

62000DC SERIES

KEY FEATURES

- Voltage rating :
0~100V/600V/1200V/1800V
- Current rating : 0~540A
- Power rating : 6kW/12kW/18kW
- High power density: 18kW in 3U
- Easy master/slave parallel & series ^{*1} operation up to 540kW
- Wide range of voltage & current combinations in constant power
- Auto sequencing programming
- Voltage & current slew rate control
- High speed transient response < 1.5ms
- Low output noise and ripple
- Intuitive and user-friendly touch control screen
- Standard USB/LAN/APG interfaces, optional CAN/GPIB interfaces
- 3-phase 4-wire universal AC power: 200~480 Vac

*1: 100V/600V models support series operation. 1200V (18kW) models support parallel operation up to 540kW.



HIGH-POWER DC POWER SUPPLY 62000DC SERIES

Chroma 62000DC programmable DC power supplies provide high-power testing of power components in electric vehicles including on-board chargers (OBC), DC-DC converters, and DC-AC motor drivers. The series also offers advantages for automated test system integration and industrial and telecom applications.

62000DC programmable DC supplies include several different models with industry-leading power density at 18kW in 3U of vertical rack space. Models range from 6kW to 18kW, output current ratings up to 540A, and voltage ratings up to 1200VDC. The master/slave feature allows for up to 10 models to be paralleled easily and safely up to 180kW.

62000DC series is equipped with 100 programmable user settings through the unit's List Mode. The fast response time fills many testing needs, including the LV123 and LV148 standards required for new energy vehicle components. When combined with the Chroma Softpanel, the user can conduct complex tests with simple clicks of the mouse.

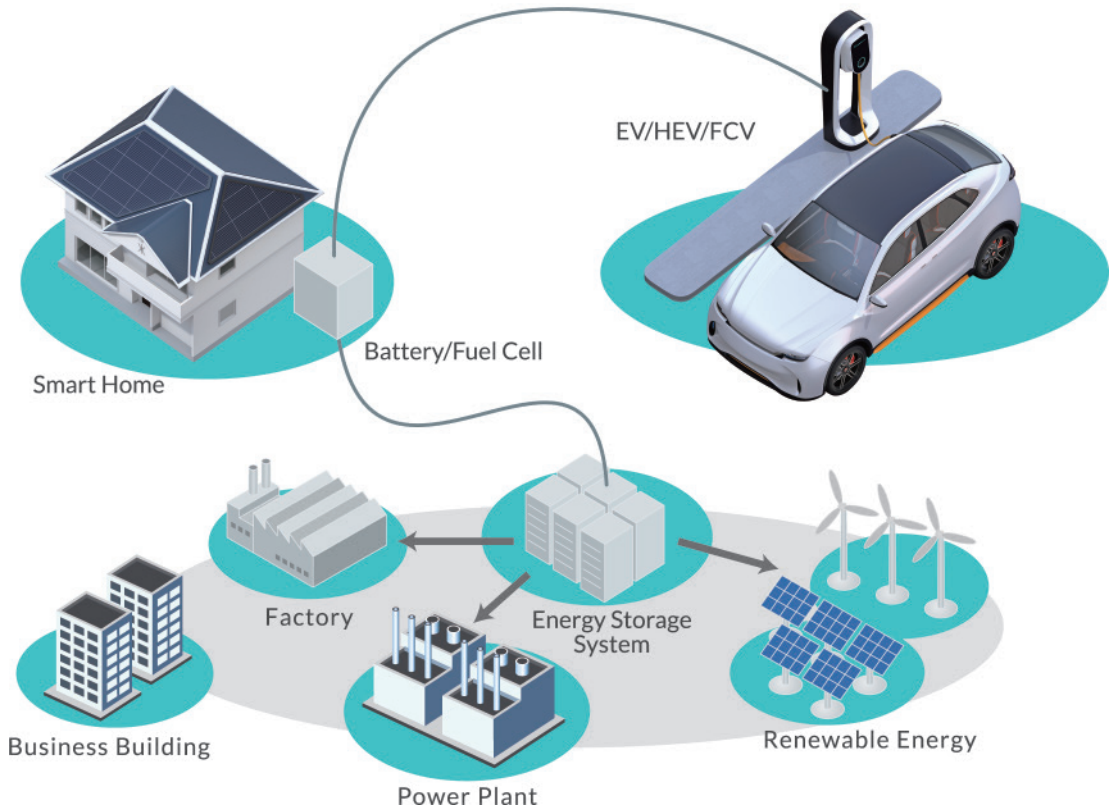
62000DC power supplies can easily be used in any region of the world due to its wide input range of 200-480 Vac and an active PFC low-current harmonic feed to grid, reducing power consumption, power system configuration, and ambient temperature changes under high-power testing. Control options include digital USB, LAN, CANbus, GPIB as well as analog APG interfaces.



