

N38300 Series Wide Range High Power Programmable DC Power Supply



Product Introduction

N38300 series is a wide range, high power density, programmable high power DC power supply. N38300 standalone 19-inch 3U chassis is up to 18kW. Power efficiency is as high as 93%. Power range is up to 180kW. Current range is up to 5100A and voltage range is up to 2250V. N38300 series DC power supply has comprehensive functions and supports multiple control methods, making it an ideal choice for laboratory applications and automated test systems.

Application Fields

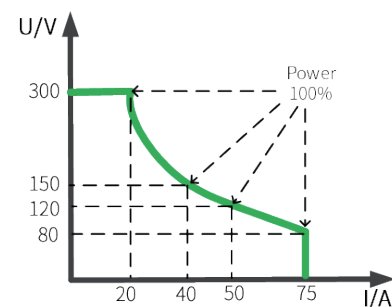
- ▶ New energy fields, such as Li-on battery, photovoltaic, hydrogen fuel, energy storage BMS, etc.
- ▶ Testing and powering of high power electronic component
- ▶ Laboratory, production line ATE automatic test system
- ▶ Power electronics fields, such as high power DC-DC converter, DC-AC inverter, etc.
- ▶ Testing and powering of aerospace electronics
- ▶ Industrial automation fields, such as controllers, drives, servers, robots, etc.

Main Features

- ▶ Voltage up to 2250V, current up to 5100A, power up to 180kW
- ▶ Supporting master/slave parallel, extended power up to 1.8MW
- ▶ Voltage accuracy 0.05%F.S., current accuracy 0.1%F.S.
- ▶ Voltage and current sampling rate 500kHz, resolution 16 bits
- ▶ LAN port and RS232 interface as standard, GPIB, CAN, RS485 and USB as optional
- ▶ Editable rise and fall slew rate for voltage and current
- ▶ Internal resistance simulation, SEQ function, voltage RAMP function
- ▶ Multiple protections: OCP, OVP, LVP, OTP, OPP
- ▶ Equipped with LCD screen, numeric buttons and knob to support local operation
- ▶ Equipped with high-voltage isolation digital & analog, and monitoring interfaces
- ▶ Power factor 0.99, efficiency up to 93%
- ▶ CC&CV priority function
- ▶ CC, CV and CP mode
- ▶ Standard 19-inch 3U chassis

Wide range for saving purchase cost

N38300 series' maximum power is not the result of Max. voltage multiplied by Max. current. Let's take model N38306-300-75 for example. The Max. power is 6kW while Max. voltage 300V and Max. current 75A. Compared with traditional power supply, this feature offers N38300 wider application range, which significantly reduces the purchase cost and space occupation.

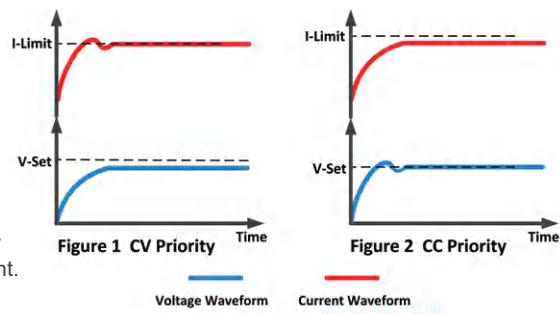


CC&CV priority function

N38300 has the function of selecting priority of voltage-control loop or current-control loop, which enables N38300 to adopt the optimal test mode for different DUTs, and thus protect the DUT.

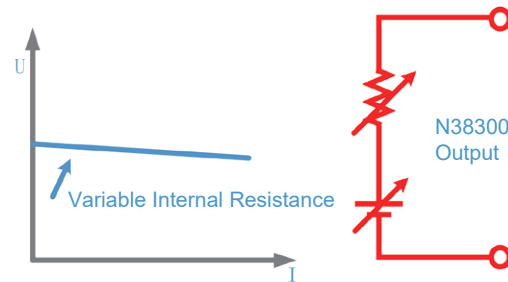
As shown in figure one, when the DUT requires reducing voltage overshoot during test, such as supplying power to a low-voltage processor or FPGA core, voltage priority mode should be selected to obtain fast and smooth rise voltage.

