Infosteraluna

BDC9000 BIDIRECTIONAL POWER SUPPLY

UP TO 180kW

BDC9000 BIDIRECTIONAL POWER SUPPLY da 5kW a 180kW

- Output voltage: 80 V up to 2250 V;
- Output current: up to ±4500 A;
- Output power: standalone 5 kW up to ±180 kW, parallel up to ±1800 kW;
- 0.02%+0.02%F.S. and 0.1%+0.1%F.S. accuracy for voltage and current measurement respectively;
- Power factor 0.99, efficiency > 93%;
- Regenerative load function, regenerative efficiency up to 95%;
- Bi-directional power transfer, seamless switch between sourcing and sinking;
- Autotomatic line loss compensation;
- CV, CC, CP, CR function;
- CV / CC priority start (prevents voltage or current overshoot with output ON);
- Adjustable voltage/current slew rate;
- Voltage ramp function; charge/discharge function;
- User programmable sequence function;
- Battery simulator function (optional);
- Support photovoltaic battery array simulation function (optional);
- OVP, OCP, OPP, OTP, LVP etc. protection functions;
- High-voltage isolated digital, analog, monitoring and control interfaces;
- Standard LAN, USB (serial), optional RS485, GPIB or CAN ports;
- Support SCPI, MODBUS, CAN-OPEN (optional) protocol;
- 18 kW / 3U high power density, standard 19-inch chassis design.

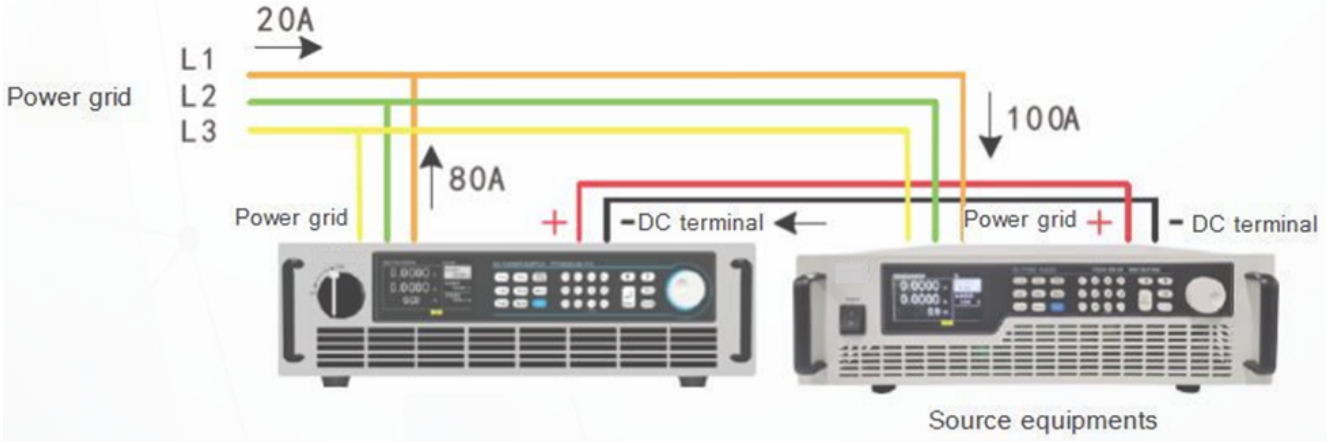
General

The BDC9000 series is a wide-range high-power bidirectional programmable DC power supply with both DC power supply and regenerative load functions. It can not only realize the source function, but also can be used as a regenerative load to feed the absorbed energy back to the power grid to realize the two-way flow of energy.

The voltage range of BDC9000 series is from 80V to 2250V, the current of a single machine can reach 4500A, and the maximum power of a single machine is 180kW. It can achieve seamless switching between source and load dual quadrants, and has rich test functions and a simple human-computer interface. It has a wide range of applications in high-power test scenarios such as automotive electronics, energy storage, and fuel cells, etc.

