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Battery Simulator Battery pack charging-discharging test system

- EVS series battery simulator
- EVD series high precision bidirectional DC power supply
- EBD series battery pack charging-discharging test system



Professional



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Value



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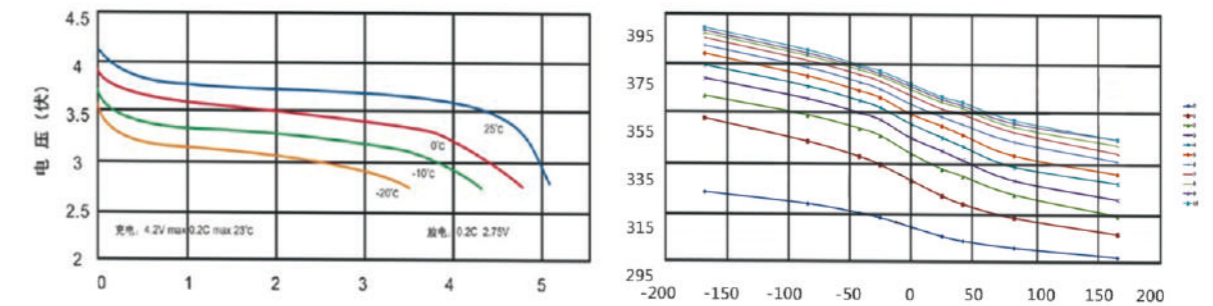
EVS series Battery simulator

Kewell Power

Professional supplier of test power supply and instrument

Product introduction

The core of the battery simulator is a DC power supply with high precision, high dynamic characteristics and bidirectional operation. Meanwhile, the power supply can simulate the charge and discharge characteristics of the battery. You must also have the above conditions before you can define it as a battery simulator.

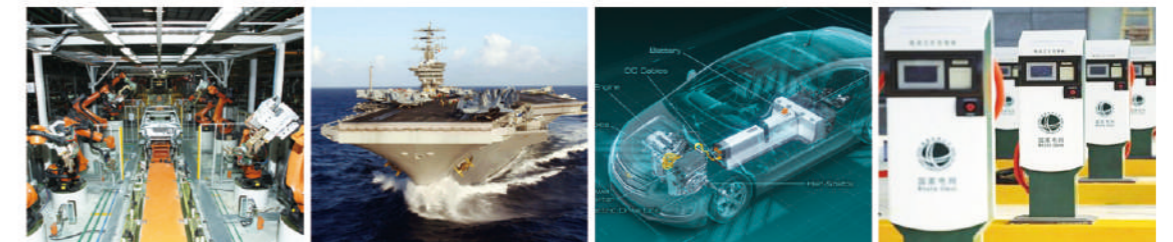


The DC output characteristic of EVS series battery simulator has the characteristics of high precision and high dynamic response, and has the function of feedback energy to the grid. The product has charge and discharge characteristics for simulating many kinds of materials battery. With full digital control, high control precision, fast response speed, and wide output adjustment range.

The product output has programmable function, through the control software to set a variety of patterns, can be used for different test occasions. It can simulate the output characteristics of batteries and charge and discharge characteristics of batteries. The product allows the user to select the type of analog cell, the number of serial segments, the number of parallel joints and the SOC index, thus simulating the output characteristics of the battery, including the change of the internal resistance characteristics in the process of battery charging and discharging.

Product applications

- ◆ The electric vehicle motor, controller test
- ◆ The electric vehicle drive system, power assembly system test
- ◆ The special electric vehicle motor, controller test
- ◆ The special electric vehicle drive system, power assembly system test
- ◆ The ship electric drive, electric drive system test
- ◆ The motor test system
- ◆ The charger, charging pile test
- ◆ The energy storage system converter test
- ◆ The battery, the battery pack charge and discharge test
- ◆ The capacitor, super capacitor charge and discharge test
- ◆ The UPS and EPS system test
- ◆ The test system of DC screen
- ◆ The replacement of ordinary DC power supply as a test power supply
- ◆ The battery power supply to replace real test occasions



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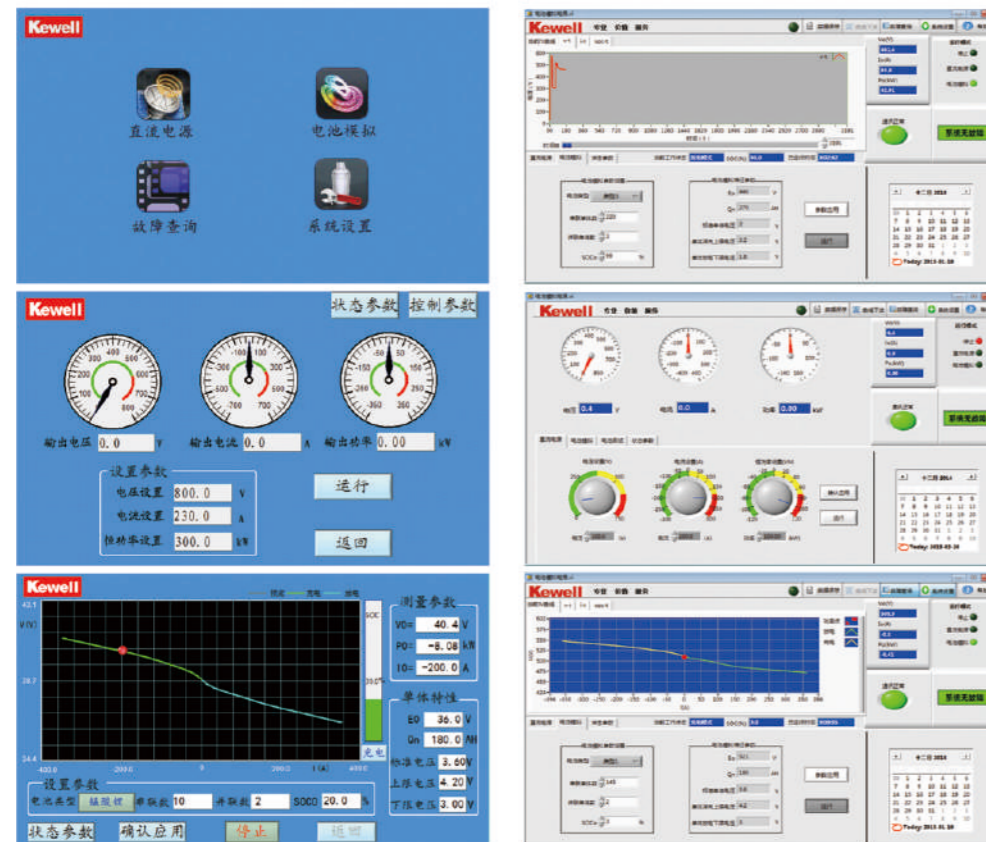
EVS series Battery simulator

