EKTechnologies GmbH | LXinstruments GmbH
Rudolf-Diesel-Str. 36
71154 Nufringen
Germany

TECHNICAL PRODUCT INFORMATION

Electrochemical instruments

- high - quality
- moderate prices
- excellent precision

Your contact:
Technical support, services, demo & rental equipment, price information & quotes, consulting:

Tel.: +49(0)7032 / 895 93-2
Mail: info@ektechnologies.de
Web: www.ektechnologies.de
Shop: www.lxinstruments.com/shop/elektrochemie/

Kewell

D2000-EV SERIES

BI-DIRECTIONAL PROGRAMMABLE DC POWER SUPPLY

Aug. 2025 Version: A/1.1

KEWELL TECHNOLOGY CO., LTD.

www.Kewelltest.com

CONTENTS

1 Summary

The D2000-EV Series is a series of intelligent DC power supply boasting high accuracy, fast dynamic response, and high efficiency. Adopting the third-generation wide bandgap semiconductor material—SiC, the product series is highly modularized and standardized, offering industry-leading performance and experience.

The D2000-EV series reaches the output voltage/current accuracy of 0.02%F.S., with voltage slew rate as high as 300V/ms, typical current slope above 500A/ms, and ripple down to 0.1%F.S. The equipment supports output simulation for lithium manganese, lithium cobalt oxide, lithium iron phosphate, Ni-MH battery, ternary lithium battery, lithium titanate, lead-acid and other types of battery. It has 1st/2nd/3rd order battery models and simulink model to meet customers' varied product testing requirements.

D2000-EV Series Bidirectional Programmable DC Power Supply is widely applicable to the R&D and testing for power conversion systems (PCS), EV drive motors, EV powertrain, EV transmission systems, energy-regenerative devices in rail transit, DC charging piles, etc.

2 Product Highlights

2.1 Ultra-high Power Density

- Max. power density of a single cabinet reaches 176kW/m³ and above, up by 112% from the industrial frequency solutions
- The 300kW cabinet is lighter than 900kg, down by 61.9% from the industrial frequency solutions

2.2 Modularized Design

The D2000-EV Series supports easy replacement of faulty modules so that it won't be necessary to return the complete equipment to factory. Just remove the faulty module(s) and the equipment will function normally, minimizing the impact on test efficiency.

2.3 Electrically Operated Switch

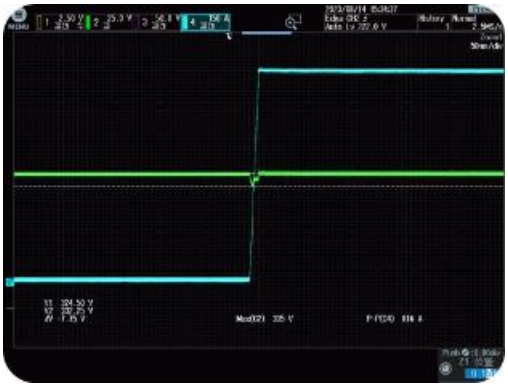
The D2000 Series has one-button power up function, safe and convenient without needing to manually close the circuit breaker.

2.4 High Voltage Slew Rate

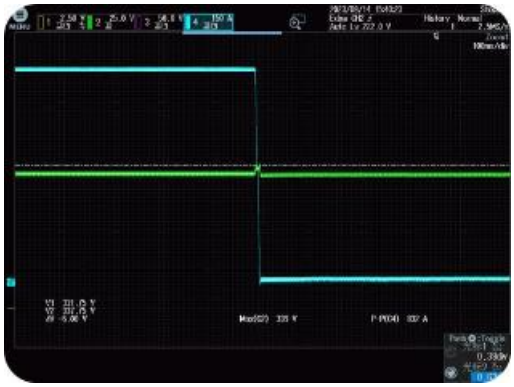
The D2000 Series reaches the voltage slew rate ≥300V/ms, meeting the requirements of LV123 and VW80300 for load dump test.