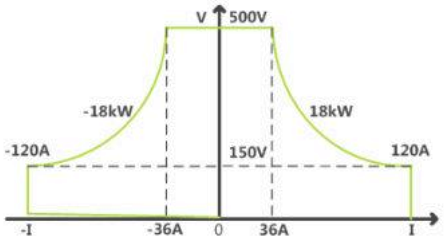
Regenerative load function

BDC9000 series products have a regenerative load function, which can feed back the energy of the device under test to the factory intranet for direct use, instead of dissipating it in the form of thermal energy. Its energy feedback conversion efficiency is as high as 95%, which can not only greatly reduce the electricity cost of users, but also avoid the use of air conditioners and other refrigeration systems and reduce noise.



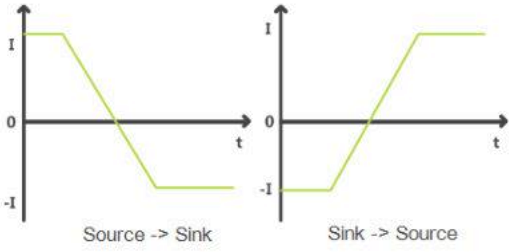
Wide operating region, two-quadrant operation

The BDC9000 series combines two devices in one: a power supply (source) and an electronic load (sink) with energy recovery capability. At the same time, this series provides up to 3 times wider output range, thus more applications can be tested using a single supply avoiding the need for multiple power supplies.



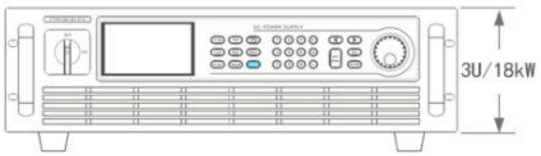
Seamless switch between sourcing and sinking

When conventional DC power supply and load switch between positive and negative currents, a short step will be generated at 0 A, resulting in discontinuous current commutation. BDC9000 not only has two-quadrant working ability, but also has high-speed current switching ability, which can realize seamless connection between positive and negative current switching, effectively avoid voltage or current overshoot, and is widely used in motors, battery packs, BMS and energy storage systems test.



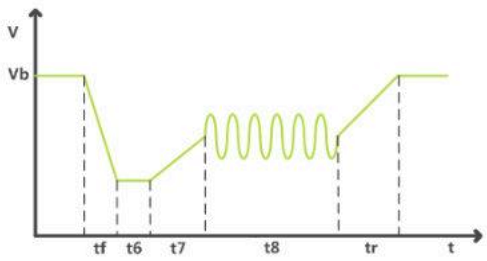
18 kW / 3U high power density

The BDC9000 series provides a high power density of 18 kW / 3U, with features such as accurate output, fast response, and low ripple noise.



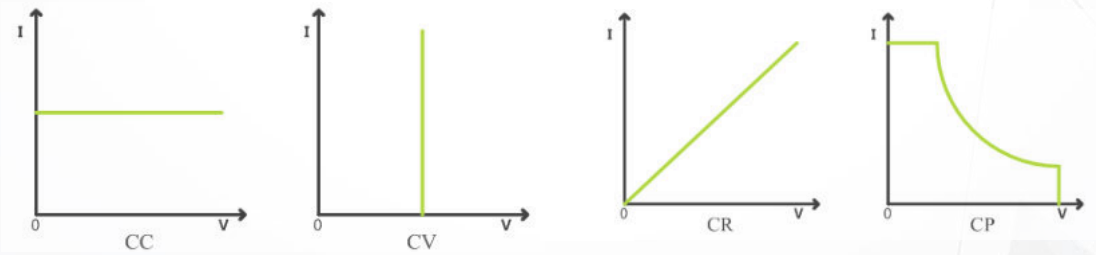
User programmable sequence function

The BDC9000 series provides users with user programmable sequence functions to simulate power interruptions, instantaneous drops, and simulating other voltage and current changes. A total of 10 sequence files, each file has 100 steps, supports loop and link to facilitate complex waveform output.