Chroma
Advancing Excellence

POWER CONVERSION TESTING OF ELECTRIC VEHICLES AND MICROGRID STORAGE

Renewable energy sources such as PV, EV, fuel cell, and battery are the market trend as the replacement of traditional energy sources (coal, oil, etc.). Yet, the subsequent rising need for electricity will actuate the faster commercialization of distributed energy storage in microgrids. The designs of power conversion devices urges battery applications to achieve higher efficiency, higher voltage conversion, and higher power density direction, which prompts the need for precision testing.



TESTING STANDARDS LV123 AND LV 148

Along with the global energy efficiency and carbon emission reduction trends, the car industry have established technical development standards for new energy vehicles, which define tests for a variety of electric vehicles. The LV123 guidelines specify the vehicle's electrical characteristics and safety of high-voltage components, whereas the LV148 standard covers tests for electric and electronic components in 48V electrical system motor vehicles. Chroma 62000DC has a high-speed CV dynamic response slope that can be controlled up to 180V/ms, which is applicable to the electrical characteristics tests of many vehicle guidelines. When combined with the Chroma Softpanel, the user can even conduct the tests at the push of a button.

LV123

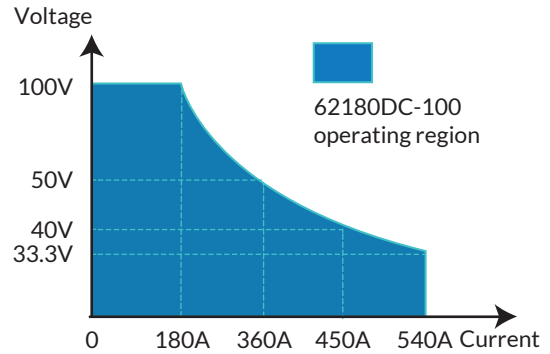
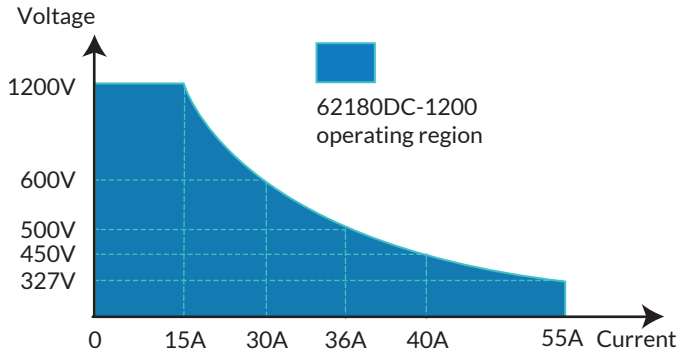
- Range of unlimited operating capability
- Range of upper limited operating capability
- Range of lower limited operating capability
- Range of highly limited operating capability

