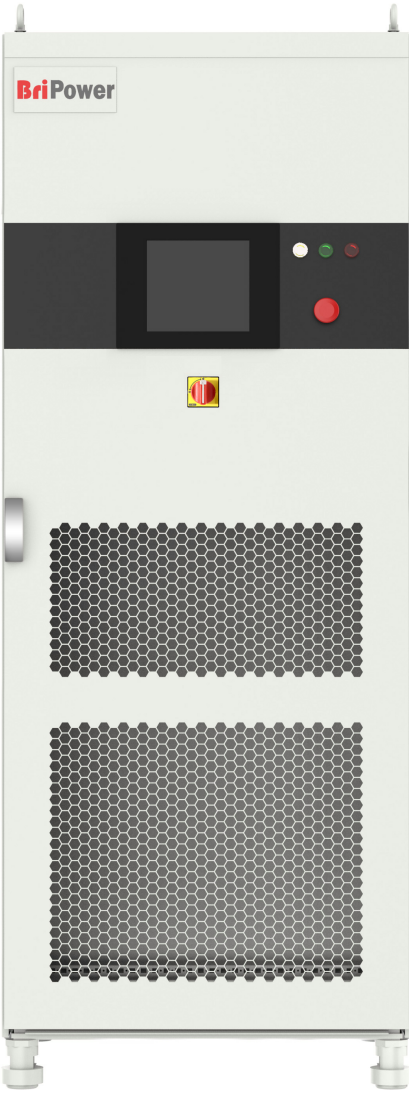
# BriPower ESD Series Programmable DC Power Supply

**30kW - 2MW**




- Single system up to 500kW, and parallel system up to 2MW
- Output voltage up to 2000V(std), higher voltage can be customized
- Applications: Battery test, Battery simulation (-BSS option),
- PV simulation (-PV option)
- Program accuracy up to 0.1%
- Seamless transition between source and sink modes (-R option)
- Current rise time (10% -90%) <1ms (-BSS option)
- CC/CV/CP/CR mode available
- Regenerative DC load function (-LD option)
- Hardware & software for PV Simulation (-PV option)
- Low-Voltage operation mode (-ZV option)
- Master-Slave interface (-MS option)
- Use water-cooling (-W option)
- LAN/RS485 interfaces (standard)
- CAN/RS232/ATI interfaces (optional)
- Emergency stop button and indicators on front panel
- TFT-Touch panel operation
- Mod-bus/SCPI protocols
- Switchable insulation monitoring
- Output contactor
- Remote sense
- CE conformity
- Customized voltage, current and power ranges

## Overview

The BriPower ESD series is IGBT PWM switching DC power supply, which contains multi output power levels from 30kW to 500kW for single system, up to 4 individual systems can be paralleled to up to 2MW system. Output power level of customized system goes up to 4MW and above.

ESD series uses bi-directional design, which makes it possible to be used as DC power source or regenerative DC load. CV/CC/CP/CR operation modes are available for both sourcing and sinking.

With touch panel on the front panel, user can control the power source with GUI software. System status indicators and emergency stop button are also installed on the front panel. Programming interfaces including RS485 and LAN interfaces are standard, and optional RS232, CAN, analog control interfaces are available for automated test applications.

## Bi-Directional (Re-generative) -R option

With the -R option the unit can operate in source and sink mode. It has the capability to return the energy fully back to the grid.

## Re-generative DC Load -LD option

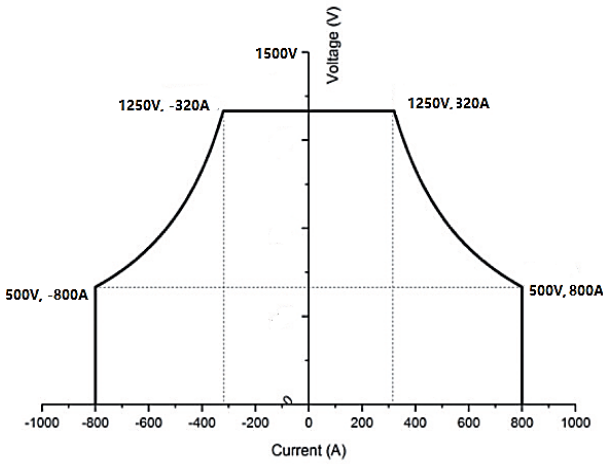
ESD series with -LD option can be used as regenerative DC electronic load. DC load simulation includes constant current, constant resistance, constant voltage and constant power modes.