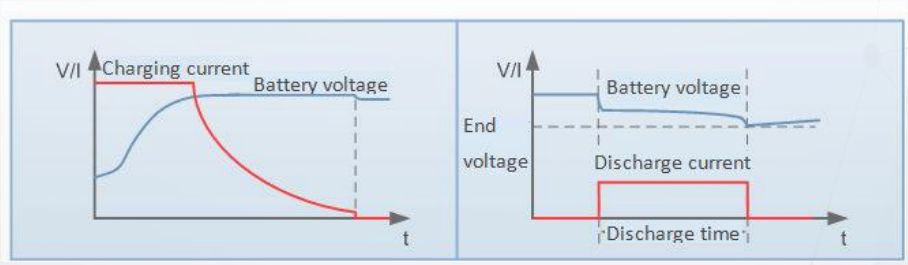
Load function

When the BDC9000 works as a regenerative load, it has four basic working modes: constant current, constant voltage, constant power, and constant resistance, which can meet a wide range of testing needs.



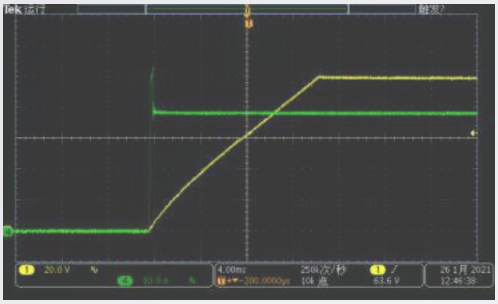
Battery charge / discharge function

Due to its unique bidirectional design, the BDC9000 series has a charge/discharge test function, and is suitable for charge/discharge tests of various batteries and energy storage devices.

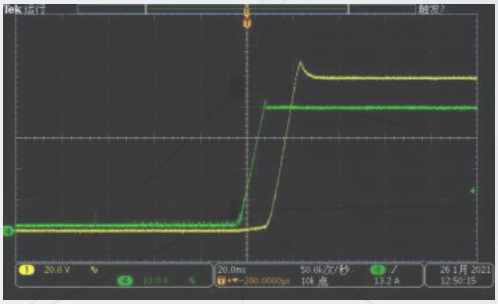


CV / CC priority

When power supply is connected to an inductive or capacitive load, it will cause voltage or current overshoot, which may trigger the protection of the device under test, or even cause the device under test to be damaged in severe cases. This series power sup ply provides CC priority and CV priority function, which forces the power supply to operate in CC or CV mode at the moment the output is turned on, effectively avoids the current or voltage overshoot resulted from capacitive or inductive load.



CV Priority



CC Priority

Master-slave parallel

BDC9000 series power supply allows for master-slave parallel of up to 10 identical units. In parallel operation, slave units download parameters from master unit and current are shared automatically. BDC9000 series power supply does not support master-slave serial operation.

Optional analog programming and monitoring interface

In addition to front panel and remote interface control, there is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current, power from 0...100% through control voltages of 0 V...5 V. To mo nitor the output voltage and current, there are analog outputs with 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status.

Digital interfaces

All models features two galvanically isolated digital interfaces by default, these are standard LAN and USB (optional RS485, GPIB, CAN interface). USB, LAN and RS485 can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported, with CAN only CANopen is supported.

Control software

BDC9000 series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Options

Graphical visualization of the actual values;
Digital interface modules for GPIB, CAN, RS485;
Analog programming and monitoring interface (analog interface on the rear)