As shown in figure two, when the DUT requires reducing current overshoot during test, or when the DUT is with low impedance, such as battery charging scenario, current priority mode should be selected to obtain fast and smooth rise current.



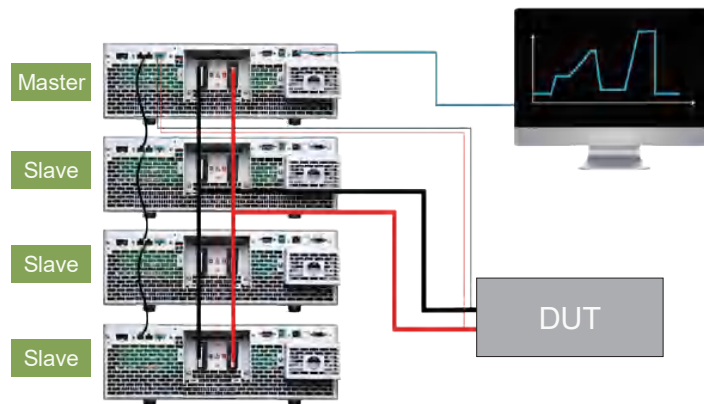
Internal resistance simulation

N38300 series allows settings of voltage and internal resistance value. According to the corresponding output current, the output voltage is decreased with the set resistance. In this case, the internal resistance of secondary battery, fuel cell and supercapacitor can be simply simulated.



Master/slave design, convenient for power expansion

N38300 can be used independently or in master/slave parallel operation. It has built-in master/slave mode, and the Max. power can be expanded to 1.8MW. It adopts a unique current sharing design to ensure each module shares the load equally and ensure the consistency of product use.