EVS series Battery simulator

Product features

- ◆ High precision; the precision of output voltage is 0.1%FS.
- ◆ High dynamic characteristics; 10-90% process load output voltage response time is less than 5ms: 90%--90% or 10ms switch.
- ◆ The output can simulate a variety of battery characteristics, can be set to different serial-parallel nodes, battery charge and discharge characteristics under different SOC.
- ◆ The output of the model can be customized according to customer requirements of battery.
- ◆ The IGBT type circuit, pure digital frequency isolation power supply.
- ◆ The energy can be feedback to the grid; at the same time, with the characteristics of two kinds of power and load, with performance of high power DC power supply, realize the function of automatic load energy feedback to the grid, has outstanding advantages of energy saving, green environmental protection.
- ◆ The product circuit structure using PWM rectifier and DC/DC double circuit can achieve the output voltage range wide, high precision, fast dynamic response characteristics.
- ◆ The use of PWM rectifier +PWM inverter principle, power factor >0.99. THD and injected harmonic currents are higher than GB/T14549-93 requirements.
- ◆ The output of constant voltage, constant current, constant power mode.
- ◆ This machine has the function of native operation and remote operation, equipped with remote control software and external communication function.
- ◆ The strict system of thermal design, low temperature rise and long life.
- ◆ The large screen liquid crystal display, a variety of communication interface.
- ◆ The protection of the programmable and operating parameters.

Function interface



Specification parameters

| Type | EVS-40-400 ^① | EVS-80-800 | EVS-150-800 | EVS-200-800 | EVS-250-800 | EVS-500-800 | |
|-------------------------------------|---------------------------|--|-------------|-------------|-------------|-------------|--------|
| Power | 40KW | 80KW | 150KW | 200KW | 250KW | 500KW | |
| Input | Phase | 3φ3W + G | | | | | |
| | Voltage | 380V±10% | | | | | |
| | Frequency | 50Hz/60Hz±3Hz | | | | | |
| | Power factor | ≥0.99 | | | | | |
| | THD | ≤3% | | | | | |
| Output | Volt range | 24-800V | | | | | |
| | Rated voltage | 200V | 300V | 300V | 400V | 500V | 500V |
| | Rated current | ±200A | ±267A | ±500A | ±500A | ±500A | ±1000A |
| | Peak current ^② | ±300A | ±400A | ±667A | ±625A | ±700A | ±1260A |
| | Peak Power ^② | 60KW | 120KW | 200KW | 250KW | 350KW | 630KW |
| | Peak time ^② | 60S | | | | | |
| | Voltage Accuracy | ≤0.1%-FS+5dgt | | | | | |
| | Response time | ≤5ms (10%-90% process load) | | | | | |
| | Switching time | ≤10ms(90%- 90% switch) | | | | | |
| | Voltage ripple | 0.2%-FS | | | | | |
| Energy feedback | Power feedback | 100% energy feedback | | | | | |
| | Current distortion | <3% | | | | | |
| | Power factor | >0.99 | | | | | |
| | Output voltage | 342 ~ 418Vac ^③ ~ | | | | | |
| Operation and protection | Frequency range | 47.5 ~ 51.5Hz (Allowable grid Hertz) | | | | | |
| | Operation interface | Large screen liquid crystal display | | | | | |
| | External communication | RS485 / LAN / CAN | | | | | |
| Protection | Input | Over voltage, Over current, Phase-break | | | | | |
| | Output | Over voltage, over temperature, Over current | | | | | |
| Environmental conditions and safety | Protection grade | IP 21(Indoor) | | | | | |
| | Cooling mode | Force-air cooling | | | | | |
| | Environmental temperature | -10~40°C | | | | | |
| | Relative humidity | 10-90% (Non-condensing) | | | | | |
| Noise | < 65dB | | | | | | |

Note : ① The voltage of 40KW standard product is 24-400V or 24-800V two optional.
 ② Peak power, peak time and peak current can be customized according to customers' requirements.
 ③ The power of the single machine can be customized according to the customer's requirement, and the maximum can be 2000 KW.
 ④ The product output voltage is 800V/1000V, for customers to choose.

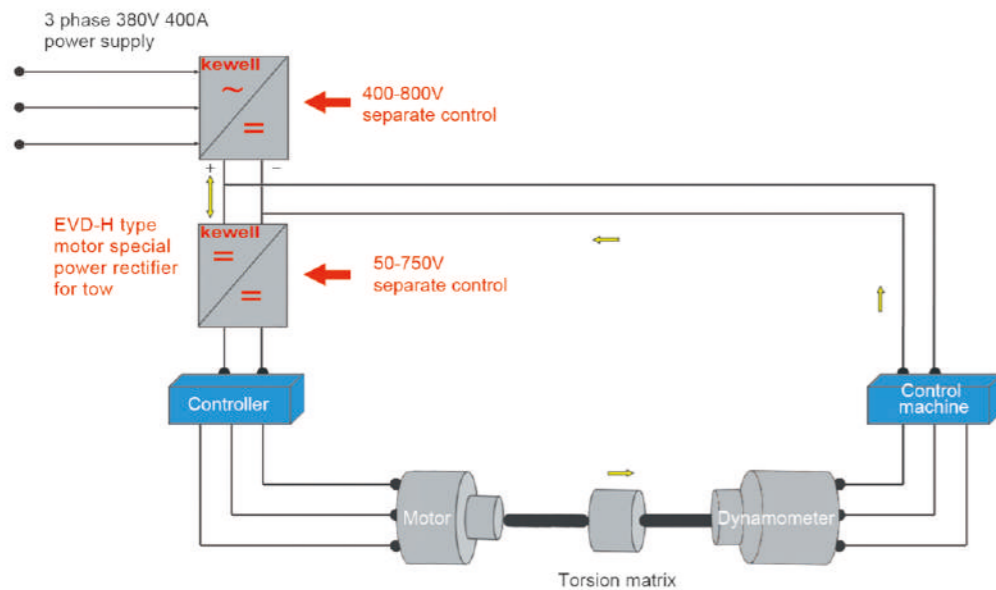
EVD-H series High precision bidirectional DC power supply

EVD-H series High precision bidirectional DC power supply

Product features

EVD-H series high precision bidirectional DC power supply is developed on the basis of EVD series of high-precision bidirectional DC source. IGBT rectifier technology is adopted, and the power frequency isolation is also done with the power grid. Adding DC bus output function, the DC output has two outputs, and the two circuits are controlled separately. The functions of two motors or controllers can be measured simultaneously. The DC energy can be closed loop or fed back to the grid. The PWM rectifier has little pollution to the power grid, and the power factor can reach 0.99. The product adopts full digital control, with high control precision, fast response speed, wide output adjustment range and programmable function. It can be used in many occasions by different control software. Bidirectional feedback DC power supply can simulate the power battery input for electric vehicle motor controller input power, output current, overload capacity, proof pressure and motor efficiency, torque current, maximum speed, over-speeding, feeding performance simulation. The energy of back electromotive force in the motor over-speed test can be fed back to the power grid in real time to avoid the damage of the controller.