LV148

- Long-term overvoltage
- Transient pulse in the lower operating range
- Recuperation
- Slow reduction and slow increase of supply voltage
- Reset behavior
- Operation in the upper range with functional restrictions
- Operation in the lower range with functional restrictions
- Overvoltage range

AUTO-OPERATING RANGES

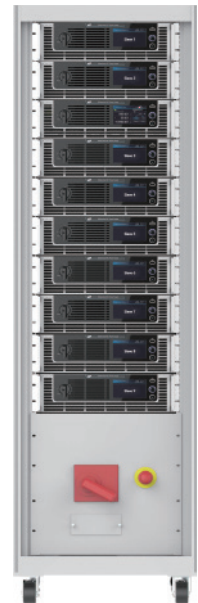
Chroma's 62000DC power supplies offer an even wider coverage of low voltage/high current and high voltage/low current DUTs than other DC power supplies can test. When used into a standard ATE system or in a lab, one 62000DC can replace multiple DC power supplies to significantly save space and costs.



SMART MASTER-SLAVE CONTROL

When testing high power 10kW-180kW conversion components (e.g. PCS, ESS, Charger, Inverter), users need to consider small volume, light weight, utilization rate, flexible assembly and disassembly for operation of various power systems, and influence of R&D during system failure and maintenance. The 62000DC Series has a smart master-slave control mode that can connect 2 to 10 units (Specified models can be connected in parallel up to 30 units), enabling fast and simple series/parallel operation for use by R&D, QC, and at the production line. In this mode, the master scales values and downloads data to slave units so programming is as simple as using a single unit, and the digital current sharing is highly stable and without noise interference.

Master/slave parallel operation up to 180kW.
Call for availability



HIGH POWER SYSTEM INTEGRATION

Chroma provides high power system integration services from 54kW-540kW. These power systems have multiple safety protections (AC Breaker circuit breaker includes overcurrent protection, leakage current detection protection, emergency stop button device, input AC over Voltage, under voltage, OFP, UFP, system over temperature, fan failure, etc.) and are suitable for long-term testing and use in both R&D and production lines.

* Model 62180DC-1200 can support 30 units in parallel, up to 540kW.



UNIVERSAL AC POWER RANGE 200~480VAC

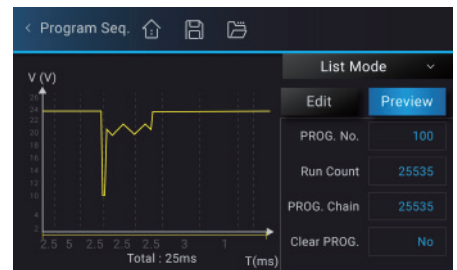
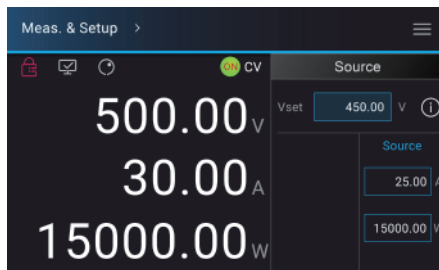
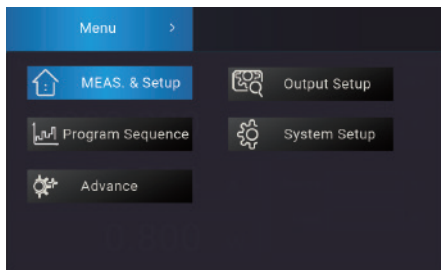
Chroma 62000DC power supply is equipped with an active PFC >0.97 for low energy consumption and high conversion efficiency. Moreover, to fit the universal AC power input range, the 62000DC series has a very wide input power range of three-phase 200Vac to 220Vac and 380Vac to 480Vac inputs. Users can buy one single device without having to configure it for use in other areas.

REMOTE INTERFACES

Chroma 62000DC supports various remote interfaces, enabling the user to control the PC through the standard USB and LAN or optional GPIB interfaces. Moreover, the optional CAN interface as frequently used in the automobile industry is compliant with the CAN2.0 A 11-bit and CAN2.0 B 29-bit identifiers and has a V/I/P cycle time of up to 10ms.

