ACTIONPOWER

High Performance DC Power Supply

PRD series

0V to 2000V, 15kW to 3MW

Programmable Bidirectional DC Power Supply

actionpowertest.com

FAST SLEW RATE
WITH EXCEPTIONAL RISE/FALL TIME
FOR SPEED-CRITICAL APPLICATION

The bi-directional power supply with the best performance, which provides 0.02% of voltage and current accuracy and 500μs of response time based on the unique topology.

500μs
ULTRA FAST RESPONSE TIME

3U

OUT

HIGH ACCURACY
VOLTAGE & CURRENT

It performs fast dynamic characteristics by stable and precise control using equipped high accuracy voltage and current measurement device and micro-processor for digital signal.
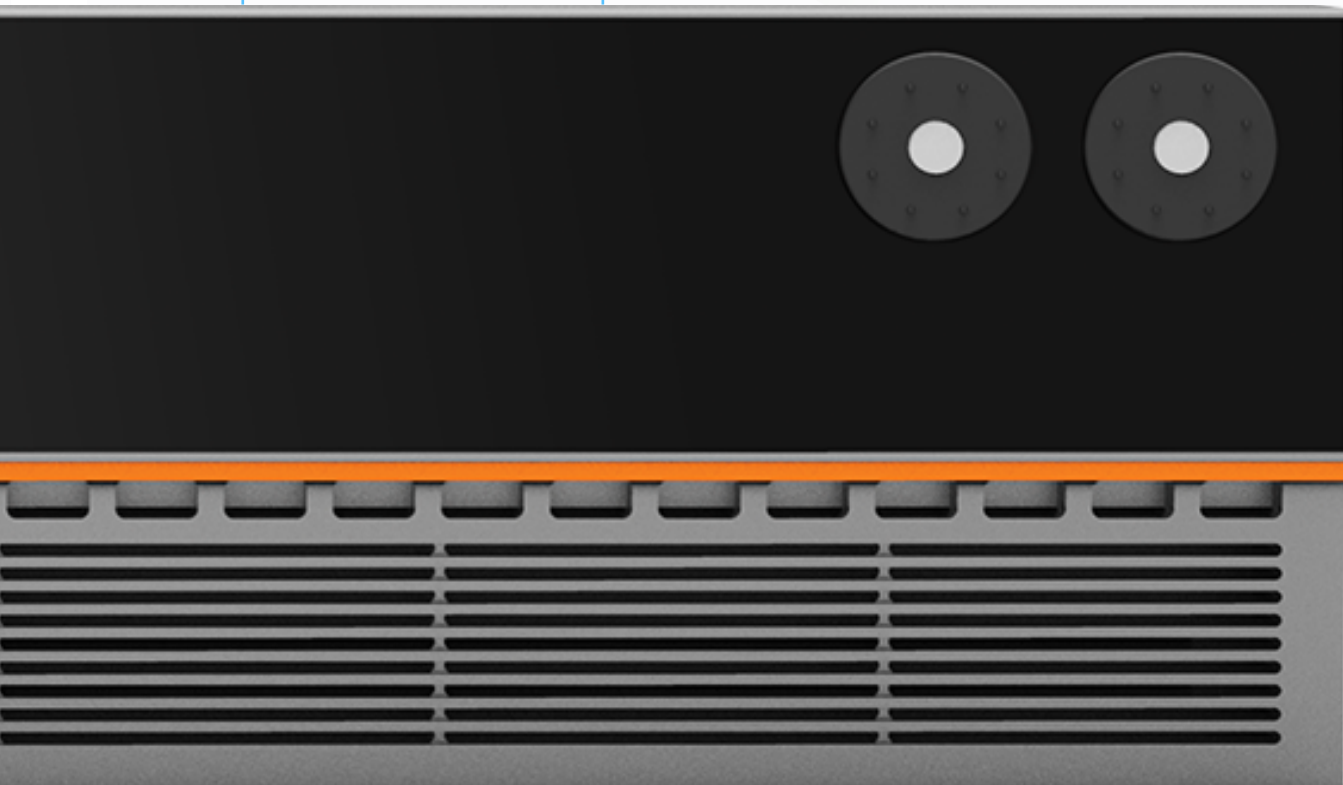
0.02%
HIGH ACCURACY

0V
SUPPORT ZERO VOLT INPUT

2000V
MAXIMUM DC VOLTAGE OUTPUT

HIGH VOLTAGE
DC POWER SUPPLY

PRD series provides the safety feature that it stably maintains 0V in standby mode, and the maximum voltage range is up to 2000Vdc.