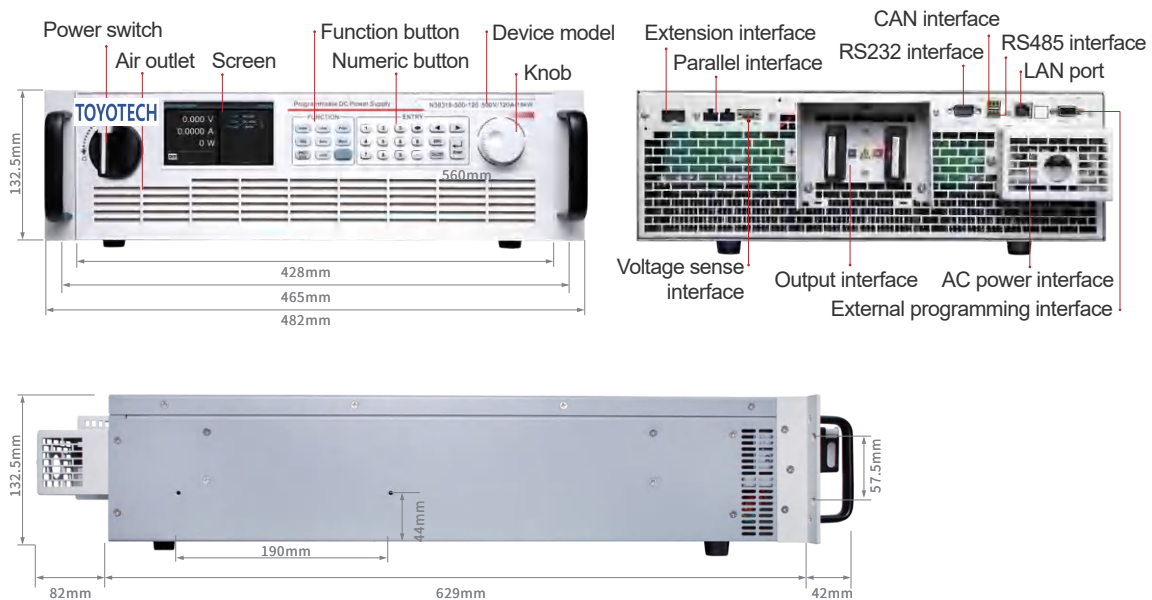


Quick Selection Table

Model	Specification	Model	Specification
N38305-80-170	80V/170A/5kW	N38318-300-225	300V/225A/18kW
N38310-80-340	80V/340A/10kW	N38336-300-450	300V/450A/36kW
N38315-80-510	80V/510A/15kW	N38354-300-675	300V/675A/54kW
N38330-80-1020	80V/1020A/30kW	N38372-300-900	300V/900A/72kW
N38345-80-1530	80V/1530A/45kW	N38390-300-1125	300V/1125A/90kW
N38360-80-2040	80V/2040A/60kW	N383108-300-1350	300V/1350A/108kW
N38375-80-2550	80V/2550A/75kW	N383126-300-1575	300V/1575A/126kW
N38390-80-3060	80V/3060A/90kW	N383144-300-1800	300V/1800A/144kW
N383105-80-3570	80V/3570A/105kW	N383162-300-2025	300V/2025A/162kW
N383120-80-4080	80V/4080A/120kW	N383180-300-2250	300V/2250A/180kW
N383135-80-4590	80V/4590A/135kW	N38306-500-40	500V/40A/6kW
N383150-80-5100	80V/5100A/150kW	N38312-500-80	500V/80A/12kW
N38306-300-75	300V/75A/6kW	N38318-500-120	500V/120A/18kW
N38312-300-150	300V/150A/12kW	N38336-500-240	500V/240A/36kW

Model	Specification	Model	Specification
N38354-500-360	500V/360A/54kW	N38384-1000-280	1000V/280A/84kW
N38372-500-480	500V/480A/72kW	N38396-1000-320	1000V/320A/96kW
N38390-500-600	500V/600A/90kW	N383108-1000-360	1000V/360A/108kW
N383108-500-720	500V/720A/108kW	N383120-1000-400	1000V/400A/120kW
N383126-500-840	500V/840A/126kW	N38312-1500-25	1500V/25A/12kW
N383144-500-960	500V/960A/144kW	N38318-1500-40	1500V/40A/18kW
N383162-500-1080	500V/1080A/162kW	N38336-1500-80	1500V/80A/36kW
N383180-500-1200	500V/1200A/180kW	N38354-1500-120	1500V/120A/54kW
N38306-800-25	800V/25A/6kW	N38372-1500-160	1500V/160A/72kW
N38312-800-50	800V/50A/12kW	N38390-1500-200	1500V/200A/90kW
N38318-800-75	800V/75A/18kW	N383108-1500-240	1500V/240A/108kW
N38336-800-150	800V/150A/36kW	N383126-1500-280	1500V/280A/126kW
N38354-800-225	800V/225A/54kW	N383144-1500-320	1500V/320A/144kW
N38372-800-300	800V/300A/72kW	N383162-1500-360	1500V/360A/162kW
N38390-800-375	800V/375A/90kW	N383180-1500-400	1500V/400A/180kW
N383108-800-450	800V/450A/108kW	N38318-2250-25	2250V/25A/18kW
N383126-800-525	800V/525A/126kW	N38336-2250-50	2250V/50A/36kW
N383144-800-600	800V/600A/144kW	N38354-2250-75	2250V/75A/54kW
N383162-800-675	800V/675A/162kW	N38372-2250-100	2250V/100A/72kW
N383180-800-750	800V/750A/180kW	N38390-2250-125	2250V/125A/90kW
N38312-1000-40	1000V/40A/12kW	N383108-2250-150	2250V/150A/108kW
N38324-1000-80	1000V/80A/24kW	N383126-2250-175	2250V/175A/126kW
N38336-1000-120	1000V/120A/36kW	N383144-2250-200	2250V/200A/144kW
N38348-1000-160	1000V/160A/48kW	N383162-2250-225	2250V/225A/162kW
N38360-1000-200	1000V/200A/60kW	N383180-2250-250	2250V/250A/180kW
N38372-1000-240	1000V/240A/72kW	/	/