2.5 Great Output Performance

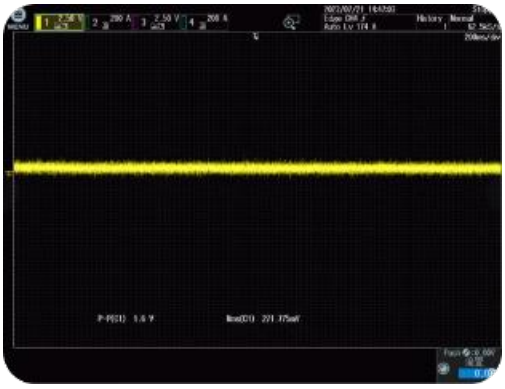
DCDC with SiC design combined with interleaved BUCK topology multiplies the switching frequency, thus realizing the DC voltage output with great dynamic performance, voltage drop <10V under the condition of 0-90%I@10ms.



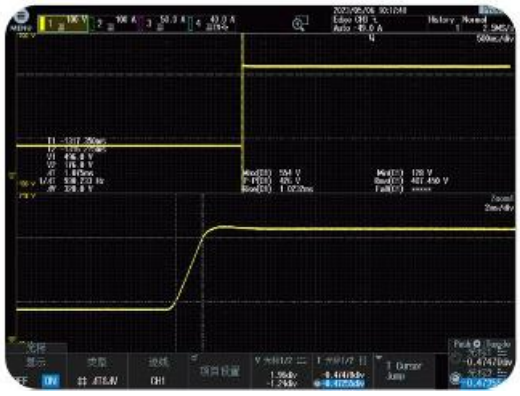
0-90%I@10ms, drop<10V



90%-0 I@10ms, overshoot<10V



Voltage ripple of 0.1%F.S.



Voltage slew rate of 300V/ms

2.6 Ultra-high Efficiency

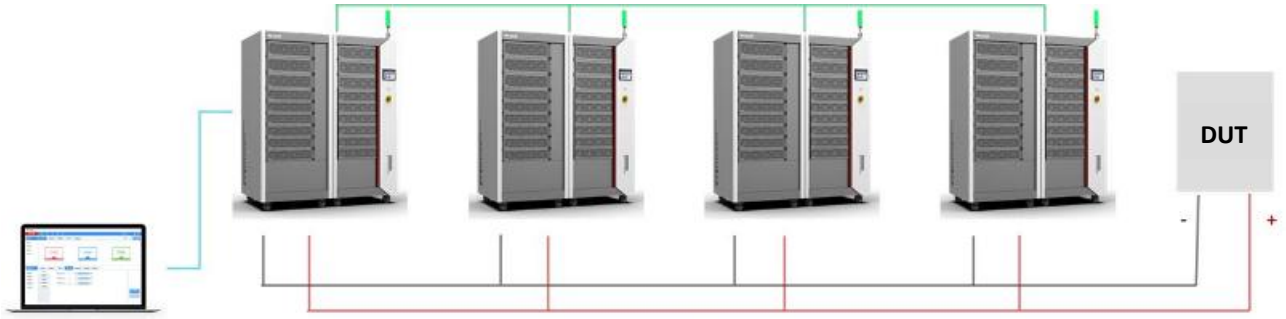
The D2000 Series boasts efficiency up to 95.5%, 3.5% higher than that of the industrial frequency solutions, while reducing annual carbon dioxide emissions by 30,150kg.

Product Type	Type of Test	Efficiency	Test Period	Carbon Emissions (kg)
Industrial frequency	Ageing	92%	8H*30D*12M	68913
D2000 Series	Ageing	95.5%	8H*30D*12M	38763

Note: Taking the 300kW model for example, the test is performed on an ageing platform.

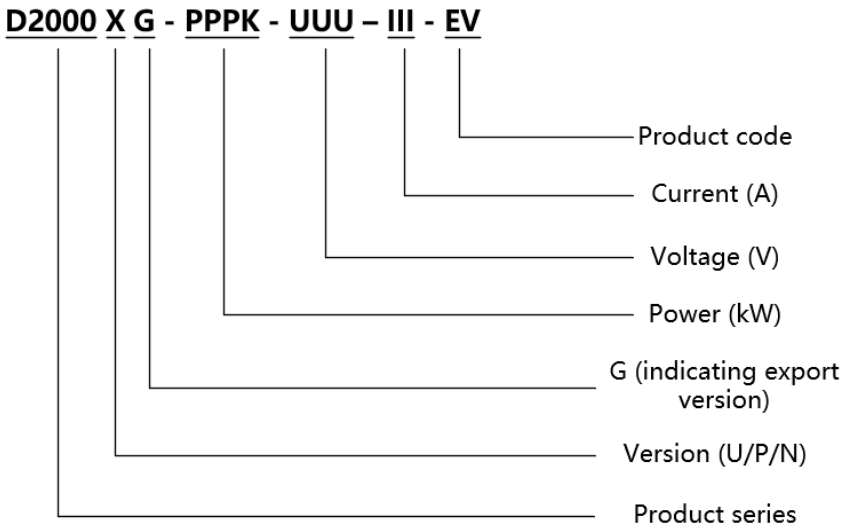
2.7 Flexible Parallel Connections

The D2000 Series reaches the max. power of 600kW in one cabinet. The devices can be flexibly parallelled for higher power.