3MW
MAXIMUM DC OUTPUT POWER

30kW/3U
HIGH DENSITY POWER

HIGH POWER DENSITY
WITH AUTO RANGING

Power density of PRD series is up to 30kW/3U, and it can perform numerous application test using auto-ranging function, which adjusts the voltage and current range, flexibly.

Ratings, types and voltages

Power	Model	Voltage	Current
15kW	PRD4V50E	40	±667
	PRD6V50E	60	±667
	PRD8V50E	80	±667
	PRD0212E	200	±160
	PRD0312E	360	±160
	PRD0509E	500	±120
	PRD0609E	600	±120
	PRD0804E	800	±54
	PRD1004E	1000	±54
	PRD1503E	1500	±45
	PRD2003E	2000	±45

Power	Model	Voltage	Current
20kW	PRD4V66E	40	±667
	PRD6V66E	60	±667
	PRD8V66E	80	±667
	PRD0216E	200	±240
	PRD0316E	360	±240
	PRD0512E	500	±180
	PRD0612E	600	±180
	PRD0805E	800	±80
	PRD1005E	1000	±80
	PRD1504E	1500	±60
	PRD2004E	2000	±60

Power	Model	Voltage	Current
30kW	PRD0224	200	±240
	PRD0324	360	±240
	PRD0518	500	±180
	PRD0618	600	±180
	PRD0808	800	±80
	PRD1008	1000	±80
	PRD1506	1500	±60
	PRD2006	2000	±60

FEATURES

- Fast Response Time : <500μs
- High Voltage Accuracy : <0.02%
- High Current Accuracy : <0.02%
- Parallel Connection : up to 3MW
- Electric Load Function
- High Power Density : 30kW/3U
- Battery Simulation Function
- PV Simulation Function

Technical data

Model	40V/60V/80V	200V/360V	500V/600V	800V/1000V	1500V/2000V
AC Input					
Voltage, Phases	304Vac to 480Vac / 380V±20%, 3ph+PE				
Frequency	47Hz to 63Hz				
Inrush Current	<50A				
Power Factor	0.99				
Efficiency up to	93.5%	94%	95%	94%	95%
DC Output Voltage					
Accuracy	±0.02% F.S.				
Resolution	±1mV	±10mV			
Display Accuracy	±0.02% F.S.				
Line Regulation CV	±0.01% F.S. (208-408V AC±10% input voltage, constant load and constant temperature)				
Load Regulation CV	±0.01% F.S. (0-100% load, constant load and constant temperature)				
Ripple (rms) CV	<25mV	<60mV	<200mV	<200mV	<400mV
Ripple and Noise p-p CV	<300mVpp	<480mVpp	<1000mVpp	<1200mVpp	<2400mVpp
Remote Compensation	Max.voltage±1V	Max.voltage and 2%F.S.±1V			
Rise Time 10%90% CV	1ms	500µs			
Fall Time 90%-10% CV	1ms	500µs			
Voltage Slew Rate	150V/ms	200V/ms	1500V/ms	600V/ms	5000V/ms
Recovery Time	2.5ms±0.75%F.S	500µs ±0.75% F.S. (50% -100% or 100% -50/% load)			
Discharge Time	≤20s	≤20s	≤30s	≤20s	≤30s
DC Output Current					
Accuracy	±0.15% F.S.	±0.02% F.S.			
Resolution	±100mA	±10mA			
Display Accuracy	±0.15% F.S.	±0.02% F.S.			
Display Resolution	±10mA	±1mA			
Line Regulation CC	±0.01% F.S. (208-408V AC±10% input voltage, constant load and constant temperature)				
Load Regulation CC	±0.05% F.S. (0-100% load, constant load and constant temperature)				
Rise Time 10%-90% CC	1ms	500µs			
Fall Time 90%-10% CC	1ms	500µs			