## Low Voltage Operation Mode -ZV option

ESD series DC electronic load with -ZV option can produce large current that meets the requirements under the input condition close to 0.4V, which can evaluate the electrical characteristics of the fuel cell (such as VI), etc.

## Constant Power Output

Highly customizable Output Power, Voltage and Current is available with the ESD Series. Please consult us with your required specification for a customized offer. The customization is basically standard with all our units. We provide with every quote the customized specification.

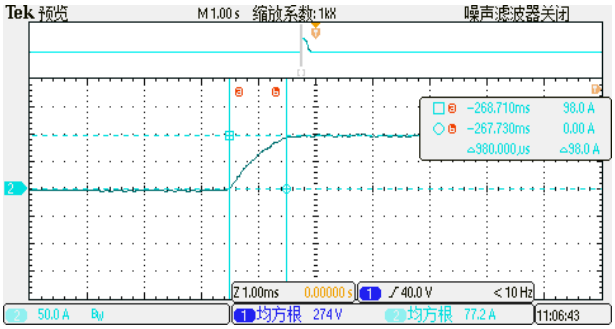


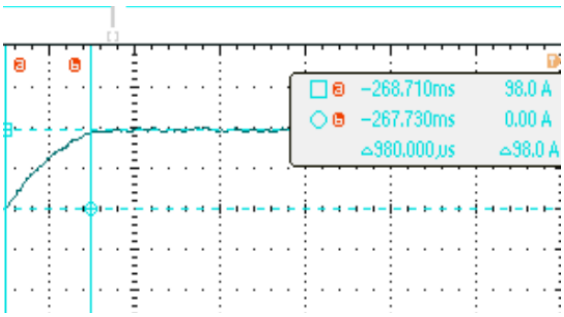

Example: 400kW, 1250V, ±800A

## Fast current rising

ESD Series has excellent dynamic performance of current rising, which makes it ideal for battery test and battery simulation. Two versions are provided, and current rise time of each version is different.

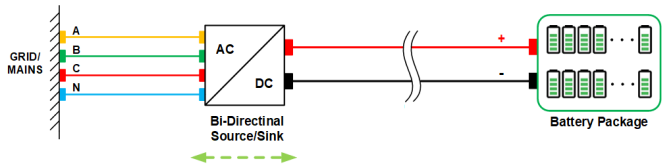
| | |
|---|---|
| Current Rise Time(10%~90%) | <3ms (Std), <1ms (BSS Option) |
| Current Rise Time(-90%~90%) | <5ms (Std ), <2ms (BSS Option) |
| Regulation Time(0-100% Load change) | <3ms (Std), <1.5ms (BSS Option) |

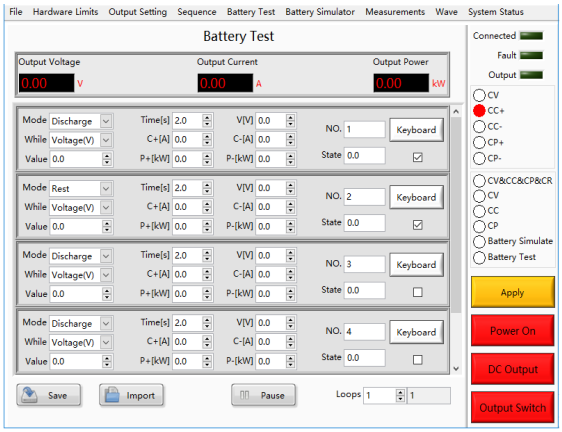



Current Rise Time (10%~90%) $T_{Rise}$ ≤ 1ms (Example ESD 50-400-125-R)