Model options

Voltage	Model	Current	Power	Size	Voltage	Model	Current	Power	Size
80V	BDC9050-80-150	150A	5kW	3U	300V	BDC9060-300-75	75A	6kW	3U
	BDC9100-80-300	300A	10kW	3U		BDC9120-300-150	150A	12kW	3U
	BDC9150-80-450	450A	15kW	3U		BDC9180-300-225	225A	18kW	3U
	BDC9300-80-900	900A	30kW	6U		BDC9360-300-450	450A	36kW	6U
	BDC9450-80-1350	1350A	45kW	16U		BDC9540-300-675	675A	54kW	16U
	BDC9600-80-1800	1800A	60kW	16U		BDC9720-300-900	900A	72kW	16U
	BDC9750-80-2250	2250A	75kW	22U		BDC9900-300-1125	1125A	90kW	22U
Voltage	Model	Current	Power	Size	Voltage	Model	Current	Power	Size
500V	BDC9060-500-40	40A	6kW	3U	800V	BDC9060-800-25	25A	6kW	3U
	BDC9120-500-80	80A	12kW	3U		BDC9120-800-50	50A	12kW	3U
	BDC9180-500-120	120A	18kW	3U		BDC9180-800-75	75A	18kW	3U
	BDC9360-500-240	240A	36kW	6U		BDC9360-800-150	150A	36kW	6U
	BDC9540-500-360	360A	54kW	16U		BDC9540-800-225	225A	54kW	16U
	BDC9720-500-480	480A	72kW	16U		BDC9720-800-300	300A	72kW	16U
	BDC9900-500-600	600A	90kW	22U		BDC9900-800-375	375A	90kW	22U
Voltage	Model	Current	Power	Size	Voltage	Model	Current	Power	Size
1000V	BDC9120-1000-40	40A	12kW	3U	1500V	BDC9120-1500-25	25A	12kW	3U
	BDC9240-1000-80	80A	24kW	6U		BDC9180-1500-40	40A	18kW	3U
	BDC9360-1000-120	120A	36kW	16U		BDC9360-1500-80	80A	36kW	6U
	BDC9480-1000-160	160A	48kW	16U		BDC9540-1500-120	120A	54kW	16U
	BDC9600-1000-200	200A	60kW	22U		BDC9720-1500-160	160A	72kW	16U
Voltage	Model	Current	Power	Size	Voltage	Model	Current	Power	Size
2250V	BDC9180-2250-25	25A	18kW	3U	2250V	BDC9720-2250-100	100A	72kW	16U
	BDC9360-2250-50	50A	36kW	6U		BDC9900-2250-125	125A	90kW	22U
	BDC9540-2250-75	75A	54kW	16U		BDC91080-2250-150	150A	108kW	22U

Optional accessories table 1

Item	Type or specifications	Notes
Graphical visualization of the actual values	BDC9000 FaithPower	software for BDC9000 series
GPIB interface	Model name ends with Suffix "G"	
CAN, RS485 interface	Model name ends with Suffix "R"	
Analog interface	Model name ends with Suffix "F"	

Optional accessories table 2: High current test cable matching table

Specification	CD2-2P15M	CD16-2P15M	CD25-2P20M	CD50-2P20M	CD50-2P40M	CD120-2P20M	CD150-2P20M
Max voltage	750V						
Max current	10A	60A	100A	200A	200A	300A	400A
Terminal	M8/Alligator	M8/M8	M8/M8	M8/M8	M8/M8	M8/M8	M10/M10
Length	~1.5m	~1.5m	~2m	~2m	~4m	~2m	~2m
Shape							

Optional accessories table 2: AC Input cable matching table

Specification	CA6-3P20M	CA6-4P20M	CA6-4P40M	CA16-4P20M	CA16-4P20M	CA35-4P30M
For model	1Ø, < 6.5kW	3Ø, <= 15kW	3Ø, <= 15kW	3Ø, 20k-30kW	3Ø, 20k-30kW	3Ø, 35k-60kW
Terminal	O-Type M4	O-Type M4	O-Type M4	O-Type M5	O-Type M5	O-Type M8
Length	~ 2m	~ 2m	~ 4m	~ 2m	~ 4m	~ 3m