Technical data

Model	40V/60V/80V	200V/360V	500V/600V	800V/1000V	1500V/2000V
DC Output Power					
Accuracy	±30W	±3W	±0.01% F.S.	±3W	±0.01% F.S.
Resolution	±10W	±1W			
Display Accuracy	±30W	±3W			
Display Resolution	±10W	±1W			
Resistance					
Range	0.003-100Ω	0.05-100Ω	0.5-3000Ω	0.05-100Ω	0.5-3000Ω
Programming Accuracy	1mΩ	0.01Ω	0.1Ω	0.01Ω	0.1Ω
Programming Resolution	1mΩ	0.01Ω	0.1Ω	0.01Ω	0.1Ω
Protective Functions					
OVP	Over-voltage protection, adjustable 0 - 110% $U_{Nominal}$ (±1% F.S.)				
OCP	Over-current protection, Adjustable 0V- ±110% $I_{Nominal}$ (±1% F.S.)				
OPP	Over-power protection, range 0V ~ ±110% $P_{Nominal}$ (±1% F.S.)				
OTP	Overt-temperature protection				
Interface					
Type-B USB, Ethernet, CAN, RS232, RS485, ModBus TCP					
Device Configuration					
Parallel Operation	Up to 100 units with energy-matrix bus (3MW)				
Environmental Conditions					
Operating Temperature	0 to 50 (°C) (power derating over 35°C)				
Storage Temperature	-20 to 70(°C)				
Humidity	≤ 80%. Not condensing				
Altitude	Output current derating 2%/100m above 2000m or derating 1°C/100m				
Mechanical Spec.					
Cooling Air forced					
Dimensions (WxHxD)	435mm x 132mm x 781mm				
Weight	40kg		35kg		

Modular and Scalable Design

The PRD series applies the DMPS (Digital Matrix Parallel System) method for high performance and stable power supply, which enables capacity expansion up to 3MW by connecting up to 100 units of 30kW power modules in parallel using high-speed fiber optic communication. In particular, redundancy function ensures stable operation of the test system even in the event of fault at specific modules . That is in case of fault in any slave module, the system bypass the abnormal module and operate continuously so that secures the reliability and stability of the system by minimizing down-time.