USER-FRIENDLY INTUITIVE CONTROL INTERFACE

Chroma 62000DC is equipped with a next generation control interface with an intuitive and user-friendly touch screen. Operation is as easy as using a smartphone, with its intelligent and convenient user interface; through icons on the touch screen, the user can complete any voltage/current settings and measurements, program sequence control settings, preview output waveforms, etc.



*Control interface images are screenshots from our bidirectional 62000D series

SOFTPANEL

The 62000DC series can be operated from the front panel controls or from available softpanel. This user friendly software includes all functions of the 62000D series and is easy to understand and operate. The 62000DC can be controlled via GPIB, USB and Ethernet interfaces for remote control and automated testing applications.



List Mode*

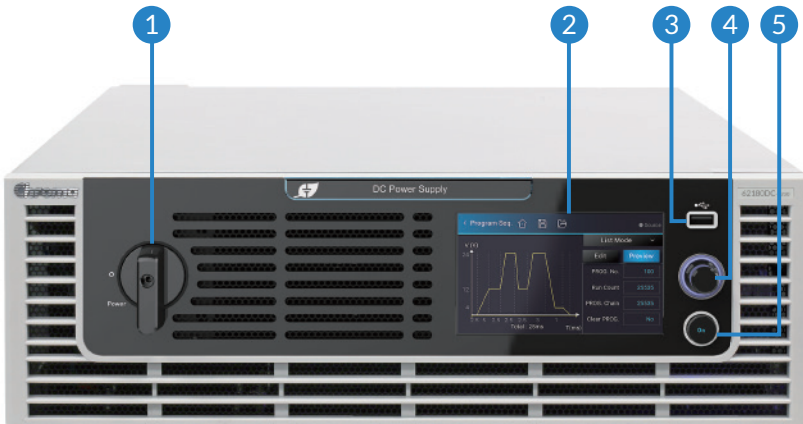


Fixed Mode*

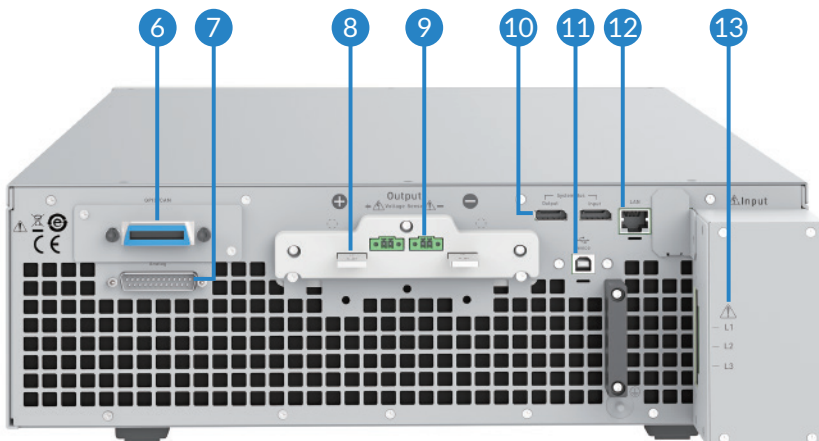


Step Mode*

PANEL DESCRIPTIONS



1. POWER Switch
2. TFT Control Interface
Displays: measurements, setup, control, and status
3. USB HOST (not yet supported)
Programming: program fetching, data downloading, firmware updates, etc.
4. Pushable Rotary Switch
Rotate to edit screen and set values; after configuration, push to confirm input
5. OUTPUT ON Key
Press the ON key: light indicates Output ON, dark indicates Output OFF



6. GPIB & CAN Interfaces Shared Slot (choose one)
7. Analog Programming Interface
For analog level to program and monitor output voltage & current
8. DC Output Terminal
9. Remote Sense Terminal
10. Current Sharing Terminal
Connect the cable to slave unit
11. USB Interface (standard)
12. LAN Interface (standard)
13. AC Input Terminal

62000D models shown.