General specification

General specification	
Item	Parameter
AC input	3Ø AC input, 340VAC~480VAC, 47Hz~63Hz
Power factor	0.99(typical)
Efficiency	>93% (typical)
Output voltage	0~rated value（max 2250V, set via menu, input through numeric keys or rotary knob）
Output current	0~rated value（max 10000A, set via menu, input through numeric keys or rotary knob）
Output power	0~rated value（max 180kW, set via menu, input through numeric keys or rotary knob）
V measurement accuracy	0.02%+0.02%F.S.
I measurement accuracy	0.1%+0.1%F.S.
V/I monitoring	V/I monitoring voltage: DC 0~5V
Display	4.3-inch TFT color LCD, support simplified Chinese, traditional Chinese and English
Operation way	Function keys, numeric keys and rotary knob（double knob for V/I respectively）
Transient response	For a 10%~90% load change, the amount of time for the power supply voltage resumes to 0.75% accuracy range of rated value is less than 2ms
Parallel	Max 10 identical models through master-slave parallel
Protection	OVP, OCP, OTP, OPP, LVP etc.
Communication	LAN、USB optional GPIB、CAN、RS485）
Protocol	SCPI、MODBUS、CAN-Open (optional) protocl
Work Temperature	0℃~40℃
Storage temperature	-20℃~70℃
Using altitude	<2000m
Cooling way	Air cooling, intelligent fan control

Specification sheet - 1				
Model	**BDC9050-80-150**	**BDC9060-300-75**	**BDC9060-500-40**	**BDC9060-800-25**
Power	-5~5kW	-6~6kW	-6~6kW	-6~6kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-150~150A	-75~75A	-40~40A	-25~25A
Resistance	0.02~106Ω	0.3~800Ω	0.5~2.5kΩ	1.2~6kΩ
Model	**BDC9100-80-300**	**BDC9120-300-150**	**BDC9120-500-80**	**BDC9120-800-50**
Power	-10~10kW	-12~12kW	-12~12kW	-12~12kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-300~300A	-150~150A	-80~80A	-50~50A
Resistance	0.01~50Ω	0.15~400Ω	0.25~1.25kΩ	0.6~3kΩ
Model	**BDC9150-80-450**	**BDC9180-300-225**	**BDC9180-500-120**	**BDC9180-800-75**
Power	-15~15kW	-18~18kW	-18~18kW	-18~18kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-450~450A	-225~225A	-120~120A	-75~75A
Resistance	0.006~35Ω	0.1~266Ω	0.16~833Ω	0.4~2kΩ
Model	**BDC9300-80-900**	**BDC9360-300-450**	**BDC9360-500-240**	**BDC9360-800-150**
Power	-30~30kW	-36~36kW	-36~36kW	-36~36kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-900~900 A	-450~450A	-240~240A	-150~150A
Resistance	0.003~17Ω	0.05~133Ω	0.08~416Ω	0.2~1kΩ
Model	**BDC9450-80-1350**	**BDC9540-300-675**	**BDC9540-500-360**	**BDC9540-800-215**
Power	-45~45kW	-54~54kW	-54~54kW	-54~54kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-1350~1350 A	-675~675A	-360~360A	-215~215A
Resistance	0.002~11Ω	0.03~88Ω	0.05~277Ω	0.1~666Ω
Model	**BDC9600-80-1800**	**BDC9720-300-900**	**BDC9720-500-480**	**BDC9720-800-300**
Power	-60~60kW	-72~72kW	-72~72kW	-72~72kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-1800~1800 A	-900~900A	-480~480A	-300~300A
Resistance	0.002~8.8Ω	0.025~66Ω	0.042~208Ω	0.1~500Ω
Model	**BDC9750-80-2250**	**BDC9900-300-1125**	**BDC9900-500-600**	**BDC9900-800-375**
Power	-75~75kW	-90~90kW	-90~90kW	-90~90kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-2250~2250 A	-1125~1125A	-600~600A	-375~375A
Resistance	0.002~9Ω	0.02~53Ω	0.033~166Ω	0.08~400Ω
Model	**BDC9900-80-2700**	**BDC91080-300-1350**	**BDC91080-500-720**	**BDC91080-800-450**
Power	-90~90kW	-108~108kW	-108~108kW	-108~108kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-2700~2700 A	-1350~1350A	-720~720A	-450~450A
Resistance	0.001~6Ω	0.017~44Ω	0.027~138Ω	0.066~333Ω
Model	**BDC91050-80-3150**	**BDC91260-300-1575**	**BDC91260-500-840**	**BDC91260-800-525**
Power	-105~105kW	-126~126kW	-126~126kW	-126~126kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-3150~3150	-1575~1575A	-840~840A	-525~525A