300kW		600kW		3MW
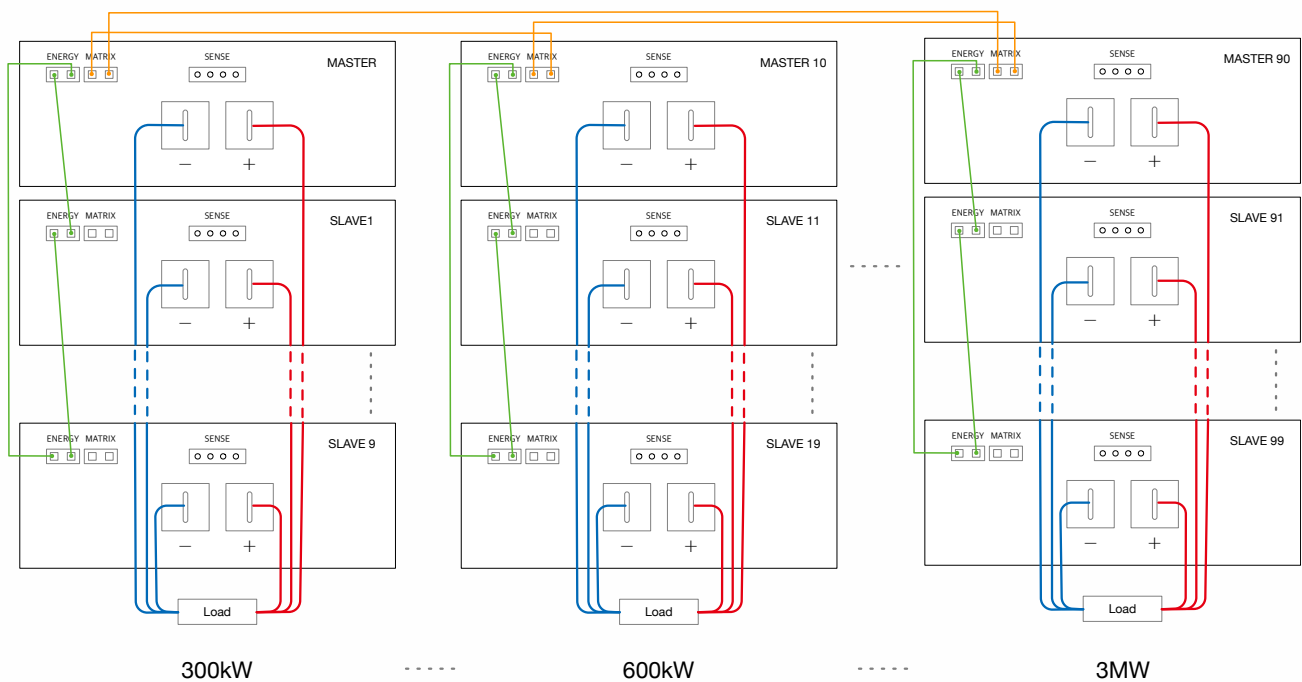
Features

- For 380V, 400V, 480V AC
- Modular rack system
- Module redundancy function
- Cabinet system with 42U & 19 inch rack
- Minimal footprint : 3U / 30kW
- Up to 100 units parallel connection (3MW)
- Extensive protective function (OVP, OCP, OT, …)
- Air cooling

Auto ranging
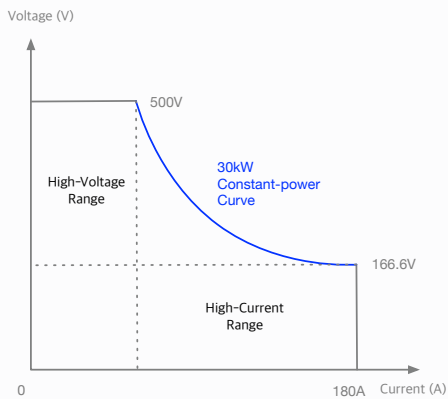
The auto ranging function automatically controls voltage and current through the programmable DC power supply to maintain the rated output over a wide operating range. That is the higher voltage is available at lower current, and vice versa, allowing the DUT to be tested under different voltage/current conditions with a single DC power supply.
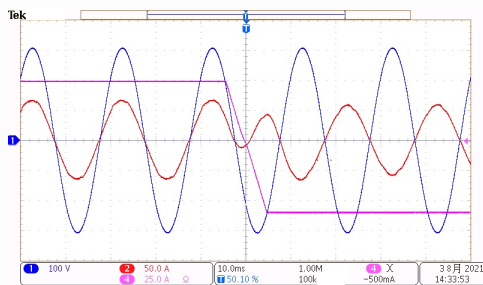
In addition, it supports smooth and ultra-fast automatic switching with the bidirectional Automatic "source" & "load" function. The overshoot of voltage or current can be effectively controlled without any delay in the transition between the two states of source and load.