Meet the requirements of the motor and the power supply in its controller test in the GB/T18488.1-2015 standard.



Product features

- ◆ By the pole shift, IGBT circuit, pure digital power supply, leading technology.
- ◆ The energy can be fed back to the grid; at the same time, with the characteristics of two kinds of power and load, with performance of high power DC power supply, load function to realize energy feedback power grid, has outstanding advantages of energy saving, green environmental protection; in the electric vehicle motor test without load energy consumption, real-time reverse current feedback power grid.
- ◆ The two output, two separate control circuit; product structure using PWM rectifier and DC/DC double circuit can achieve the output voltage range wide, high precision, fast dynamic response characteristics.
- ◆ The use of PWM rectifier +PWM inverter principle, power factor >0.99. The THD and the injected harmonic currents satisfy the national standard GB/T14549-93.
- ◆ The output of constant voltage, constant current, constant power mode.
- ◆ During the operation, the machine has a computer operation function, equipped with PC software and external communication function.
- ◆ The strict system of thermal design, low temperature rise, long life.
- ◆ The large screen liquid crystal display, a variety of communication interface.

Technical specifications

| Product | Power | EVD-H-150-800 | | EVD-H-250-800 | |
|-------------------------------------|---------------------------|--|--------------------------------|--------------------------------|--------------------------------|
| Input | Phase | 3φ3W + G | | 3φ3W + G | |
| | Voltage | 380V±10% | | 380V±10% | |
| | Frequency | 50Hz/60Hz±3Hz | | 50Hz/60Hz±3Hz | |
| | Power factor | ≥0.99 | | ≥0.99 | |
| | THD | ≤3% | | ≤3% | |
| Output | Circuit | Output 1 | Output 2 | Output 1 | Output 2 |
| | Volt range | 50-750V | 400-800V | 50-750V | 400-800V |
| | Rated voltage | 300V | 450V | 500V | 500V |
| | Rated current | ±500A | ±333A | ±500A | ±500A |
| | Peak current | ±667A | ±444A | ±700A | ±700A |
| | Rated Power | 150KW | 150KW | 250KW | 250KW |
| | Peak Power | 200KW | 200KW | 350KW | 350KW |
| | Peak time | 60S | 60S | 60S | 60S |
| | Voltage Accuracy | ≤0.1%-FS+5dgt | ≤0.5%-FS+5dgt | ≤0.1%-FS+5dgt | ≤0.5%-FS+5dgt |
| | Response time | ≤5ms (10%-90% process load) | ≤30ms (10%-90% process load) | ≤5ms (10%-90% process load) | ≤30ms (10%-90% process load) |
| | Switching time | ≤10ms (+ 90%--90% switch) | ≤50ms (+ 90%--90% switch) | ≤10ms (+ 90%--90% switch) | ≤50ms (+ 90%--90% switch) |
| | Voltage ripple | 0.2%-FS | 0.5%-FS | 0.2%-FS | 0.5%-FS |
| Energy feedback | Power feedback | Full power feedback | | | |
| | Current distortion | < 3% | | | |
| | Power factor | > 0.99 | | | |
| | Output voltage | 342 ~ 418Vac 3 ~ | | | |
| Common calibration and operation | Frequency range | 47.5~51.5Hz(Allowable grid Hertz) | | | |
| | Operation interface | Large screen liquid crystal display | | | |
| Protection | External communication | RS485/ LAN / CAN | | | |
| | Input | Over voltage, Over current, Phase-break | | | |
| Environmental conditions and safety | Output | Over voltage, Over temperature, Over current | | | |
| | Protection grade | IP21(Indoor) | | | |
| | Cooling mode | Force-air cooling | | | |
| | Environmental temperature | -10~40°C | | | |
| Environmental conditions and safety | Relative humidity | 10-90% (Non-condensing) | | | |
| | Noise | < 65dB | | | |

Remark : The power of the single machine can be customized according to the customer's requirement.

EVD series High precision bidirectional DC power supply

Product Introduction

EVD series high precision bidirectional DC power supply is a DC power supply of IGBT with high accuracy, high reliability, programmable and automatic bidirectional operation. Its DC output characteristic has high precision and high dynamic response characteristics, and has the function of feeding back energy to the grid. With full digital control, the control precision is high, the response speed is fast, and the output adjustment range is wide. The output has programmable functions, and can be used in a variety of situations through different control software.

Product features

- ◆ High precision; the precision of output voltage is 0.1% FS.
- ◆ High dynamic characteristics; 10-90% process load output voltage response time is less than 5ms; +90%-90% or 10ms switch.
- ◆ The IGBT type circuit, numeric of isolated power supply.
- ◆ The energy can be fed back to the grid; at the same time, with the characteristics of two kinds of power and load, with performance of high power DC power supply, realize the function of automatic load energy feedback to the grid, has outstanding advantages of energy saving and green environmental protection.
- ◆ The product circuit structure using PWM rectifier and DC/DC double circuit can achieve the output voltage range wide, high precision, fast dynamic response characteristics.
- ◆ The use of PWM rectifier +PWM inverter principle, power factor >0.99. THD and injected harmonic currents are higher than GB/T14549-93 requirements.
- ◆ The output of constant voltage, constant current, constant power mode.
- ◆ This machine has the function of native operation and remote operation, equipped with remote control software and external communication function.
- ◆ The strict system of thermal design, low temperature rise and long-life.
- ◆ The large screen liquid crystal display, a variety of the communication interface.
- ◆ The protection of the programmable and operating parameters.

