
B632008	Low inductance and impedance cable (500A/1m)



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