



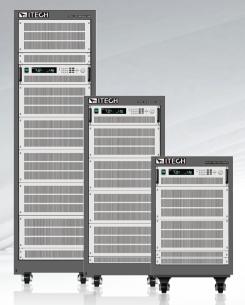
## High performance High power DC Electronic Load

### **APPLICATIONS**

- Data Center
- Server power supply
- Military & Aerospace
- Car Charger
- Communication power supply
- Battery pack

- Energy storage system
- Charging station

Your Power Testing Solution





# IT8900 Series

# High performance High power DC Electronic Load

IT8900 series of high performance high power dc electronic loads provide three voltage ranges 150V/600V/1200V. The power expands to 600kW by master-slave paralleling, and maintains stand-alone functions. 50kHz high speed measurement, six working modes, transient over-power loading capability, CV loop speed adjustment, Measurement function, 25kHz dynamic test and other multiple accurate testing functions make IT8900 series well-suited for types of high power applications. Built-in LAN/USB/RS232/GPIB interfaces are designed for many fields such as power supply, power battery, DC charging station, generators, military and aerospace etc.

#### **Features**

- High resolution for voltage / current: 1mV/1mA
- Supports master-slave paralleling, maintains stand-alone
- Provides six working modes: CC/CV/CR/CW/CC+CV/CR-LED
- Adjustable CV loop speed, well-suited for multiple power supplies
- Transient over-power loading capability
- Ultrafast loop response, available for 18Bits high speed test with up to 50kHz voltage/current measuring speed
- Unique Measure function, designed for rise/fall time measurement of voltage or current
- Overall modular design, convenient for maintenance and service
- Full protection: OVP/OCP/OPP/overheat protection/anti-reverse protection/current limit protection/power limit protection

- Built-in LAN/USB/RS232/GPIB interfaces
- Supports VISA/USBTMC/SCPI
- 25kHz dynamic mode
- Short circuit function
- Battery test function
- OCP/OPP test function
- Remote sense
- I-monitor
- External analog control
- Up to 100 groups memories, with power off memory function
- Control via software by computer

	150V	600V	1200V
12kW		480A IT8912-600-480	240A IT8912-1200-240
15kW	960A <b>IT8915-150-960</b>		
18kW		720A IT8918-600-720	360A IT8918-1200-360
22.5kW	1440A IT8922-150-1440		
24kW		960A IT8924-600-960	480A IT8924-1200-480
30kW	1920A IT8930-150-1920	1200A IT8930-600-1200	600A IT8930-1200-600
36kW		1440A IT8936-600-1440	720A IT8936-1200-720
37.5kW	2400A IT8937-150-2400		
45kW	2500A IT8945-150-2500		

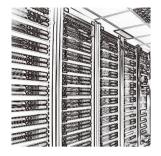
<sup>\*</sup> If you need higher power, please contact with ITECH

IT8900 Series High performance High power DC Electronic Load

### **Applications**



(Industry) motors



Server power supply



Communication power supply



Military industry & Aerospace



Car Charger



Battery pack



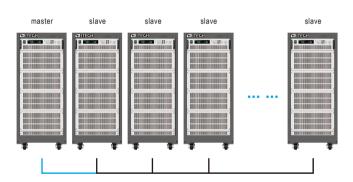
Energy storage system



Charging station

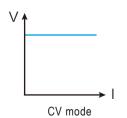
### Master-slave paralleling, maintains stand-alone functions

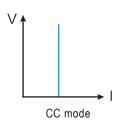
IT8900 series support master-slave paralleling for same models, to expand power up to 600kW. The user operates on master panel and the slave unit will be distributed automatically, simple to use. Master-slave paralleling can achieve stand-alone functions, traditional paralleling is not workable under CV mode. However IT8900 series can parallel under CC/CV modes innovatively. IT8900 series are mainly applicable in the fields of DC charging station, power battery, high voltage UPS and military high power DC motor tests.

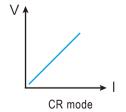


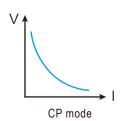
### 4 basic load operation modes

IT8900 series provide constant voltage, constant current, constant resistance and constant power modes, to meet the test needs from customers.





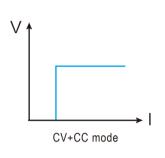


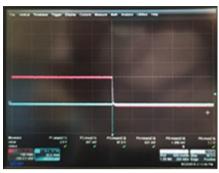


IT8900 Series High performance High power DC Electronic Load

### CV+CC compound operation mode

CV+CC mode is a new increased mode for operation, it can help engineer to solve the transient surge current problem and avoid DUT trigger or DUT burned problem in application testing, for example, in charging station testing, under CV working mode, electronic load will rising up to 700V, current value will suddenly rise up because current rising speed is too fast, the result is that charging station will OCP so that no output from charging station, to avoid the similar problem. We can use CV+CC mode to set CC(I-Limit) value. setting interior current value will no more than OCP value in charging station, it can effectively avoid the current surge and solve the OCP problem.