Product applications

- ◆ The electric vehicle motor, controller test
- ◆ The electric vehicle test of transmission system and powertrain system
- ◆ The special electric vehicle motor, controller test
- ◆ The special electric vehicle drive system, powertrain system test
- ◆ The ship electric drive, electric drive system test
- ◆ The motor test system
- ◆ The charger, charging pile test
- ◆ The energy storage system converter test
- ◆ The battery, the battery pack charge and discharge test
- ◆ The capacitor, super capacitor charge and discharge test
- ◆ The UPS and EPS system test
- ◆ The test system of DC screen
- ◆ The battery test to replace real

Function interface



EVD series High precision bidirectional DC power supply



Specification parameters

| Type | EVD-40-400 ^① | EVD-80-800 | EVD-150-800 | EVD-200-800 | EVD-250-800 | EVD-500-800 | |
|-------------------------------------|---------------------------|--|-------------|-------------|-------------|-------------|--------|
| Power | 40KW | 80KW | 150KW | 200KW | 250KW | 500KW | |
| Input | Phase | 3φ3W + G | | | | | |
| | Voltage | 380V±10% | | | | | |
| | Frequency | 50Hz/60Hz±3Hz | | | | | |
| | Power factor | ≥0.99 | | | | | |
| | THD | ≤3% | | | | | |
| Output | Volt range | 24-800V | | | | | |
| | Rated voltage | 200V | 300V | 300V | 400V | 500V | 500V |
| | Rated current | ±200A | ±267A | ±500A | ±500A | ±500A | ±1000A |
| | Peak current ^② | ±300A | ±400A | ±667A | ±625A | ±700A | ±1260A |
| | Peak Power ^② | 60KW | 120KW | 200KW | 250KW | 350KW | 630KW |
| | Peak time ^② | 60S | | | | | |
| | Voltage Accuracy | ≤0.1%FS+5dgt | | | | | |
| | Response time | ≤5ms (10%-90% process load) | | | | | |
| | Switching time | ≤10ms(+ 90%- - 90% switch) | | | | | |
| | Voltage ripple | 0.2%-FS | | | | | |
| Energy feedback | Power feedback | 100% energy feedback | | | | | |
| | Current distortion | <3% | | | | | |
| | Power factor | >0.99 | | | | | |
| | Output voltage | 342 ~ 418Vac ^③ ~ | | | | | |
| Common operation | Frequency range | 47.5 ~ 51.5Hz (Allowable grid Hertz) | | | | | |
| | Operation interface | Large screen liquid crystal display | | | | | |
| | External communication | RS485/ LAN / CAN | | | | | |
| Protection | Input | Over voltage, Over current, Phase-break | | | | | |
| | Output | Over voltage, Over temperature, Over current | | | | | |
| Environmental conditions and safety | Protection grade | IP 21(Indoor) | | | | | |
| | Cooling mode | Force-air cooling | | | | | |
| | Environmental temperature | -10~40°C | | | | | |
| | Relative humidity | 10-90%(Non-condensing) | | | | | |
| Noise | < 65dB | | | | | | |

Note:

- ① The voltage of 40KW standard product is 24-400V or 24-800V two optional
- ② Peak power, peak time and peak current can be customized according to customers' requirements
- ③ The power of the single machine can be customized according to the customer's requirement, and the maximum can be 2000KW
- ④ The product output voltage is 800V/1000V, for customers to choose

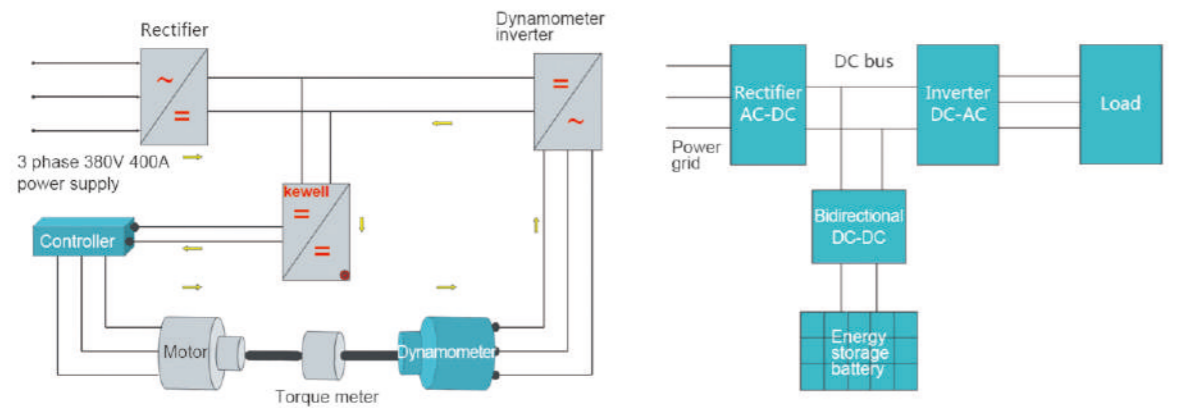
EVD-D series DC/DC high precision bidirectional DC power supply

EVD-D series DC/DC high precision bidirectional DC power supply

Product Introduction

EVD-D series DC/DC high precision bidirectional DC power supply is a DC input high precision bidirectional DC power supply, also called "DC two-way energy bridge". The DC output characteristic has high precision and high dynamic response characteristic, and has automatic bidirectional operation function. With full digital control, the control precision is high, the response speed is fast, and the output adjustment range is wide.

EVD-D series DC/DC high precision bidirectional DC power supply developed on the basis of EVD series high precision bidirectional DC power supply, mainly for common DC bus system test platform use, can also be used as a DC system in "bidirectional bridge", commonly used in the energy storage system and energy recovery system. The following diagram shows the use of a typical common bus system test platform and energy storage system.



Product features

- ◆ The wide range of DC output.
- ◆ The bidirectional operation as the "energy bridge".
- ◆ The DC input can access the customer original DC system, more cost-effective.
- ◆ High precision; the precision of output voltage is 0.1%FS.
- ◆ High dynamic characteristics; 10-90% process load output voltage response time is less than 10ms, 90%- 90% or 10ms switch.
- ◆ The use of a two-way function; at the same time, with the characteristics of two kinds of power and load.
- ◆ The IGBT type circuit, pure digital control.
- ◆ The product structure of the circuit using multiple interleaved DC/DC circuit can realize the output voltage range wide, high precision and fast dynamic response characteristics.
- ◆ The output of constant voltage, constant current, constant power mode.
- ◆ This machine has the function of native operation and remote operation, equipped with remote control software and external communication function.
- ◆ The strict system of thermal design, low temperature rise, long life.
- ◆ The large screen liquid crystal display, a variety of communication interface.
- ◆ The protection of the programmable and operating parameters.