SPECIFICATIONS - 1 (100V & 600V Models)

Model	62060DC-100	62120DC-100	62180DC-100	62060DC-600	62120DC-600	62180DC-600
Source Ratings						
Source Voltage	0~100V			0~600V		
Source Current*1	180A	360A	540A	40A	80A	120A
Source Power *2	6000W	12000W	18000W	6000W	12000W	18000W
Line Regulation						
Voltage	±0.01% F.S.					
Current	±0.05% F.S.					
Voltage Measurement*3						
Range	20V / 100V			120V / 600V		
Accuracy	0.05% + 0.05%F.S.			0.05% + 0.05%F.S.		
Current Measurement*3						
Range	36A / 180A	72A / 360A	108A / 540A	8A / 40A	16A / 80A	24A / 120A
Accuracy	0.1% + 0.1%F.S.					
Output Noise & Ripple						
P-P (20MHz)	150 mV			420mV		
rms (Voltage)	25 mV			85mV		
rms (Current)	150mA	300mA	450mA	30mA	60mA	90mA
Programming Response Time						
Rise Time (Full Load)	10 ms			20ms		
Rise Time (No Load)	10 ms			10 ms		
Fall Time (Full Load)	10 ms			20ms		
Fall Time (No Load)	10 ms			10 ms		
Slew Rate Control						
Voltage slew rate range	0.001V/ms~ 10V/ms			0.001V/ms~60V/ms		
Current slew rate range	0.001A~10A/ms	0.001A~20A/ms	0.001A~30A/ms	0.001A~20A/ms	0.001A~40A/ms	0.001A~60A/ms
Minimum transition time (CV)	0.5ms			0.5ms		
Transient Response Time (CV)	Recovers within 500µs to ±0.75% of steady-state output for a 50% to 100% or 100% to 50% load change (1A/µs)					
Operating Mode						
Source	CC, CV, CP					
Efficiency (Typical)	> 0.91	> 0.91	> 0.92	> 0.91		
Drift (30 minutes)						
Voltage	0.04% of Vmax			0.04% of Vmax		
Current	0.06% of Imax			0.06% of Imax		
Drift (8 hours)						
Voltage	0.02% of Vmax			0.02% of Vmax		
Current	0.04% of Imax			0.04% of Imax		
Temperature Coefficient						
Voltage	0.04% of Vmax/°C			0.04% of Vmax/°C		
Current	0.06% of Imax/°C			0.06% of Imax/°C		

Note *1: 62180DC-1200 can operate continuously at full power, with a current and ambient temperature of 40A at 40°C, 50A at 35°C and 55A at 30°C(< 5 minutes at 35°C).

Note *2: When input at low voltage 200Vac~220Vac, output power rate derates to 67%; when input at high voltage 380Vac~480Vac, output power is a full 100%. (Example: 18kW derates to 12kW at 200Vac~220Vac.)

Note *3: Source supports high and low scale measurement accuracy. For other modes, please refer to the manual for details.

SPECIFICATIONS - 1 (Cont.)