30kW PRD Series Auto Ranging
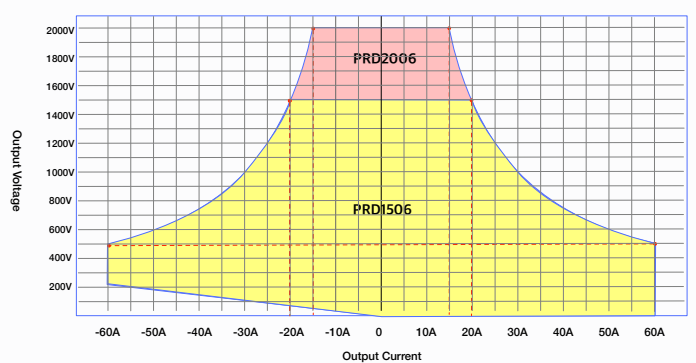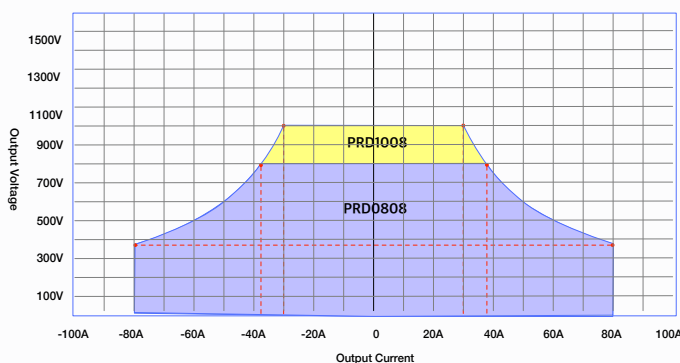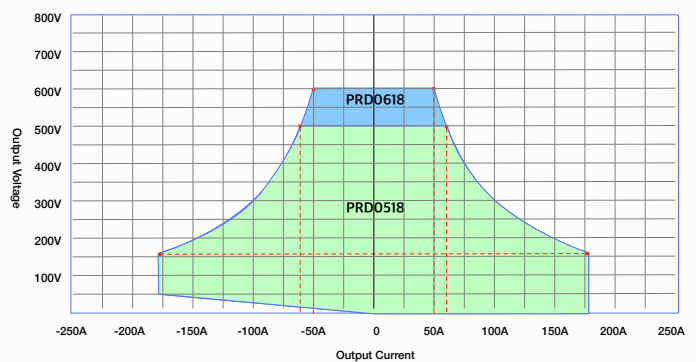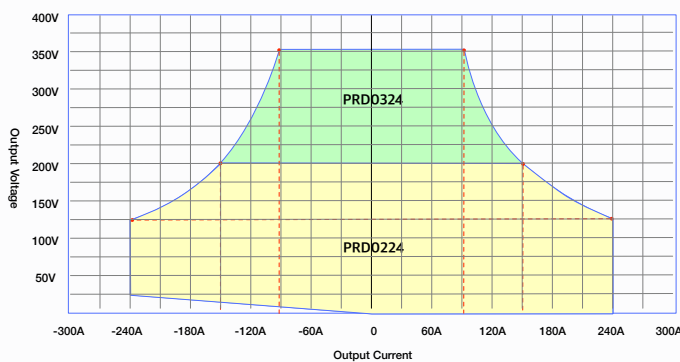
Application

The modular PRD series is an innovative product used in a variety of applications based on the unique technology and optimal performance. It can act as regenerative electronic load while supplying bidirectional DC power, which is applicable to long-term reliability test applications involving a variety of power sources, including electric vehicle DC charging stations, on-board chargers, automotive battery charge and discharge tests, fuel cell discharge tests, ESS charge and discharge tests, and other power sources. They are particularly well suited for applications requiring very fast response times, such as simulating electric vehicle driving patterns.

EV Battery Testing

Solar Array Testing

Fuel Cell Discharge Testing
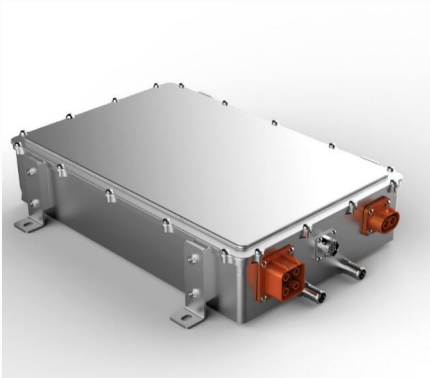
Onboard Charger Stability Testing