Product applications

- ◆ The energy storage system
- ◆ The energy recovery system
- ◆ The battery pack on the charge and discharge of the system
- ◆ The electric vehicle motor, controller test system
- ◆ The electric vehicle transmission system, powertrain system test system
- ◆ The test system of the special electric vehicle motor, controller
- ◆ The special electric vehicle drive system, powertrain system test system
- ◆ The ship electric drive, electric drive system test system



Specification parameters

| Type | EVD-D-40-400 ^① | EVD-D-80-800 | EVD-D-150-800 | EVD-D-250-800 | EVD-D-500-800 | |
|-------------------------------------|--|--|---------------|---------------|---------------|--------|
| Power | 40KW | 80KW | 150KW | 250KW | 500KW | |
| Input | DC: 850V Note: The output Volt-HI limit depends on input voltage | | | | | |
| | Output Voltage | 24-800V | | | | |
| | Rated voltage | 200V | 300V | 300V | 500V | 500V |
| | Rated current | ±200A | ±267A | ±500A | ±500A | ±1000A |
| | Peak current ^② | ±300A | ±400A | ±667A | ±700A | ±1260A |
| | Peak Power ^② | 60KW | 120KW | 200KW | 350KW | 630KW |
| | Peak time ^② | 60s | | | | |
| | Voltage Accuracy | ≤0.1%FS+5dgt | | | | |
| | Response time | ≤10ms (10%-90% process load, Front-End input voltage change within 5%) | | | | |
| | Switching time | ≤20ms(+90%- -90% switch, Front-End input voltage change within 5%) | | | | |
| Voltage ripple | 0.2% FS | | | | | |
| Energy feedback operation | Power feedback | 100% energy feedback | | | | |
| | Operation interface | Large screen liquid crystal display | | | | |
| Communication and operation | External communication | RS485 / LAN / CAN | | | | |
| | Input | Over voltage, Over current, Phase-break | | | | |
| Protection | Output | Over voltage, Over-temperature, Over current | | | | |
| | Protection grade | IP 21(Indoor) | | | | |
| Environmental conditions and safety | Cooling mode | Force-air cooling | | | | |
| | Environmental temperature | -10~40°C | | | | |
| | Relative humidity | 10-90% (Non-condensing) | | | | |
| | Noise | < 65dB | | | | |

Note:
^① The voltage of 40KW standard product is 24-400V or 24-800V two optional
^② Peak power, peak time and peak current can be customized according to customers' requirements
^③ The product output voltage is 800V/1000V, for customers to choose

EBDH series Battery pack charge and discharge comprehensive performance test system

System Overview

EBDH series battery pack comprehensive performance test system is in accordance with the requirements of the industry standard, a set of comprehensive performance test system designed for electrical laboratory battery performance PACK detection; mainly includes charge and discharge test power, test system software, temperature detector, voltage detector, upper machine etc.. One of the main power supply is a two level converter, IGBT circuit, pure digital power supply, has the advantages of energy feedback, high precision, wide voltage range etc.. DC output has the characteristics of high precision and high dynamic response characteristics, and has the function of energy feedback to the grid, to adapt to a wide range of output voltage of battery pack testing; power supply also supports multiple parallel, can be customized according to the needs of different current and power.

System function characteristic

- ◆ The power supply adopts the international advanced IGBT control technology, adopting PWM rectifier and DC/DC double circuit, to achieve two-way flow of energy; the total harmonic distortion (THD) less than or equal to 3%, reached the industry best, can achieve high-quality energy feedback to the grid.
- ◆ High dynamic response characteristics, the current rise time of loading (10%-90%): 3-5ms, meet the industry of high standard battery pack testing requirements.
- ◆ The accuracy of voltage 0.1%FS, current 0.1%FS precision, meet the test requirements of high precision battery pack.
- ◆ The power supply adopts PWM rectifier +PWM inverter can achieve the power factor, >0.99, does not affect the quality of power supply.
- ◆ The output ripple of <0.2%FS, the testing process of the battery pack will not cause harm.
- ◆ The test data can be guided into EXCEL file and the export project can be selected: field test scheme, curve, circular list, process list, detailed data list, the comprehensive data of each project, the voltage and current, temperature, capacity curve chart with a single curve and at the same time view function.
- ◆ Dual channel configuration: according to the actual demand, dual channel configuration, charge and discharge test channel can be achieved independent and mutual noninterference; multi channel can also be used with parallel machine, expand the range of specifications of the battery pack, improve equipment utilization, reduce customer input to test equipment.

Model category

| Main mode | EBDH50 | EBDH100 |
|---------------|----------------|-----------------|
| Compound mode | EBDH50-800-200 | EBDH100-800-300 |
| Rated voltage | 50KW | 100KW |
| Rated current | 200A | 300A |
| Voltage range | 24-800V | |

| Main mode | EBDH150 | EBDH200 |
|---------------|-----------------|-----------------|
| Compound mode | EBDH150-800-500 | EBDH200-800-500 |
| Rated voltage | 150KW | 200KW |
| Rated current | 500A | 500A |
| Voltage range | 24-800V | |

EBDH series Battery pack charge and discharge comprehensive performance test system

Main technical parameters of power supply (100KW) - single channel

| Main mode | EBDH100 | |
|-------------------------------|--|--|
| Compound mode | EBDH100-800-300 | |
| AC power input voltage | 380VAC±10% | 3φ3W + G frequency 50Hz/60Hz±3Hz |
| Power quality | Power factor | ≥0.99 |
| | Current Total harmonic distortion(THD) | < 3% |
| Voltage | 100KW | |
| Rated current | ±300A | |
| Output DC voltage range | 24-800V | |
| Output DC voltage precision | ±(0.1%FS+5dgt) | |
| Output DC current precision | ±(0.1%FS+5dgt) | |
| Response time | Current rise/down response | 3-5ms (0—90%) |
| | Charge and discharge switch time | 6-10ms (-90%—90%) |
| | Main channel data acquisition speed | 10ms |
| Output ripple | < 0.2% FS | |
| Overall efficiency | ≥94% | |
| Energy feedback | Full power section energy feedback | |
| Communication/Control program | Communication mode | CAN, LAN, RS485 |
| | Work step number in file | 9999 |
| | Cycle index | ≥9999 times |
| | Nested loops | Maximum support 5 layer |
| Protection function | Input side protection | Under-voltage, Over-temperature, Over current, Phase-break |
| | Output side protection | Over-voltage, Over current, overload, Under-voltage |
| | Safety protection | Voltage-HI/voltage-Low limit, Current-HI/current-Low limit, simultaneous protection value settable, secure information queryable |
| Equipment noise | ≤65dB | |
| Protection grade | IP22 | |
| Cooling mode | Force-air cooling | |
| Environmental conditions | Environmental temperature | -10~40°C |
| | Altitude | Below 2000 m |
| | Environmental humidity | 0-90% (Non-condensing) |

EBDH series Battery pack charge and discharge comprehensive performance test system

EBDH series Battery pack charge and discharge comprehensive performance test system