Model	62060DC-100	62120DC-100	62180DC-100	62060DC-100	62120DC-100	62180DC-100
Programming & Measurement Resolution						
Voltage (Front Panel)	10 mV			10 mV		
Current (Front Panel)	10 mA			10 mA		
Voltage (Digital Interface)	0.002% of Vmax			0.002% of Vmax		
Current (Digital Interface)	0.004% of Imax			0.002% of Imax		
Voltage (Analog Interface)	0.04% of Vmax			0.04% of Vmax		
Current (Analog Interface)	0.04% of Imax			0.04% of Imax		
Programming Accuracy						
Voltage (Front Panel and Digital Interface)	0.05% of Vmax			0.05% of Vmax		
Current (Front Panel and Digital Interface)	0.2% of Imax			0.2% of Imax		
Power (Front Panel and Digital Interface)	0.3% of Pmax			0.3% of Pmax		
Voltage (Analog Interface)	0.2% of Vmax			0.2% of Vmax		
Current (Analog Interface)	0.3% of Imax			0.3% of Imax		
APG Measurement Accuracy						
Voltage (Analog Interface)	0.5% of Vmax			0.5% of Vmax		
Current (Analog Interface)	0.75% of Imax			0.75% of Imax		
Analog Interface (I/O)						
Voltage and Current Programming Inputs (I/P)	Voltage : 0~10 Vdc of F.S. Current : Source I : 0~10 Vdc of F.S.					
Voltage and Current Monitor Output (O/P)	Voltage : 0~10 Vdc of F.S. Current : 0~10 Vdc of F.S.					
External ON/OFF (I/P)	TTL: Active Low or High (selective)					
DC_ON Signal (O/P)	Level by user defined (Time delay=1ms at voltage slew rate of 10V/ms.)					
CV or CC Mode Indicator (O/P)	TTL Level High=CV mode ; TTL Level Low=CC mode					
OTP Indicator (O/P)	TTL: Active Low					
System Fault Indicator (O/P)	TTL: Active Low					
Safety Interlock (I/P)	Time accuracy: <100ms					
Remote Inhibit (I/P)	TTL: Active Low					
OVP Adjustment Range						
Range	0~110% programmable					
Accuracy	±1% of full scale output					
Auto Sequencing (List Mode)						
Number of Program	10					
Number of Sequence	100					
Dwell time Range	2ms~15,000s					
Trig. Source	Manual / Auto / External					
Auto Sequencing (Step Mode)						
Start Voltage	0 to full scale					
End Voltage	0 to full scale					
Run Time	hh : mm : ss.sss (00 : 00 : 00.001 to 99 : 59 : 59.99)					
Trig. Source	Auto					
Series & Parallel Operation by Master / Slave Control*5	Series: 2 units Parallel: 3 units	Series: 2 units Parallel: 3 units	Series: 2 units Parallel: 10 units	Series: 2 units Parallel: 3 units	Series: 2 units Parallel: 3 units	Series: 2 units Parallel: 10 units
Input Specification						
AC Input Voltage 3-phase, 3-wire + Ground (w/o neutral)	3ø 200Vac~220Vac±10% w/o neutral 3ø 380Vac~480Vac±10% w/o neutral (67% output power@200~220Vac input, 100% output power@380~480Vac input)					
AC Frequency Range	47~63 Hz					
Power Factor	>0.97					
General Specification						
Maximum Remote Sense Line Drop Compensation	2% of full scale voltage per line (5% total)			2% of full scale voltage per line (4% total)		
Operating Temperature Range	0°C~40°C					
Storage Temperature Range	-25°C~70°C					
Dimension Size (HxWxD) mm	133 x 428 x 730 mm / 5.23 x 16.85 x 28.74 inch					
Weight (kg)	32.6 kg/71.9 lbs	38.8 kg/85.5 lbs	45 kg/100 lbs	30.6 kg/67.4 lbs	34.8 kg/76.7 lbs	39 kg/86.1 lbs

Note *5: For higher power >180kW~540kW, please call for availability.

* All specifications are subject to change without notice.