Resistance	0.001~4.4Ω	0.014~38Ω	0.024~119Ω	0.057~285Ω
Model	**BDC91200-80-3600**	**BDC91440-300-1800**	**BDC91440-500-960**	**BDC91440-800-600**
Pow er	-120~120kW	-144~144kW	-144~144kW	-144~144kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-3600~3600A	-1800~1800A	-960~960A	-600~600A
Resistance	0.001~4.4Ω	0.013~33Ω	0.021~104Ω	0.05~250Ω
Model	**BDC91350-80-4050**	**BDC91620-300-2025**	**BDC91620-500-1080**	**BDC91620-800-675**
Pow er	-135~135kW	-162~162kW	-162~162kW	-162~162kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-4050~4050A	-2050~2050A	-1080~1080A	-675~675A
Resistance	0.001~3.9Ω	0.011~30Ω	0.018~92Ω	0.044~222Ω
Model	**BDC91500-80-4500**	**BDC91800-300-2250**	**BDC91800-500-1200**	**BDC91800-800-750**
Pow er	-150~150kW	-180~180kW	-180~180kW	-180~180kW
Voltage	0~80V	0~300V	0~500V	0~800V
Current	-4500~4500A	-2250~2250A	-1200~1200A	-750~750A
Resistance	0.001~3.5Ω	0.01~26Ω	0.017~83Ω	0.04~200Ω
Voltage programmingG)				
Resolution	16bits			
Accuracy	0.02%+0.02%F.S..			
Current programmingG)				
Resolution	16bits			
Accuracy	0.1%+0.1% F.S.			
Resistance programmingG)				
Resolution	0.001Ω			
Accuracy	1%+0.5%I.F.S.			
Power programmingG)				
Resolution	1W			
Accuracy	0.5%F.S.			
External analog programmingG)				
Control votlage	0~5V corresponds to 0~100%F.S.			
Voltage acuracy	0.5%F.S.			
Current accuracy	0.5%F.S.			
Line regulationϕ				
Voltage	0.01%F.S.			
Current	0.05%F.S.			
Pow er	0.05%F.S.			
Load regulation®				
Voltage	0.02%F.S.			
Current	0.1%F.S.			
Pow er	0.75%F.S.			
Voltage measurementG)				
Resolution	16bits			
Accuracy	0.02%+0.02%FS			
Current measurementG)				
Resolution	16bits			

Accuracy	0.1%+0.1% F.S.				
Resistance measurementG)					
Resolution	0.001Ω				
Accuracy	1%+0.5%I.F.S.				
Power measurementG)					
Resolution	1W				
Accuracy	0.5%F.S.				
Output noise & rippleG)					
Ripple Vpp	5kW	160mV	300mV	450 mV	800 mV
	10kW	320mV	300 mV	450 mV	800 mV
	15kW	320 mV	300 mV	450 mV	800 mV
Ripple Vrms	5kW	16mV	40mV	70 mV	200mV
	10kW	25 mV	40 mV	70 mV	200 mV
	15kW	25 mV	40 mV	70 mV	200 mV
Voltage rising slew rate					
Max slew rate	10000V/s		40000V/s		
Voltage fall time					
No load	<5s			<10s	
Full load	::30ms				
Size (WxHxD)	5kW~18kW = 482.6mm x 132.5mm x 740.0mm, including output protective cover				
Weight	5kW◆18kg, 10kW◆25kg, 15kW◆32kg				