Product Dimension



Model	N38305-80-170	N38306-300-75	N38306-500-40	N38306-800-25
Voltage	0~80V	0~300V	0~500V	0~800V
Current	0~170A	0~75A	0~40A	0~25A
Power	0~5kW	0~6kW	0~6kW	0~6kW
CV Mode				
Range	0~80V	0~300V	0~500V	0~800V
Setting Resolution	0.1mV	1mV	1mV	1mV
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.			
Voltage Ripple (Vp-p)	≤200mV	≤300mV	≤350mV	≤500mV
Voltage Ripple (rms)	≤25mV	≤40mV	≤35mV	≤100mV
CC Mode				
Range	0~170A	0~75A	0~40A	0~25A
Setting Resolution	1mA	0.1mA	0.1mA	0.1mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.			
CP Mode				
Range	0~5kW	0~6kW	0~6kW	0~6kW
Setting Accuracy (23±5℃)	1%F.S.			
Voltage Measurement				
Range	0~80V	0~300V	0~500V	0~800V
Readback Resolution	0.1mV	1mV	1mV	1mV
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.			
Current Measurement				
Range	0~170A	0~75A	0~40A	0~25A
Readback Resolution	1mA	0.1mA	0.1mA	0.1mA
Readback Accuracy (23±5℃)	0.1%+0.1%F.S.			
Line Regulation				
Voltage	≤0.01%F.S.			
Current	≤0.05%F.S.			
Load Regulation				
Voltage	≤0.02%F.S.			
Current	≤0.1%F.S.	≤0.05%F.S.	≤0.05%F.S.	≤0.05%F.S.
Dynamic Characteristics				
Voltage Slew Rate	6V/ms(Max)	10V/ms(Max)	20V/ms(Max)	40V/ms(Max)
Voltage Fall Time(no load)	≤0.5s	≤2.5s	≤2.5s	≤2.5s
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.			
Others				
Interface	Standard: RS232/LAN, optional: RS485/CAN/GPIB/USB			
Protocol	SCPI/MODBUS-RTU/CAN-Open			
AC Input	Three phase 340VAC ~ 460VAC, frequency 47Hz ~ 63Hz			
Efficiency	93%(Typical)			
Power Factor	0.99(Typical)			
Temperature	Operating temperature: 0℃-40℃, storage temperature: -20℃~70℃			
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110kPa			
Net Weight	Approx. 18kg			
Dimension	132.5(H)*482.0(W)with handle*711.0(D)mm, with output shield			

Model	N38310-80-340	N38312-300-150	N38312-500-80	N38312-800-50
Voltage	0~80V	0~300V	0~500V	0~800V
Current	0~340A	0~150A	0~80A	0~50A
Power	0~10kW	0~12kW	0~12kW	0~12kW
CV Mode				
Range	0~80V	0~300V	0~500V	0~800V
Setting Resolution	0.1mV	1mV	1mV	1mV
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.			
Voltage Ripple (Vp-p)	≤180mV	≤250mV	≤250mV	≤500mV
Voltage Ripple (rms)	≤25mV	≤35mV	≤35mV	≤100mV
CC Mode				
Range	0~340A	0~150A	0~80A	0~50A
Setting Resolution	1mA	1mA	0.1mA	0.1mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.			
CP Mode				
Range	0~10kW	0~12kW	0~12kW	0~12kW
Setting Accuracy (23±5℃)	1%F.S.			
Voltage Measurement				
Range	0~80V	0~300V	0~500V	0~800V
Readback Resolution	0.1mV	1mV	1mV	1mV
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.			
Current Measurement				
Range	0~340A	0~150A	0~80A	0~50A
Readback Resolution	1mA	1mA	0.1mA	0.1mA
Readback Accuracy (23±5℃)	0.1%+0.1%F.S.			
Line Regulation				
Voltage	≤0.01%F.S.			
Current	≤0.05%F.S.			
Load Regulation				
Voltage	≤0.02%F.S.			
Current	≤0.1%F.S.	≤0.05%F.S.	≤0.05%F.S.	≤0.05%F.S.
Dynamic Characteristics				
Voltage Slew Rate	6V/ms(Max)	10V/ms(Max)	20V/ms(Max)	40V/ms(Max)
Voltage Fall Time(no load) ¹	≤0.5s	≤2.5s	≤2.5s	≤2.5s
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.			
Others				
Interface	Standard: RS232/LAN, optional: RS485/CAN/GPIB/USB			
Protocol	SCPI/MODBUS-RTU/CAN-Open			
AC Input	Three phase 340VAC ~ 460VAC, frequency 47Hz ~ 63Hz			
Efficiency	93%(Typical)			
Power Factor	0.99(Typical)			
Temperature	Operating temperature: 0℃-40℃, storage temperature: -20℃~70℃			
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110kPa			
Net Weight	Approx. 25kg			
Dimension	132.5(H)*482.0(W)with handle*711.0(D)mm, with output shield			