The main technical parameters of the power - (160KW) - Dual Channel

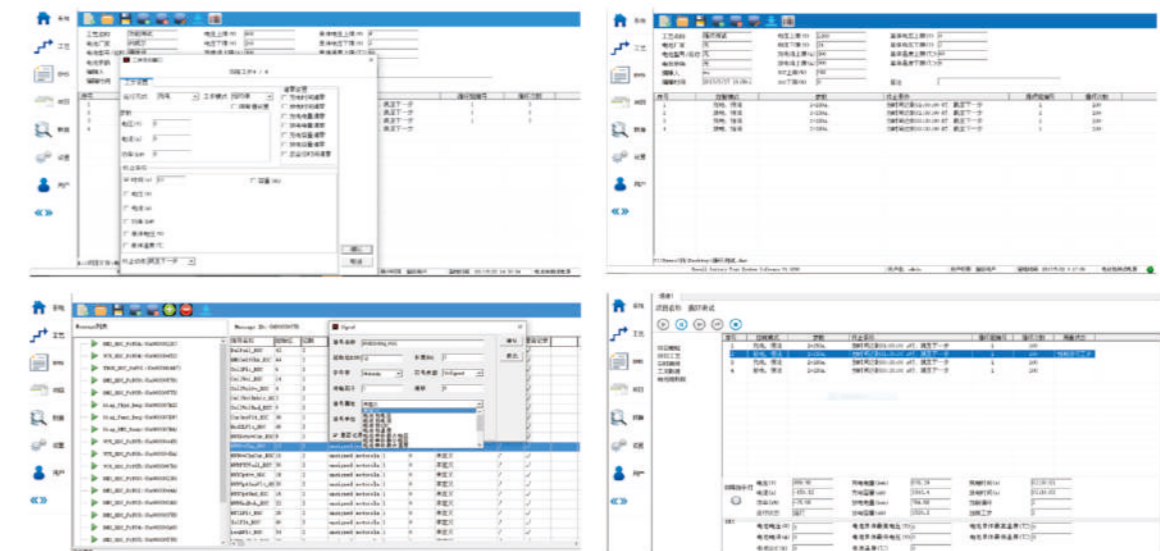
| | | | |
|-------------------------------|-------------------------------------|--|-------------------------|
| Main mode | EBDH160 | | |
| Compound mode | EBDH160-800-300-2 | | |
| AC power input voltage | 380VAC±10% | 3φ3W + G | frequency 50Hz/60Hz±3Hz |
| Power quality | Power factor | ≥0.99 | |
| | Total harmonic distortion(THD) | < 3% | |
| Channel number | 2 channel | | |
| Power | Single-channel | 80KW | |
| | Double-channel | 160KW (parallel) | |
| Rated current | Single-channel | ±300A | |
| | Double-channel | ±600A (parallel) | |
| Output DC voltage range | 24-800V | | |
| Output DC voltage precision | ±(0.1%FS+5dgt) | | |
| Output DC current precision | ±(0.1%FS+5dgt) | | |
| Response time | Current rise/down response | 3-5ms (0—90%) | |
| | Charge and discharge switch time | 6-10ms (-90%—90%) | |
| | Main channel data acquisition speed | 10ms | |
| Output ripple | < 0.2% FS | | |
| Overall efficiency | ≥94% | | |
| Energy feedback | Full power section energy feedback | | |
| Communication/Control program | Communication mode | CAN, LAN, RS485 | |
| | Work step number in file | 9999 | |
| | Cycle index | ≥9999 times | |
| | Nested loops | Maximum support 5 layer | |
| Protection function | Input side protection | Under-voltage, Over-temperature, Over current, Phase-break | |
| | Output side protection | Over-voltage, Over current, overload, Under-voltage | |
| | Safety protection | Voltage-HI/voltage-Low limit, Current-HI/current-Low limit, simultaneous protection value settable, secure information queryable | |
| Equipment noise | ≤65dB | | |
| Protection grade | IP22 | | |
| Cooling mode | Force-air cooling | | |
| Environmental conditions | Environmental temperature | -10~40°C | |
| | Altitude | Below 2000 m | |
| | Environmental humidity | 0-90% (Non-condensing) | |

Model category

| Main mode | EBDH80 | EBDH160 | EBDH200 |
|------------------------------|------------------|-------------------|-------------------|
| Compound mode | EBDH80-800-200-2 | EBDH160-800-300-2 | EBDH200-800-400-2 |
| Channel number | 2 | 2 | 2 |
| Single-channel Power | 40KW | 80KW | 100KW |
| Double-channel Power | 80KW | 160KW | 200KW |
| Single-channel rated current | 200A | 300A | 400A |
| Double-channel rated current | 400A | 600A | 800A |
| Voltage range | 24-800V | | |

| Main mode | EBDH250 | EBDH300 | EBDH400 |
|------------------------------|-------------------|-------------------|-------------------|
| Compound mode | EBDH250-800-400-2 | EBDH300-800-400-2 | EBDH400-800-400-2 |
| Channel number | 2 | 2 | 2 |
| Single-channel Power | 125KW | 150KW | 200KW |
| Double-channel Power | 250KW | 300KW | 400KW |
| Single-channel rated current | 400A | 400A | 400A |
| Double-channel rated current | 800A | 800A | 800A |
| Voltage range | 24-800V | | |

Host computer interface



System brief

The testing power supply adopts IGBT control technology and high performance DSP digital processing of international advanced technology, combined with the system of automatic processing, according to GB / European standard testing standards of the battery pack testing the electrical performance, test and evaluate all aspects of the power battery for the quality of the package; the system is widely used in large enterprises, annual membership of battery enterprises, research institutions and other laboratory.

Test reference standard

- ◆ The GB/T31467.1-2015 electric vehicle lithium ion power battery pack and systems part first: test procedures for high power applications.
- ◆ The GB/T31467.2-2015 electric vehicle lithium ion power battery pack and system in second parts: high energy application testing procedures.
- ◆ The GB/T31467.3-2015 electric vehicle lithium ion power battery pack and system third parts: Safety requirements test methods.
- ◆ The GB/T31484-2015 battery life cycle requirements and test methods for hybrid electric vehicle.
- ◆ The GB/T31485-2015 battery safety requirements and test methods for hybrid electric vehicle.
- ◆ The GB/T31486-2015 power battery performance requirements and test methods of electric vehicle.
- ◆ Super capacitor for the QC/T741-2014 super capacitor for vehicle.