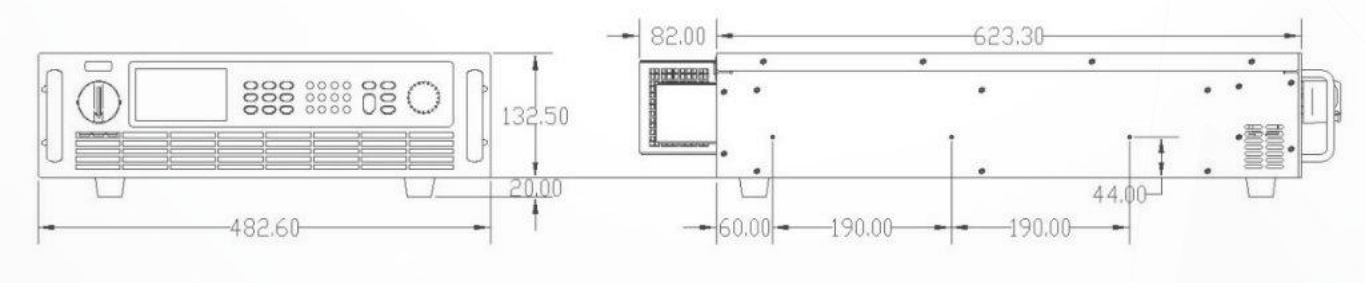
Specification sheet - 2			
Model	**BDC9120-1000-40**	**BDC9120-1500-25**	~
Power	-12~12kW	-12~12kW	~
Voltage	0~1000V	0~1500V	~
Current	-40~40A	-25~25A	~
Resistance	1~5kΩ	2.25~11kΩ	~
Model	~	**BDC9180-1500-40**	**BDC9180-2250-25**
Power	~	-18~18kW	-18~18kW
Voltage	~	0~1500V	0~2250V
Current	~	-40~40A	-25~25A
Resistance	~	1.5~7.5kΩ	3.6~18k
Model	**BDC9240-1000-80**	**BDC9360-1500-80**	**BDC9360-2250-50**
Power	-24~24kW	-36~36kW	-36~36kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-80~80A	-80~80A	-50~50A
Resistance	0.5~2.5 kΩ	0.75~7.5kΩ	1.8~9kΩ
Model	**BDC9360-1000-120**	**BDC9540-1500-120**	**BDC9540-2250-75**
Power	-36~36kW	-54~54kW	-54~54kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-120~120A	-120~120A	-75~75A
Resistance	0.33~1.6kΩ	0.5~2.5kΩ	1.2~6kΩ

Model	BDC9480-1000-160	BDC9720-1500-160	BDC9720-2250-100
Pow er	-48~48kW	-72~72kW	-72~72kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-160~160A	-160~160A	-100~100A
Resistance	0.25~1.25kΩ	0.375~1.875kΩ	0.9~4.5kΩ
Model	**BDC9600-1000-200**	**BDC9900-1500-200**	**BDC9900-2250-125**
Pow er	-60~60kW	-90~90kW	-90~90kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-200~200A	-200~200A	-125~125A
Resistance	0.2~1kΩ	0.3~1.5kΩ	0.72~3.6kΩ
Model	**BDC9720-1000-240**	**BDC91080-1500-240**	**BDC91080-2250-150**
Pow er	-72~72kW	-108~108kW	-108~108kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-240~240 A	-240~240 A	-150~150A
Resistance	0.166~250Ω	0.25~1.25kΩ	0.6~3kΩ
Model	**BDC9840-1000-280**	**BDC91260-1500-280**	**BDC91260-2250-175**
Pow er	-84~84kW	-126~126kW	-126~126kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-280~280A	-280~280A	-175~175A
Resistance	0.143~714Ω	0.214~1.07kΩ	0.514~2.5kΩ
Model	**BDC9960-1000-320**	**BDC91440-1500-320**	**BDC91440-2250-200**
Pow er	-96~96kW	-144~144kW	-144~144kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-320~320A	-320~320A	-200~200A
Resistance	0.125~625Ω	0.188~938Ω	0.45~2.25kΩ
Model	**BDC91080-1000-360**	**BDC91620-1500-360**	**BDC91620-2250-225**
Pow er	-108~108kW	-162~162kW	-162~162kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-360~360A	-360~360A	-225~225A
Resistance	0.11~555Ω	0.167~833Ω	0.4~2kΩ
Model	**BDC91200-1000-400**	**BDC91800-1500-400**	**BDC91800-2250-250**
Pow er	-120~120kW	-180~180kW	-180~180kW
Voltage	0~1000V	0~1500V	0~2250V
Current	-400~400A	-400~400A	-250~250A
Resistance	0.1~500Ω	0.15~750Ω	0.36~1.8kΩ
Voltage programming(G)			
Resolution	16bits		
Accuracy	0.05%+0.05%F.S.		
Current programming(G)			
Resolution	16bits		
Accuracy	0.1%+0.1% F.S.		
Resistance programming(G)			
Resolution	0.001Ω		
Accuracy	1%+0.5%I.F.S.		