Note 1: The time required for the voltage dropping below 50V when the device output is OFF under full voltage and no-load operation.

Note 2: For other specifications, please contact NGI.

Note 3: All specifications are subject to change without notice.

Model	N38312-1000-40	N38312-1500-25
Voltage	0~1000V	0~1500V
Current	0~40A	0~25A
Power	0~12kW	
CV Mode		
Range	0~1000V	0~1500V
Setting Resolution	10mV	
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.	
Voltage Ripple (Vp-p)	≤850mV	≤1300mV
Voltage Ripple (rms)	≤150mV	≤300mV
CC Mode		
Range	0~40A	0~25A
Setting Resolution	0.1mA	
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.	
CP Mode		
Range	0~12kW	
Setting Accuracy (23±5℃)	1%F.S.	
Voltage Measurement		
Range	0~1000V	0~1500V
Readback Resolution	10mV	
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.	
Current Measurement		
Range	0~40A	0~25A
Readback Resolution	0.1mA	
Readback Accuracy (23±5℃)	0.1%+0.1%F.S.	
Line Regulation		
Voltage	≤0.01%F.S.	
Current	≤0.05%F.S.	
Load Regulation		
Voltage	≤0.02%F.S.	
Current	≤0.05%F.S.	
Dynamic Characteristics		
Voltage Slew Rate	40V/ms(Max)	
Voltage Fall Time(no load) ¹	≤3.5s	≤4s
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.	
Others		
Interface	Standard: RS232/LAN, optional: RS485/CAN/GPIB/USB	
Protocol	SCPI/MODBUS-RTU/CAN-Open	
AC Input	Three phase 340VAC ~ 460VAC, frequency 47Hz ~ 63Hz	
Efficiency	93%(Typical)	
Power Factor	0.99(Typical)	
Temperature	Operating temperature: 0℃-40℃, storage temperature: -20℃~70℃	
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110kPa	
Net Weight	Approx. 25kg	
Dimension	132.5(H)*482.0(W)with handle*711.0(D)mm, with output shield	

Model	N38315-80-510	N38318-300-225	N38318-500-120	N38318-800-75
Voltage	0~80V	0~300V	0~500V	0~800V
Current	0~510A	0~225A	0~120A	0~75A
Power	0~15kW	0~18kW	0~18kW	0~18kW
CV Mode				
Range	0~80V	0~300V	0~500V	0~800V
Setting Resolution	0.1mV	1mV	1mV	1mV
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.			
Voltage Ripple (Vp-p)	≤150mV	≤300mV	≤300mV	≤500mV
Voltage Ripple (rms)	≤25mV	≤40mV	≤35mV	≤100mV
CC Mode				
Range	0~510A	0~225A	0~120A	0~75A
Setting Resolution	1mA	1mA	1mA	0.1mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.			
CP Mode				
Range	0~15kW	0~18kW	0~18kW	0~18kW
Setting Accuracy (23±5℃)	1%F.S.			
Voltage Measurement				
Range	0~80V	0~300V	0~500V	0~800V
Readback Resolution	0.1mV	1mV	1mV	1mV
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.			
Current Measurement				
Range	0~510A	0~225A	0~120A	0~75A
Readback Resolution	1mA	1mA	1mA	0.1mA
Readback Accuracy (23±5℃)	0.1%+0.1%F.S.			
Line Regulation				
Voltage	≤0.01%F.S.			
Current	≤0.05%F.S.			
Load Regulation				
Voltage	≤0.02%F.S.			
Current	≤0.05%F.S.			
Dynamic Characteristics				
Voltage Slew Rate	6V/ms(Max)	10V/ms(Max)	20V/ms(Max)	40V/ms(Max)
Voltage Fall Time(no load) ¹	≤0.5s	≤2.5s	≤2.5s	≤2.5s
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.			
Others				
Interface	Standard: RS232/LAN, optional: RS485/CAN/GPIB/USB			
Protocol	SCPI/MODBUS-RTU/CAN-Open			
AC Input	Three phase 340VAC ~ 460VAC, frequency 47Hz ~ 63Hz			
Efficiency	93%(Typical)			
Power Factor	0.99(Typical)			
Temperature	Operating temperature: 0℃-40℃, storage temperature: -20℃~70℃			
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110kPa			
Net Weight	Approx. 32kg			
Dimension	132.5(H)*482.0(W)with handle*711.0(D)mm, with output shield			