SPECIFICATIONS - 2 (1200V & 1800V Models)

Model	62120DC-1200	62180DC-1200	62180DC-1800
Source Ratings			
Source Voltage	0~1200V	0~1200V	0~1800V
Source Current	40A / 55A *4	40A / 55A *4	40A / 55A *4
Source Power *1	12000W / 13000W *5	18000W / 19500W *5	18000W / 19500W *5
Line Regulation			
Voltage	±0.01% F.S.		
Current	±0.05% F.S.		
Voltage Measurement*3			
Range	240V /1200V	240V /1200V	360V / 1800V
Accuracy	0.05% + 0.05%F.S.	0.05% + 0.075%F.S.	0.05% + 0.05%F.S.
Current Measurement*3			
Range	8A / 40A / 55A *4	8A / 40A / 55A *4	8A / 40A / 55A *4
Accuracy	0.1% + 0.1%F.S.		
Output Noise & Ripple			
P-P (20MHz)	840mV	1260mV	1260mV
rms (Voltage)	170mV	255mV	255mV
rms (Current)	30mA	30mA	30mA
Programming Response Time			
Rise Time (Full Load)	20ms		
Rise Time (No Load)	10 ms		
Fall Time (Full Load)	20ms		
Fall Time (No Load)	10ms		
Slew Rate Control			
Voltage slew rate range	0.001V/ms~120V/ms	0.001V/ms~180V/ms	0.001V/ms~180V/ms
Current slew rate range	0.001A~20A/ms		
Minimum transition time (CV)	0.5ms		
Transient Response Time (CV)	Recovers within 500µs to ±0.75% of steady-state output for a 50% to 100% or 100% to 50% load change (1A/µs)		
Operating Mode			
Source	CC, CV, CP, Ri		
Efficiency (Typical)	> 0.91	> 0.91	> 0.92
Drift (30 minutes)			
Voltage	0.04% of Vmax	0.06% of Vmax	0.04% of Vmax
Current	0.06% of Imax		
Drift (8 hours)			
Voltage	0.02% of Vmax	0.03% of Vmax	0.02% of Vmax
Current	0.04% of Imax		
Temperature Coefficient			
Voltage	0.04% of Vmax/°C	0.06% of Vmax/°C	0.04% of Vmax/°C
Current	0.06% of Imax/°C		

Note *1: When input at low voltage 200Vac~220Vac, output power rate derates to 67%; when input at high voltage 380Vac~480Vac, output power is a full 100%. (Example: 18kW derates to 12kW at 200Vac~220Vac.)

Note *2: The specification of minimum load voltage is the same when operating under source & load mode.

Note *3: Source mode supports high and low scale measurement accuracy. For other modes, please refer to the manual for details.

Note *4: 62120DC-1200 can operate continuously at full power, with a current and ambient temperature of 50A at 40°C and 55A at 35°C. 62180DC-1200 & 62180DC-1800 can operate continuously at full power, with a current and ambient temperature of 40A at 40°C, 50A at 35°C and 55A at 30°C (< 5 minutes at 35°C).

Note *5: 62120DC-1200 can operate continuously up to 13kW/55A at an ambient temperature of 35°C. 62180DC-1200 & 62180DC-1800 can operate continuously up to 19.5kW/50A at an ambient temperature of 35°C.

SPECIFICATIONS - 2 (Cont.)