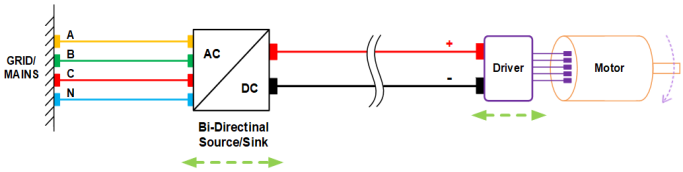
## Battery Test

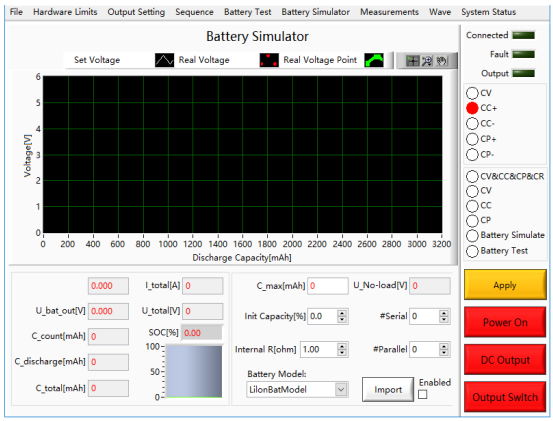



ESD series DC power supply can be used for characterization of power battery packs. It is used to test the charging and discharging performance, temperature rise characteristics, and cycle life of the power battery pack. With the GUI software, different charging and discharging profiles can be programmed, and test results are displayed in real time.

## Battery Simulation

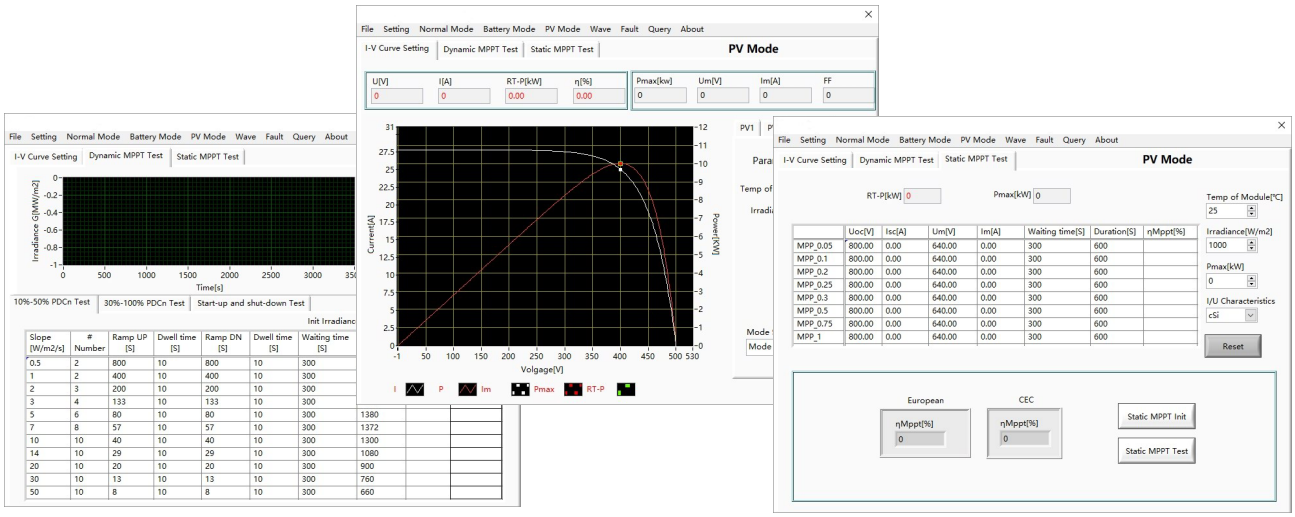



ESD Series DC power supplies can simulate the charging and discharging characteristics of the power battery pack/package and provide a convenient and efficient testing method for the development and testing of new energy vehicle motors etc.