3 Product Specifications

3.1 Model Description



3.2 Product Portfolio

- Normal

Model	Rated Power [kW]	Voltage Range [V]	Rated Current [A]	Dimensions (W*D*H) [mm]	Weight [kg]
D2000NG-100K-1200-300-EV	100	12-1200	300	850-1000-1500	530
D2000NG-200K-1200-600-EV	200	12-1200	600	850*1000*1500	700
D2000NG-300K-1200-900-EV	300	12-1200	900	850*1000*2000	900
D2000NG-400K-1200-1200-EV	400	12-1200	1200	1650*1000*2000	1460
D2000NG-500K-1200-1200-EV	500	12-1200	1200	1650*1000*2000	1630

- Pro

Model	Rated Power [kW]	Voltage Range [V]	Rated Current [A]	Dimensions (W*D*H) [mm]	Weight [kg]
D2000PG-100K-1200-300-EV	100	12-1200	300	850-1000-1500	530
D2000PG-200K-1200-600-EV	200	12-1200	600	850*1000*1500	700
D2000PG-300K-1200-900-EV	300	12-1200	900	850*1000*2000	900
D2000PG-400K-1200-1200-EV	400	12-1200	1200	1650*1000*2000	1460
D2000PG-500K-1200-1200-EV	500	12-1200	1200	1650*1000*2000	1630
D2000PG-600K-1200-1200-EV	600	12-1200	1200	1650*1000*2000	1800

- Ultra

Model	Rated Power [kW]	Voltage Range [V]	Rated Current [A]	Dimensions (W*D*H) [mm]	Weight [kg]
D2000UG-200K-1200-600-EV	200	12-1200	600	850*1000*1500	700
D2000UG-300K-1200-900-EV	300	12-1200	900	850*1000*2000	900
D2000UG-400K-1200-1200-EV	400	12-1200	1200	1650*1000*2000	1460
D2000UG-500K-1200-1200-EV	500	12-1200	1200	1650*1000*2000	1630
D2000UG-600K-1200-1200-EV	600	12-1200	1200	1650*1000*2000	1800

4 Technical Parameters

4.1 Technical Specifications

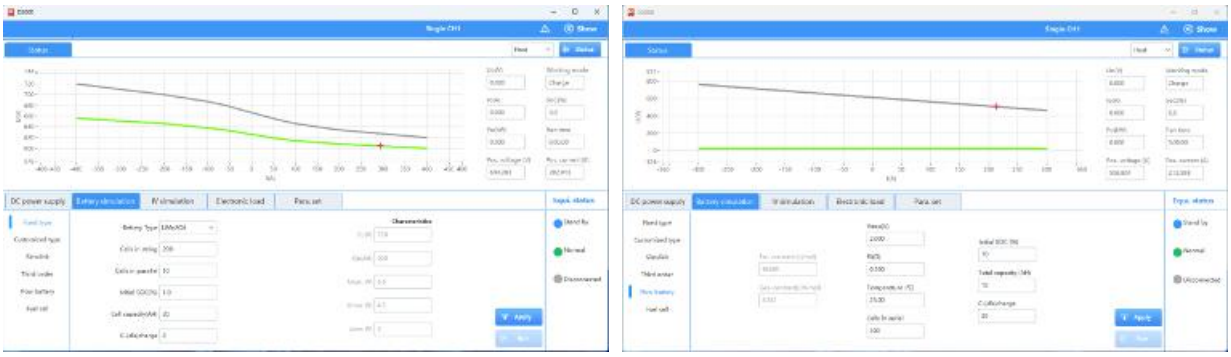
D2000-EV Series				
Version		Normal	Pro	Ultra
Output parameters	Voltage accuracy	±0.05%F.S.	±0.05%F.S.	±0.02%F.S.
	Current accuracy	±0.1%F.S.	±0.05%F.S.	±0.02%F.S.
	Response time	2ms	1ms	500us
	Switching time	4ms	2ms	1ms
	Voltage slew rate	100V/ms	200V/ms	300V/ms
	Current slope	-	300A/ms	500A/ms
	Voltage ripple	≤0.1%·F.S.		
	Current ripple	≤0.1%·F.S.		
Input parameters	Grid voltage	380V±15%		
	Grid frequency	47-63Hz		
	iTHD	≤3%		
	Power factor	≥0.99		
General parameters	Insulation resistance	≥20MΩ (500Vdc)		
	Withstand voltage	3000Vdc rms (60s, no arc-over or breakdown)		
	Efficiency	95.5%		
	Earthing resistance	≤0.1Ω		
	Operating temperature	-10 ~ 40℃		
	Dimensions/weight	See product portfolio for details		
Functions	Bi-directional DC source	●	●	●
	Battery simulation	●	●	●
	Electronic load	-	●	●
	Electrically operated switch	-	●	●
	Manual switch	●	-	-
	Communication interfaces RS485/LAN/CAN	●	●	●