Note 1: The time required for the voltage dropping below 50V when the device output is OFF under full voltage and no-load operation.

Note 2: For other specifications, please contact NGI.

Note 3: All specifications are subject to change without notice.

Model	N38318-1500-40	N38318-2250-25	N38336-300-450
Voltage	0~1500V	0~2250V	0~300V
Current	0~40A	0~25A	0~450A
Power	0~18kW	0~18kW	0~36kW
CV Mode			
Range	0~1500V	0~2250V	0~300V
Setting Resolution	10mV	10mV	1mV
Setting Accuracy (23±5℃)	0.05%+0.05%F.S.		
Voltage Ripple (Vp-p)	≤1300mV	≤2500mV	≤300mV
Voltage Ripple (rms)	≤300mV	≤400mV	≤40mV
CC Mode			
Range	0~40A	0~25A	0~450A
Setting Resolution	0.1mA	0.1mA	1mA
Setting Accuracy (23±5℃)	0.1%+0.1%F.S.		
CP Mode			
Range	0~18kW	0~18kW	0~36kW
Setting Accuracy (23±5℃)	1%F.S.		
Voltage Measurement			
Range	0~1500V	0~2250V	0~300V
Readback Resolution	10mV	10mV	1mV
Readback Accuracy (23±5℃)	0.05%+0.05%F.S.		
Current Measurement			
Range	0~40A	0~25A	0~450A
Readback Resolution	0.1mA	0.1mA	1mA
Readback Accuracy (23±5℃)	0.1%+0.1%F.S.		
Line Regulation			
Voltage	≤0.01%F.S.		
Current	≤0.05%F.S.		
Load Regulation			
Voltage	≤0.02%F.S.		
Current	≤0.05%F.S.		
Dynamic Characteristics			
Voltage Slew Rate	40V/ms(Max)	40V/ms(Max)	10V/ms(Max)
Voltage Fall Time(no load) ¹	≤4s	≤4.5s	≤2s
Transient Recovery Time	The recovery time of load varying 10%~90% and voltage recovering within 0.75% accuracy range of rated value is within 2ms.		
Others			
Interface	Standard: RS232/LAN, optional: RS485/CAN/GPIB/USB		
Protocol	SCPI/MODBUS-RTU/CAN-Open		
AC Input	Three phase 340VAC ~ 460VAC, frequency 47Hz ~ 63Hz		
Efficiency	93%(Typical)		
Power Factor	0.99(Typical)		
Temperature	Operating temperature: 0℃-40℃, storage temperature: -20℃~70℃		
Operating Environment	Altitude <2000m, relative humidity: 5%-90%RH(non-condensing), atmospheric pressure: 80-110kPa		
Net Weight	Approx. 32kg		Approx. 64kg
Dimension	132.5(H)*482.0(W)with handle*711.0(D)mm, with output shield		265.0(H)*482.0(W)with handle*753.0(D)mm with output shield