EBDH series Battery package charge and discharge comprehensive performance test system

Test project

| Test type | Test item | Specification requirements |
|-------------------------|---|--|
| Basic performance test | Capacity and energy test | GB/T31467.1-2015 : 7.1 |
| | | GB/T31467.2-2015 : 7.1 |
| | Power and internal resistance | GB/T31467.1-2015 : 7.2 |
| | | GB/T31467.2-2015 : 7.2 |
| No load capacity loss | GB/T31467.1-2015 : 7.3 | |
| | GB/T31467.2-2015 : 7.3 | |
| Storage capacity loss | GB/T31467.1-2015 : 7.4 | |
| | GB/T31467.2-2015 : 7.4 | |
| Basic performance test | High/low temperature initial power | GB/T31467.1-2015 : 7.5 |
| | power and internal resistance test | GB/T31467.1-2015 : 7.6 GB/T31467.2-2015 : 7.5 |
| Safety performance test | Over temperature protection | GB/T31467.3-2015 : 7.13 |
| | Over charge protection | GB/T31467.3 : 7.15 |
| | Over discharge protection | GB/T31467.3 : 7.16 |
| Cycle life test | Room temperature capacity and energy | GB/T31484-2015 : 6.2 |
| | Room temperature power | GB/T31484-2015 : 6.3 |
| | Standard cycle life | GB/T31484-2015 : 6.4 |
| | Working condition cycle life | GB/T31484-2015 : 6.5.1, 6.5.2, 6.5.3, 6.5.4 |
| Software working mode | Power battery high-speed current pulse test | Test system software performance |
| | Current step or slope test | |
| | Voltage step or slope test | |
| | Battery temperature test | Selection temperature patrol meter |

Main functions of the system

- ◆ The independent channel
Each channel has a constant current source and voltage source independently programmable; independent step operation, increase the professional plan of setting up step; equipment charge and discharge port separately, each channel can be independently programmed and controlled, the voltage and current, time and other parameters can be modified.
- ◆ The parallel channel
The channels do not influence each other and can be used in parallel with many channels.
- ◆ The auxiliary channel
1 main channel with 2 standard CAN communication interface, 1 RS485 interfaces, 1 LAN interfaces; can realize data communication and exchange with BMS or other test platform of testing equipment or instruments; e.g. the test through an auxiliary channel connecting the centralized management of voltage / temperature inspection instrument, high and low temperature, vibration etc.
- ◆ The BMS data control and docking
Fastly control and dock data with different kinds of BMS; each BMS device will form a standard DBC file, the file can be imported equipment to achieve docking, each road can correspond to different BMS, independent operation.

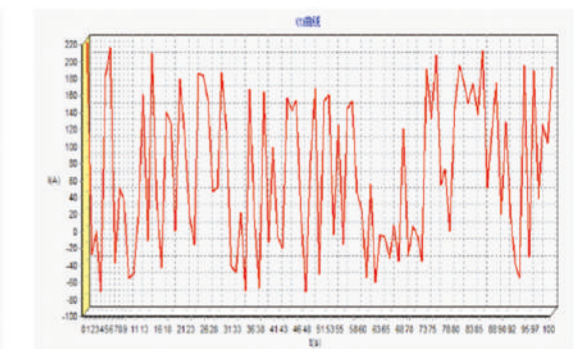
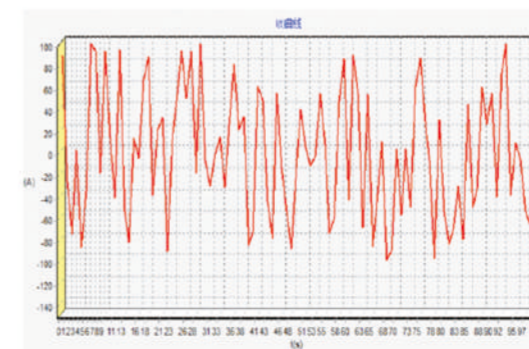
EBDH series Battery package charge and discharge comprehensive performance test system



- ◆ Log record
With the log function, can be loop test of charged and discharge of each battery, with record function of real-time, comprehensive recording system operation data and test results, including operation data through the whole test process and abnormal record, can be used to trace the testing process.
- ◆ The data processing
The data can be guided into EXCEL file and the export project can be selected: test scheme, curve, circular list, process list, detailed data list, the comprehensive data of each project, the voltage and current, temperature, capacity curve chart with a single curve and at the same time view function.
- ◆ The charging cut-off condition
Voltage, current, time, capacity.
- ◆ The discharge cut-off condition
The voltage, current, time and capacity; working mode (CC-CV and CC charge; constant current discharge, static, jump, parameter setting(charge and discharge current, voltage or static time parameter), constraints (time, voltage, capacity, etc.), according to the testing requirements in combination.
- ◆ The protection function
Global protection parameters (including the output short circuit protection, reverse battery protection, voltage low limit protection, voltage high limit protection, current high limit protection, over temperature protection), all the protection to the user setting parameters, channel operation equipment will automatically stop and alarm, at the same time, the time will be recorded, and make prompt response.

Working condition simulation test

- ◆ The implementation of standards within the industry of electric vehicle driving cycle simulation test;
- ◆ The simulation test can be realized that actual conditions automatically converted to test program conditions;
- ◆ The measured working data: the current time, the power time, indentifalbe condition data file of excel, CSV format;



EBD series Battery pack charge and discharge test system

System Overview

EBD battery pack charge and discharge test system is in accordance with the requirements of industry standards, a integrated automatic test system designed for PACK battery production line electrical performance testing; mainly includes charge and discharge test power supply, automatic test system software, scan code gun, computer etc.. One of the main power supply is a two level converter, IGBT circuit, pure digital power supply, has the advantages of energy feedback, high precision, wide voltage range etc.. DC output has the characteristics of high precision and high dynamic response characteristics, and has the function of energy feedback to the grid, to adapt to a wide range of output voltage of battery pack testing; power supply also supports multiple parallel, can be customized according to the needs of different current and power.

Main features of the system

- ◆ The power supply system, the use of advanced IGBT control technology, adopting PWM rectifier and DC/DC double circuit, to achieve two-way flow of energy; the total harmonic distortion (THD) of S3%, to achieve the industry best, can achieve high quality energy back to power grid.
- ◆ High dynamic response characteristics, the current rise time of loading (10%-90%): 10ms, meet the requirements of high standard in the industry of the battery pack simulation test.
- ◆ The accuracy of voltage 0.1%FS, current 0.1%FS precision, meet the test requirements of high precision battery pack.
- ◆ The power supply adopts PWM rectifier, power factor can be achieved >0.99, does not affect the quality of power supply.
- ◆ The output ripple of <0.2%FS, the testing process of the battery pack will not cause harm.
- ◆ The data can be guided into EXCEL file and the export project can be selected: test scheme, curve, circular list, process list, detailed data list, the comprehensive data of each project, the voltage and current, temperature, capacity curve chart with a single curve with the same view function.
- ◆ Dual channel configuration: according to the actual needs of the production line, double channel configuration, charge and discharge test channel can be achieved independent or mutual noninterference; multi channel can also be used with parallel machine, expand the range of specifications of the battery pack, improve equipment utilization, reduce customer input to test equipment.