Note: ● come with standard equipment - none

5 Product Features

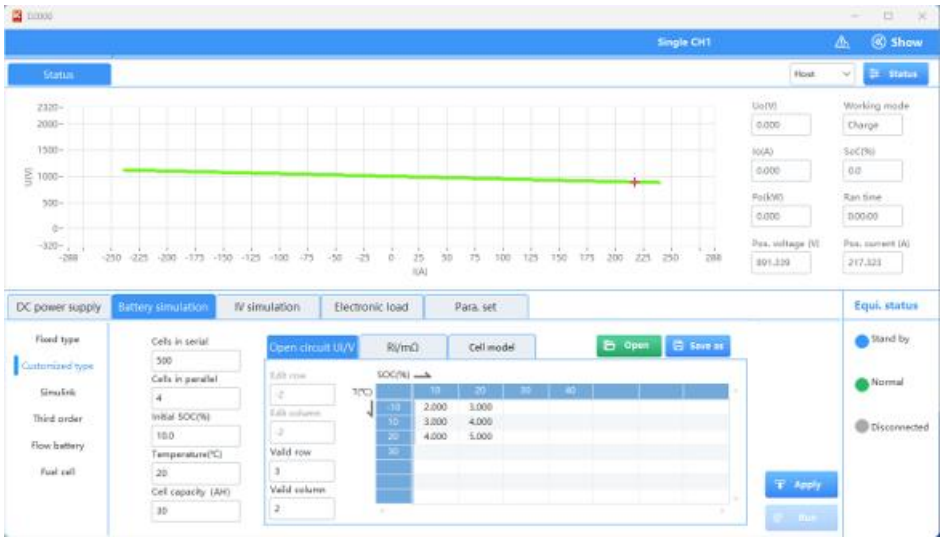
5.1 Simulation of Fixed Battery Types

The D2000-EV Series supports output simulation for 7 fixed types of battery including lithium manganese, lithium cobalt oxide, lithium iron phosphate, Ni-MH battery, ternary lithium battery, lithium titanate and lead-acid battery through setting of battery type, cell capacity, number in series, number in parallel, SoC, etc.



5.2 Custom Battery Models

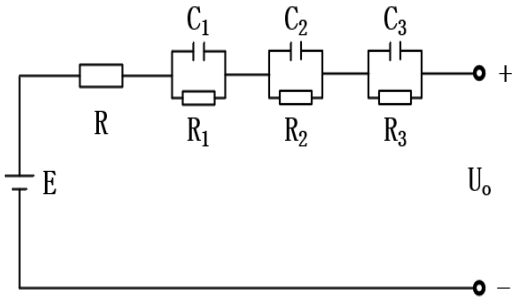
Users can import the input of the battery cell model through the Ri(T,Soc) and Ui(T,Soc) relationship lists on the interface, and then simulate the output characteristics of the corresponding battery pack by setting relevant parameters like number of cells in serial/parallel connection and initial SoC.