DC EVSE Stability Testing

ESS Testing
(Solar Array & Battery Simulator)
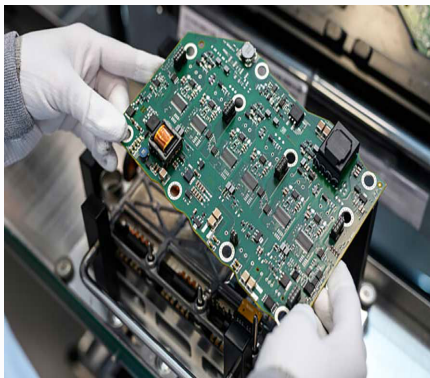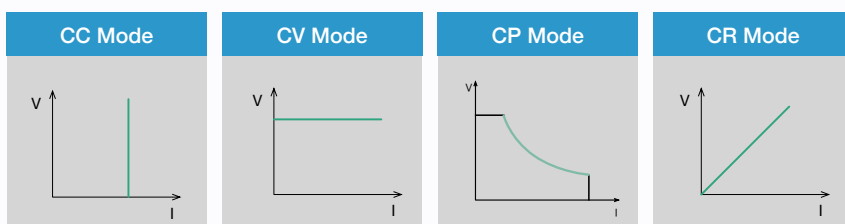

Power Electronic Components Testing
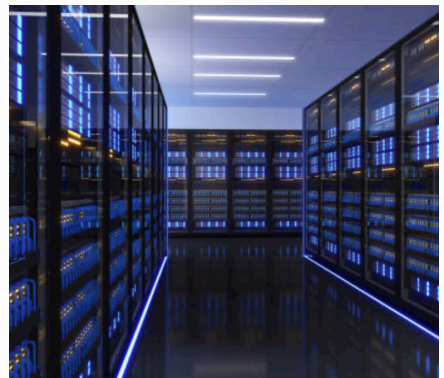
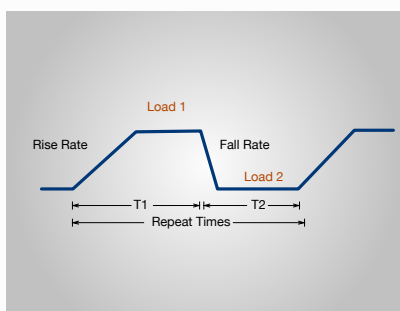Server Power Supply Reliability Testing

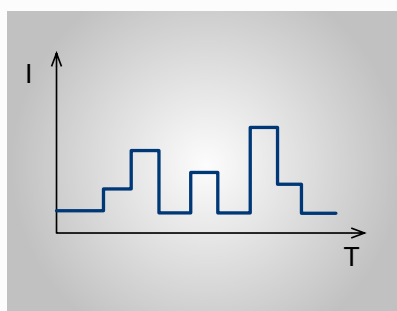# Powerful Software

Provides Diverse Simulation Mode

Basic Mode

CC Mode	CV Mode	CP Mode	CR Mode

Dynamic Mode

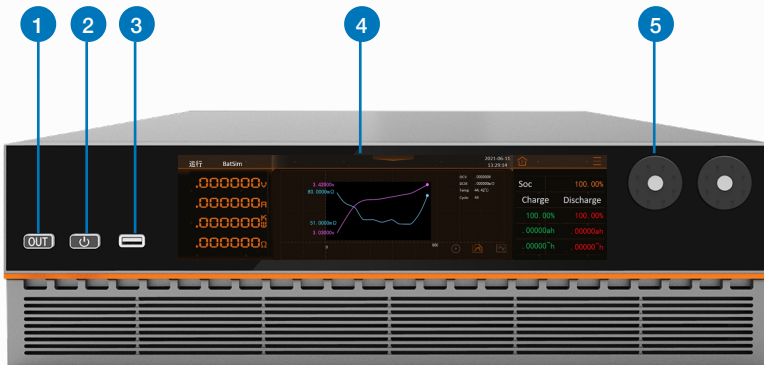### Programmable Sequences

FEATURES

■ **Battery Simulation**

LiMn204, LiCoO2, LiFePO4, NiMH, Ternary LI, LiTiO2 and PbO2 batteries

■ **PV Simulation**

Static curves, Curve programming, Static MPPT, Dynamic MPPT, Weather Simulation, Shading of photovoltaic panels