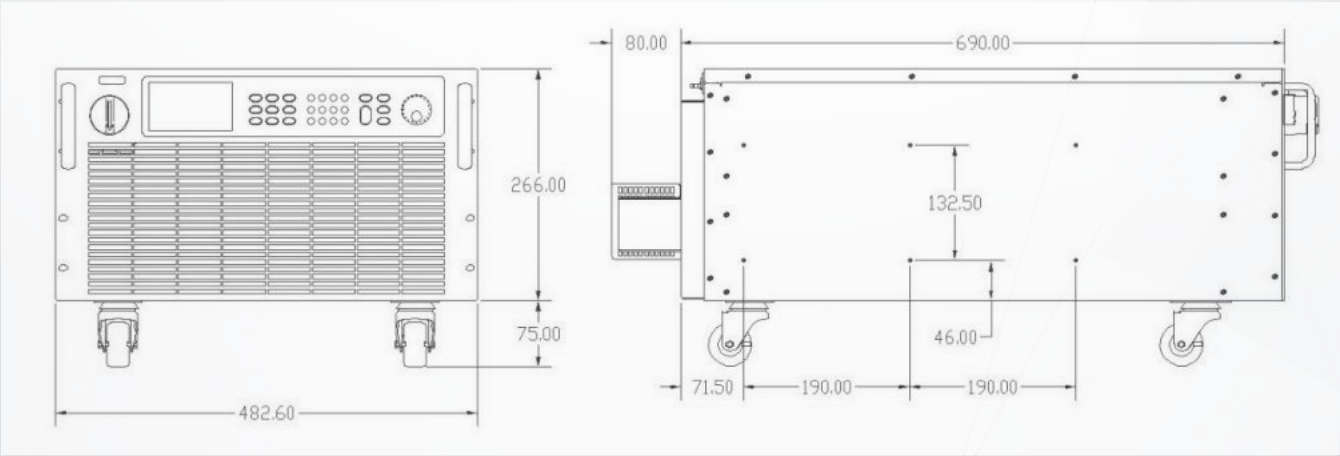
Power programmingG)				
Resolution	1W			
Accuracy	1%F.S.			
External analog programmingG)				
Control Voltage	0~5V corresponds to 0~100%F.S.			
Votlage Accuracy	0.5%F.S.			
Current Accuracy	0.5%F.S.			
Line regulationϕ				
Voltage	0.01%F.S.			
Current	0.05%F.S.			
Pow er	0.05%F.S.			
Load regulation®				
Voltage	0.02%F.S.			
Current	0.05%F.S.			
Pow er	0.05%F.S.			
Voltage measurementG)				
Resolution	16bits			
Accuracy	0.02%+0.02%FS			
Current measurementG)				
Resolution	16bits			
Accuracy	0.1%+0.1% F.S.			
Resistance measurementG)				
Resolution	0.001Ω			
Accuracy	1%+0.5%I.F.S.			
Power measurementG)				
Accuracy	1%F.S.			
Output noise & rippleG)				
ripple Vpp	10kW	1600mV	-	-
	15kW	-	2400mV	3600mV
ripple Vrms	10kW	350mV	-	-
	15kW	-	400mV	400mV
Voltage rising slew rate				
Max slew rate	40000V/s			
Voltage fall time				
No load	<10s			
Full load	::30ms			
Size (WxHxD)	5kW~18kW=482.6mm x 132.5mm x 740.0mm, including output protective cover			
Weight	5kW◆18kg, 10kW◆25kg, 15kW◆32kg			

Dimension

5kW～18kW model dimension



20kW～36kW model dimension



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