5.3 First/Second/Third-order Battery Models

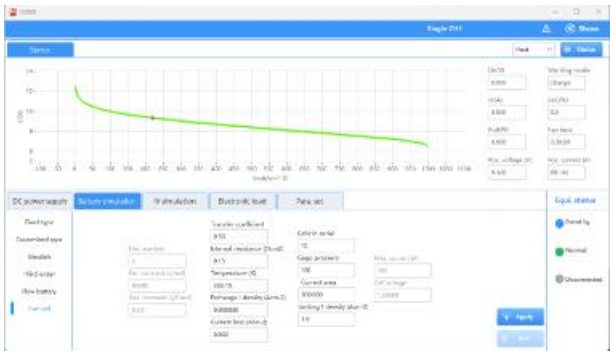
According to the requirements for battery models, users can customize the input voltage Uin, internal

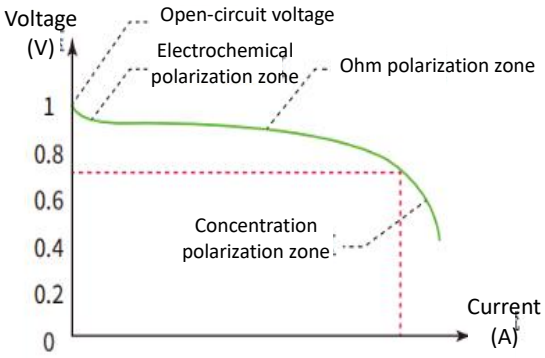
resistance, resistance and capacitance of the RC model to simulate the battery behavior of each order of the RC model.



5.4 Fuel Cell Simulation

A built-in standard single cell polarization curve (V-I) is provided to facilitate users' configuration of number of cells in serial connection, temperature, current area, limiting current density and other parameters to simulate the output performance of fuel cell stacks.





5.5 DC Source

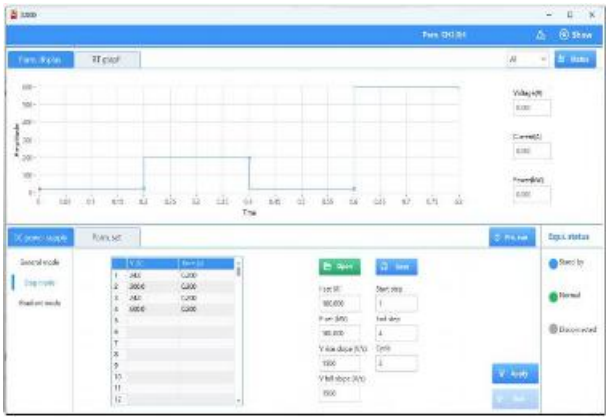
- **General mode**

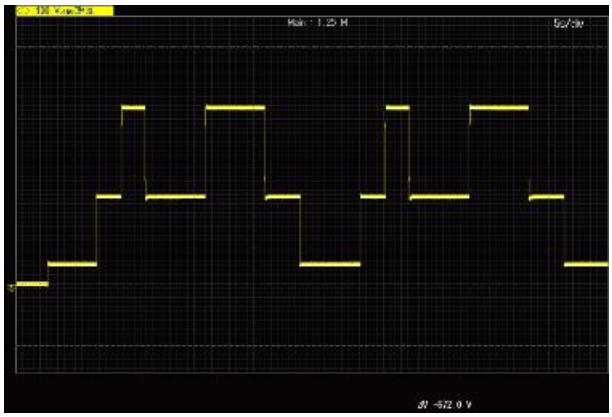
In general mode, i.e., constant voltage, limited current and limited power mode, users can customize voltage, current, power and other key parameters. Send the parameters and click to run the device for constant voltage output.

- **Step mode**

On the step mode interface, i.e., step editing function, users can customize parameters such as voltage, current, power, step time, and number of cycles. Click on "Run" and the device will output with voltage