■ **Programming waveform**

■ **Curve import and export**

Panel Description

1. Power Output Button
2. Power On / Reset Button
   Device on/off switch
3. USB port
   External Storage Interface
4. 18" FHD Touch Screen
   Display setting and measurement data
5. Pushable Knob
   To edit the settings on-screen
6. LAN Interface
7. USB Interface
8. Energy Matrix Interface
   Parallel connection
9. Anyport Interface
10. Voltage Sensing
11. Output Positive/Negative Terminals
12. AC input & PE Terminal
13. AC Circuit Breaker
    AC power on/off
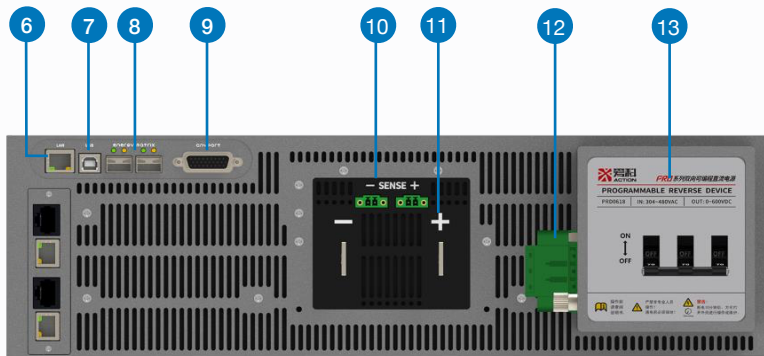
Dimension
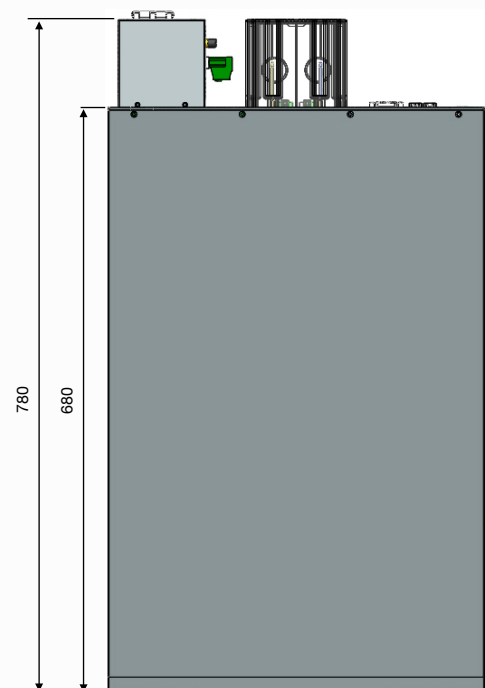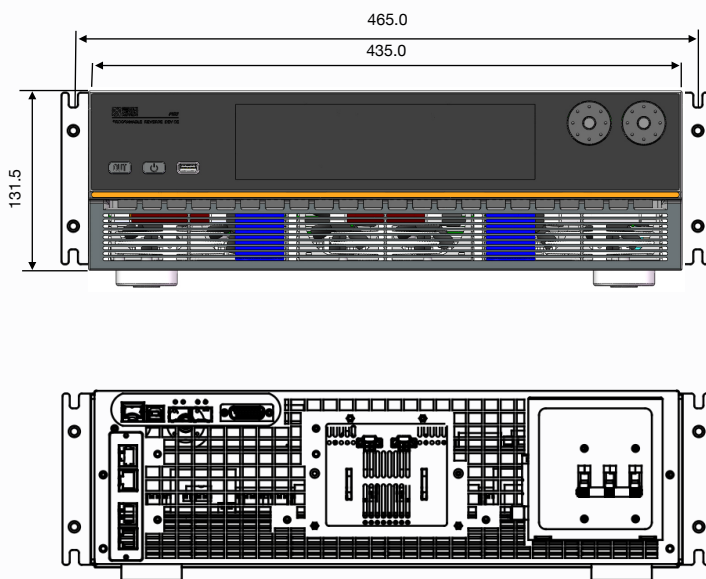
ACTIONPOWER

For more information, please contact
your local ACTIONPOWER representative or visit

www.actionpowertest.com

Head Quarter

No. 12, Xinxi Avenue, High-tech Zone, Xi 'an, Shaanxi Province, China (710119)

+86 (0)29-8888-7953/+86 (0)29-8569-1870

info@actionpowertest.com