## PV Simulation

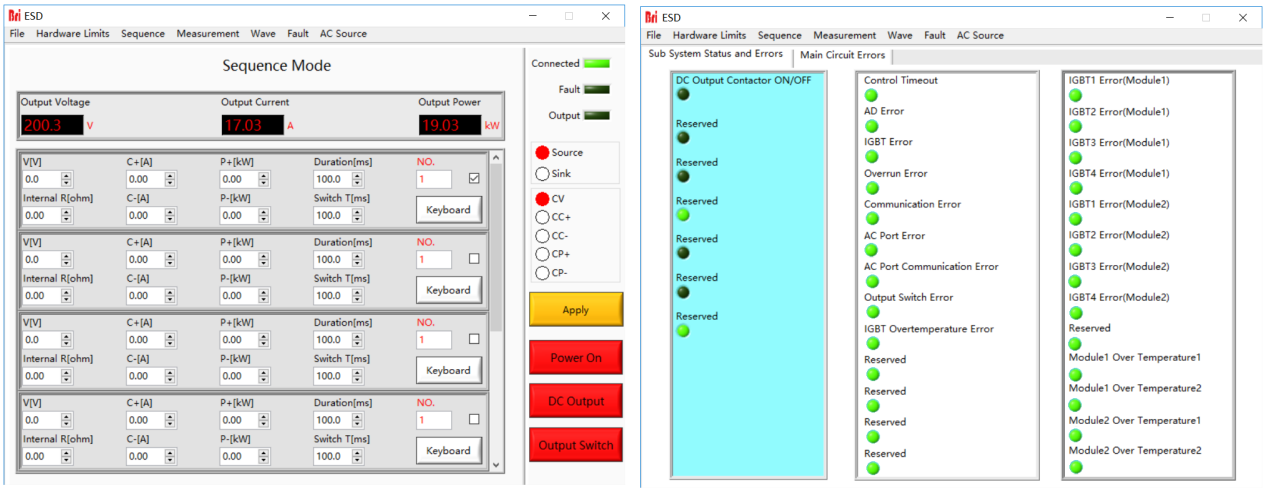
With **-PV** option, ESD series power supplies can be used to simulate IV curves of various solar panels, under various temperature and irradiance condition, and conduct static and dynamic MPPT tests according to EN 50530:2010.



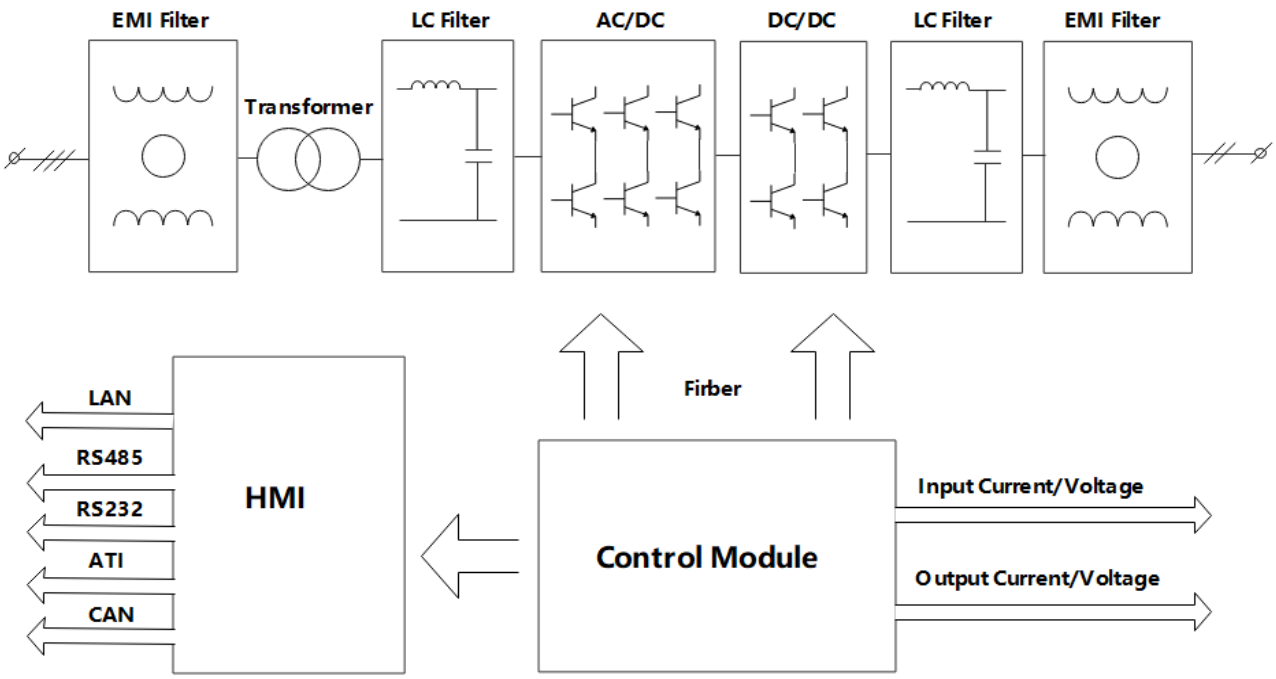
## Graphical User Interface

GUI software is included, and is installed in front touch panel, which uses windows OS. The software provides following functions:

- Output settings and limits
- Sequence output settings
- Display measurements: voltage, current, power, etc.
- Capture, display and save output voltage and current waveforms.
- Display power source faults




## Block Diagram



## General Specification (customized unit specification will be shown in the quotation)

| | |
|---|---|
| **AC Input** | |
| AC input Voltage | 3P+N+PE, 380VLL±10%(std) |
| Frequency | 47-63Hz |
| Efficiency | ≥90% |
| Power Factor | 0.95 |
| **Output** | |
| Output Modes | CV, CC, CP and CR |
| Power Level | Up to 500kW in single controller. 2MW max power available. Power Level can be customized. |
| Voltage Ranges | Up to 2000V, voltage can be customized. |
| Current Ranges | Customizable for customer need. |
| Load Regulation | 0.1%FS |
| Line Regulation | 0.1%FS |
| Voltage Ripple | 0.1%FS |
| Stability | 0.1%FS |
| Current Rise Time (10%~90%) | <3ms (Std), <1ms (BSS Option) |
| Current Rise Time (-90%~90%) | <5ms (Std), <2ms (BSS Option) |
| Regulation Time (0-100% Load change) | <3ms (Std), <1.5ms (BSS Option) |
| Power Accuracy | 0.3%FS |
| Voltage Accuracy | 0.1%FS |
| Current Accuracy | 0.3%FS |
| Power Resolution | 0.02kW (~100kW), 0.1kW (100kW~500kW) |
| Voltage Resolution | 0.05V (~800V), 0.1V (800V~2000V) |
| Current Resolution | 0.05A (~800A), 0.1A (800A~1600A), 0.2A (1600A~3200A) |
| Over Current | 120%, 60 seconds |
| **Measurements** | |
| Measurement accuracy Power | 0.3%FS |
| Measurement accuracy Voltage | 0.1%FS |
| Measurement accuracy Current | 0.3%FS |
| **Others** | |
| Protection | OVP, OCP, OTP |
| Regulatory | CE Conformity |

| | |
|---|---|
| Cooling | Forced Air Cooling |
| Temperature | Operating: 0~40°C, Storage: -20~85°C |
| Operating Humidity | 20-90%RH (None Condensing) |

## Options

-232 RS232 program interface
-BSS Hardware and software for Battery simulation
-CAN CAN-bus program interface
-LD Regenerative DC load function
-PV Hardware and software for PV Simulation
-R Regenerative mode
-ATI Analog control interface (0~5V)
-ZV Low Voltage Operation Mode
-MS Master-Slave interface
-W Use water-cooling

## AC Input Configuration

**Please specify the input voltage (L-L)**

/208, Input Voltage 208V±10%, 3-phase
/230, Input Voltage 230V±10%, 3-phase
/380, Input Voltage 380V±10%, 3-phase
/400, Input Voltage 400V±10%, 3-phase
/480, Input Voltage 480V±10%, 3-phase

## Model Configuration

**ESD AAA-BBB-CCC-DDD/EEE**

AAA: Power, kW
BBB: Voltage range, V
CCC: Current range, A
DDD: Option
EEE: Input configuration

Picture of ESD 50kW System

## About BriPower

Bridge Technology is a company focusing on business of power supplies and test systems for new energy applications. We are devoted to providing high quality products and solutions for customers.

Bridge Technology has a top-class R&D team in China, works on modularization and standardization power supplies and systems. We have sales, technical support, R&D and manufacture in Shanghai, Nanjing and Chengdu.

Nanjing Bridge New Energy Technology was founded on Jan 12th, 2016, focusing on R&D and manufacturing BriPower brand power systems, including bi-directional AC sources for grid simulation, bi-directional DC sources for battery simulation, and regenerative loads. The BriPower AC&DC power systems are widely used in new energy and related fields.

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