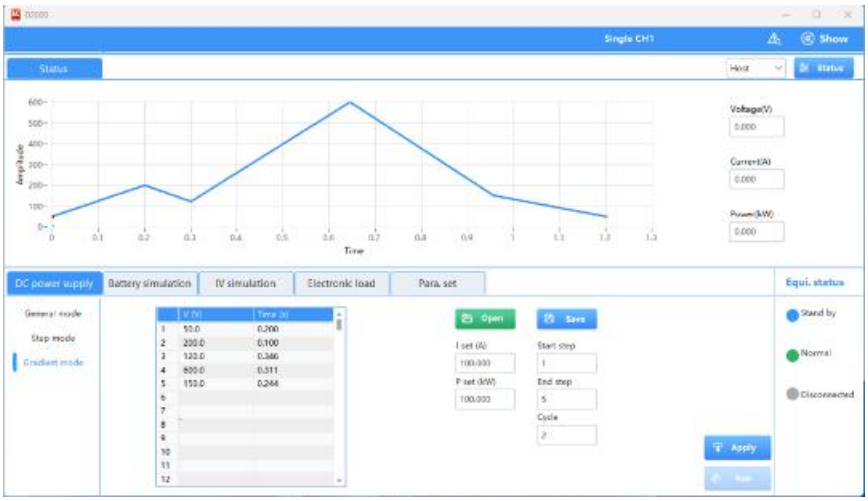
variation according to the set step information.





- **Gradient mode**

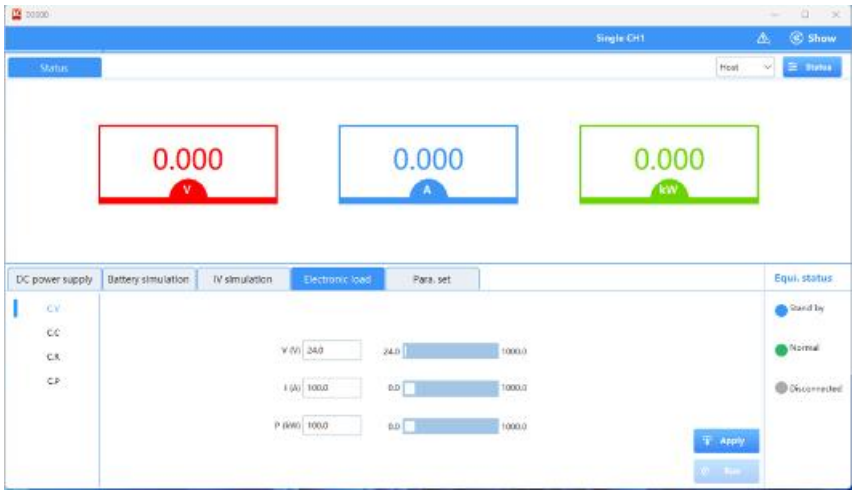
In gradient mode, users can customize the slew rate of voltage output, and set the start voltage, cut-off voltage, gradient time, number of cycles and other parameters. Click “Run” and the device will output with voltage variation according to the set step information.



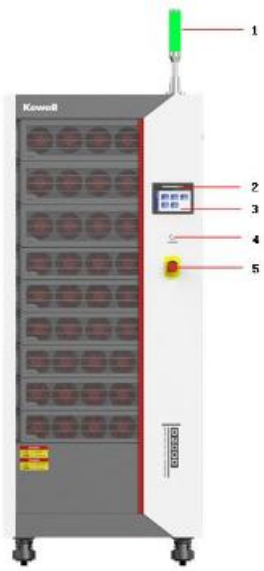
5.6 Electronic Load

- **Multiple load functions such as constant voltage, constant current, constant resistance, and constant power**

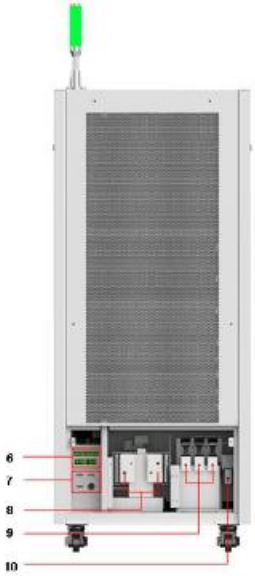
The D2000-EV Series has CV/CC/CR/CP load modes. Users can select the mode based on the actual test requirements.


Single CH1
Show
Status
0.000
V
0.000
A
0.000
kW
DC power supply
Battery simulation
IV simulation
Electronic load
Para. set
Equi. status
CV
CC
CR
CP
Apply

6 Appearance



Front view (Ultra/Pro)



Rear view (Ultra/Pro/Normal)

Front view (Normal)

No.	Name
1	Three-color light
2	LED indicator
3	TFT touch screen
4	Electrically operated switch
5	Emergency stop button
6	Terminal block for extended interfaces
7	Communication interfaces
8	DC-side line bank
9	AC breaker and input copper bar
10	Earthing copper bar
11	Manual switch