Model category

| Main mode | EBD50 | EBD100 |
|---------------|---------------|----------------|
| Compound mode | EBD50-800-200 | EBD100-800-300 |
| Rated voltage | 50KW | 100KW |
| Rated current | 200A | 300A |
| Voltage range | 24-800V | |

| Main mode | EBD150 | EBD200 |
|---------------|----------------|----------------|
| Compound mode | EBD150-800-500 | EBD200-800-500 |
| Rated voltage | 150KW | 200KW |
| Rated current | 500A | 500A |
| Voltage range | 24-800V | |

EBD series Battery pack charge and discharge test system

The main technical parameters of the power - (100KW) - single channel

| Main mode | EBD100 | | |
|-------------------------------|-------------------------------------|---|-------------------------|
| Compound mode | EBD100-800-300 | | |
| AC power input voltage | 380VAC±10% | 3φ3W + G | frequency 50Hz/60Hz±3Hz |
| Power quality | Power factor | ≥0.99 | |
| | Total harmonic distortion(THD) | < 3% | |
| Voltage | 100KW | | |
| Rated current | ±300A | | |
| Output DC voltage range | 24-800V | | |
| Output DC voltage precision | ±(0.1%FS+5dgt) | | |
| Output DC current precision | ±(0.1%FS+5dgt) | | |
| Response time | Current rise/down response | 10ms (0—90%) | |
| | Charge and discharge switch time | 20ms (-90%—90%) | |
| | Main channel data acquisition speed | 10ms | |
| Output ripple | < 0.2% FS | | |
| Overall efficiency | ≥94% | | |
| Energy feedback | Full power section energy feedback | | |
| Communication/Control program | Communication mode | CAN, LAN, RS485 | |
| | Work step number in file | 9999 | |
| | Cycle index | ≥9999 times | |
| | Nested loops | Maximum support 5 layer | |
| Protection function | Input side protection | Under-voltage, Over-temperature, Over current, Phase-break | |
| | Output side protection | Over-voltage, Over current, overload, Under-voltage | |
| | Safety protection | Voltage-HI/voltage-Low limit,Current-HI/current-Low limit, simultaneous protection value settable, secure information queryable | |
| Equipment noise | ≤65dB | | |
| Protection grade | IP22 | | |
| Cooling mode | Force-air cooling | | |
| Environmental conditions | Environmental temperature | -10~40°C | |
| | Altitude | Below 2000 m | |
| | Environmental humidity | 0-90% (Non-condensing) | |

EBD series Battery pack charge and discharge test system

EBD series Battery pack charge and discharge test system

Power supply technical parameters (160KW) - Dual Channel

| | | | |
|-------------------------------|-------------------------------------|---|-------------------------|
| Main mode | EBD160 | | |
| Compound mode | EBD160-800-300-2 | | |
| AC power input voltage | 380VAC±10% | 3φ3W + G | frequency 50Hz/60Hz±3Hz |
| Power quality | Power factor | ≥0.99 | |
| | Total harmonic distortion(THD) | < 3% | |
| Channel number | 2 channel | | |
| Power | Single-channel | 80KW | |
| | Double-channel | 160KW (parallel) | |
| Rated current | Single-channel | ±300A | |
| | Double-channel | ±600A (parallel) | |
| Output DC voltage range | 24-800V | | |
| Output DC voltage precision | ±(0.1%FS+5dgt) | | |
| Output DC current precision | ±(0.1%FS+5dgt) | | |
| Response time | Current rise/down response | 10ms (0—90%) | |
| | Charge and discharge switch time | 20ms (-90%—90%) | |
| | Main channel data acquisition speed | 10ms | |
| Output ripple | < 0.2% FS | | |
| Overall efficiency | ≥94% | | |
| Energy feedback | Full power section energy feedback | | |
| Communication/Control program | Communication mode | CAN, LAN, RS485 | |
| | Work step number in file | 9999 | |
| | Cycle index | ≥9999 times | |
| | Nested loops | Maximum support 5 layer | |
| Protection function | Input side protection | Under-voltage, Over-temperature, Over current, Phase-break | |
| | Output side protection | Over-voltage, Over current, overload, Under-voltage | |
| | Safety protection | Voltage-HI/voltage-Low limit,Current-HI/current-Low limit, simultaneous protection value settable, secure information queryable | |
| Equipment noise | ≤65dB | | |
| Protection grade | IP22 | | |
| Cooling mode | Force-air cooling | | |
| Environmental conditions | Environmental temperature | -10~40°C | |
| | Altitude | Below 2000m | |
| | Environmental humidity | 0-90% (Non-condensing) | |

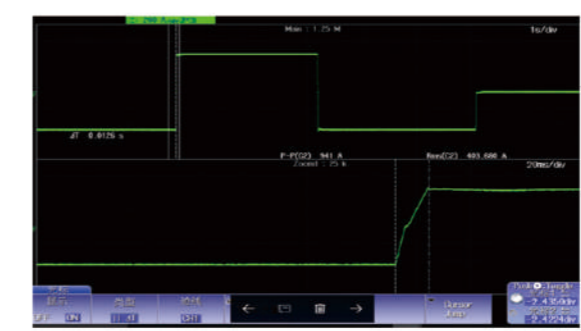


Model category

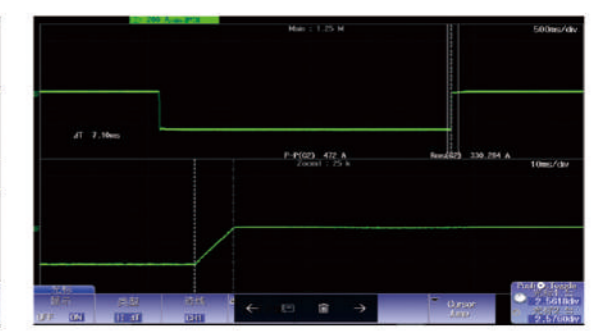
| Main mode | EBD80 | EBD160 | EBD200 |
|------------------------------|-----------------|------------------|------------------|
| Compound mode | EBD80-800-200-2 | EBD160-800-300-2 | EBD200-800-400-2 |
| Channel number | 2 | 2 | 2 |
| Single-channel Power | 40KW | 80KW | 100KW |
| Double-channel Power | 80KW | 160KW | 200KW |
| Single-channel rated current | 200A | 300A | 400A |
| Double-channel rated current | 400A | 600A | 800A |
| Voltage range | 24-800V | | |

| Main mode | EBD250 | EBD300 | EBD400 |
|------------------------------|------------------|------------------|------------------|
| Compound mode | EBD250-800-400-2 | EBD300-800-400-2 | EBD400-800-400-2 |
| Channel number | 2 | 2 | 2 |
| Single-channel Power | 125KW | 150KW | 200KW |
| Double-channel Power | 250KW | 300KW | 400KW |
| Single-channel rated current | 400A | 400A | 400A |
| Double-channel rated current | 800A | 800A | 800A |
| Voltage range | 24-800V | | |

Test waveform



-550A~+550A current switching, response time is about 12.6ms



-500A~0A current switching, response time is about 7ms

Our clients

Note



Note

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