Model	62120DC-1200	62180DC-1200	62180DC-1800
Programming & Measurement Resolution			
Voltage (Front Panel)	100 mV	100 mV	100 mV
Current (Front Panel)	10 mA	10 mA	10 mA
Voltage (Digital Interface)	0.002% of Vmax	0.003% of Vmax	0.002% of Vmax
Current (Digital Interface)		0.004% of Imax	
Voltage (Analog Interface)	0.04% of Vmax	0.06% of Vmax	0.04% of Vmax
Current (Analog Interface)		0.04% of Imax	
Programming Accuracy			
Voltage (Front Panel and Digital Interface)	0.05% of Vmax	0.075% of Vmax	0.05% of Vmax
Current (Front Panel and Digital Interface)		0.2% of Imax	
Power (Front Panel and Digital Interface)		0.3% of Pmax	
Voltage (Analog Interface)		0.2% of Vmax	
Current (Analog Interface)		0.3% of Imax	
APG Measure Accuracy			
Voltage (Analog Interface)		0.5% of Vmax	
Current (Analog Interface)		0.75% of Imax	
Analog Interface (I/O)			
Voltage and Current Programming Inputs (I/P)	Voltage : 0~10 Vdc of F.S. Current : Source I : 0~10 Vdc of F.S. Load I : 0~10 Vdc of F.S.		
Voltage and Current Monitor Output (O/P)	Voltage : 0~10 Vdc of F.S. Current : -10~10 Vdc of F.S.		
External ON/OFF (I/P)	TTL: Active Low or High (selective)		
DC_ON Signal (O/P)	Level by user defined (Time delay=1ms at voltage slew rate of 10V/ms.)		
CV or CC Mode Indicator (O/P)	TTL Level High=CV mode ; TTL Level Low=CC mode		
OTP Indicator (O/P)	TTL: Active Low		
System Fault Indicator (O/P)	TTL: Active Low		
Safety Interlock (I/P)	Time accuracy: < 100ms		
Remote Inhibit (I/P)	TTL: Active Low		
OVP Adjustment Range			
Range	0~110% programmable		
Accuracy	±1% of full scale output		
Auto Sequencing (List Mode)			
Number of Program	10		
Number of Sequence	100		
Dwell time Range	2ms~15,000s		
Trig. Source	Manual / Auto / External		
Auto Sequencing (Step Mode)			
Start Voltage	0 to full scale		
End Voltage	0 to full scale		
Run Time	hh : mm : ss.sss (00 : 00 : 00.001 to 99 : 59 : 59.99)		
Trig. Source	Auto		
Series & Parallel Operation *6	Master / slave control for 3 units (Parallel: 3 units)	Master/slave control for 30 units (Parallel: 30 units)	
Input Specification			
AC Input Voltage 3 phase, 3 Wire + Ground (w/o neutral)	3ø 200Vac~220Vac±10% w/o neutral 3ø 380Vac~480Vac±10% w/o neutral (67% output power@200~220Vac input, 100% output power@380~480Vac input)		
AC Frequency Range	47~63 Hz		
Power Factor	>0.97		
General Specification			
Maximum Remote Sense Line Drop Compensation	2% of full scale voltage per line (4% total)		
Operating Temperature Range	0°C~40°C		
Storage Temperature Range	-25°C~70°C		
Dimension Size (HxWxD) mm	133 x 428 x 730 mm / 5.23 x 16.85 x 28.74 inch		
Weight (kg)	34.8 kg/76.7 lbs	39 kg/86.1 lbs	39 kg/86.1 lbs

Note *6: For higher power >180kW~540kW, please call for availability.

* All specifications are subject to change without notice.



ORDERING INFORMATION

- 62060DC-100 : Programmable Bidirectional DC Power Supply 100V/180A/6kW
- 62120DC-100 : Programmable Bidirectional DC Power Supply 100V/360A/12kW
- 62180DC-100 : Programmable Bidirectional DC Power Supply 100V/540A/18kW
- 62060DC-600 : Programmable Bidirectional DC Power Supply 600V/40A/6kW
- 62120DC-600 : Programmable Bidirectional DC Power Supply 600V/80A/12kW
- 62180DC-600 : Programmable Bidirectional DC Power Supply 600V/120A/18kW
- 62120DC-1200 : Programmable Bidirectional DC Power Supply 1200V/55A/12kW
- 62180DC-1200 : Programmable Bidirectional DC Power Supply 1200V/55A/18kW
- 62180DC-1800 : Programmable Bidirectional DC Power Supply 100V/55A/18kW

Options

- A620039 : GPIB Interface
- A620045 : CAN Interface
- 14187 : SoftPanel

CHROMA SYSTEMS SOLUTIONS, INC.
19772 Pauling,
Foothill Ranch,
CA 92610
1-949-600-6400
www.chromausa.com
sales@chromausa.com