Oscilloscope testing example

### CR-LED (CC+CR) operation mode

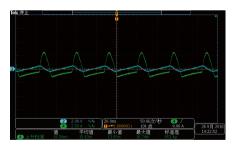
IT8900 series CR-LED (CC+CR) mode can supply LED power drive testing and be applied in led current simulation, to simulate the ripple in real testing, CR-LED can improve speed and stability for control loop, it can solve the voltage and current iitter problem in LED driver testing, furthermore, IT8900 can increase frequency width, it can help users to achieve PWM dimmer testing.



### CV loop speed is adjustable

We believe that many engineers will meet the below similar situation, load loop speed is too fast or too slow to match some slow or high speed power supply features, result is testing value will vibrated. This problem can be well solved with IT8900 series, when appear mismatch situation, users can adjust interior CV loop speed with "High-rate" or "Low-rate" to achieve the best matching point.

This function can conveniently help customers to solve the different matching problems. Even it can save the cost and improve testing efficiency, after a simply setting up, one electronic load will meet the multi complicated DUT testing, CV high-low rate testing: power supply: IT6015 setting up: 60V/1A Blue is voltage waveform, green is current waveform



CV 50V low speed mode: it's obvious to find vibration phenomenon



CV 50V high speed mode: CV stability, no vibration phenomenon

IT8900 Series High performance High power DC Electronic Load

### Transient over power loading capability

Transient over power loading capability, it will make load to take over power loading capability in short time, users no need to select types as maximum power value, it can extremely save cost. This function can be widely used the DUT transient peak power supply ability. Such as DC motor start-up simulation, start transient power will be several times of common working power, or else, it can simulate power supply's transient over load features, application in discharging for high power battery in transient time.

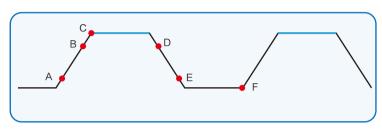


#### Measure function

IT8900 series provide measure function, mainly used for measuring the rising and falling time of voltage or current within a specified range.

Measurable period of time as follows:

- (1) The rising time period from A point to B point.
- (2) The falling time period from D point to E point.
- (3) The falling time period from C point to E point. (Positive pulse width time)
- (4) The rising time period from D point to F point (Negative pulse width time)



Remarks: from above graph, A and B are arbitrary points of the rising stage, C is one point on the green stage, D and E are arbitrary points of the falling stage.

#### Application

1. Power module rising and falling time measurement

The Rising time test and Falling time test are one of the necessary power supply test item.

The users can directly read the voltage rising/falling time from on the IT8900 display screen by sending instructions, easy operation and high testing accuracy, which is comparable with oscilloscope.



IT8900 testing data



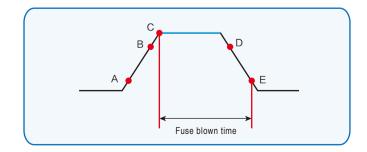
Oscilloscope testing data

Current positive pulse width test

#### 2. Fuse blown time

Combine the CC function and Measure function together, the users can measure the fuse blown time, time measurement accuracy can reach 10µs.

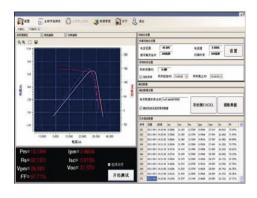
The automotive industry requires to test the fuse blown time in the different magnification conditions. For example, 500A fuse with 6 times magnification, the fusing current will reach 3000A. IT8900 can meet the testing requirements.



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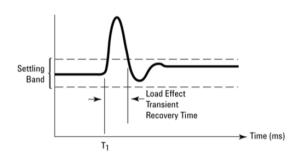
### Measurement speed up to 50kHZ

IT8900 with high performance characteristics, 1Mv/1mA high resolution, 50kHz measurement speed, which increase the testing speed and accuracy. Such as solar battery testing. Because solar battery's IV feature will change with the different environment temperature. illumination radiation, luminous intensity etc. Thus, the solar battery IV feature must be multiple-points tested within short period of time, which request the loads to be able to high speed measure. IT8900 can measure 250 points of the solar battery IV curve within 5mS, using together with IT9380 solar battery test software, the users can set the measurement voltage, and the software will acquire the data within the specified range automatically.



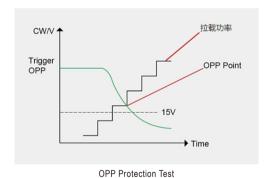
### Dynamic mode reach 25kHZ

Dynamic mode operation enable the electronic load to switch between the two set parameters according to set regulations, making use of the electronic load dynamic mode to test the power supplies, which can reflect the stability when power supply loading current in step changes. Meanwhile, IT8900 series digital loop circuit design and CV loop speed adjustment increase the loop response speed. For different power supply characteristics, IT8900 series has high and low bandwidth for choice, which is suitable for different power supply test.



### OCP, OPP Tests

OCP and OPP are mainly applied in over-current and over-power point tests of the lithium-battery protection board and power modules. For power supplies, OCP and OPP are designed to guarantee the user's safety and to reduce damage rate. IT8900 loads can automatically judge the test result according to the set specifications, so the users can save much time in verification of design and production system.



### Full protections

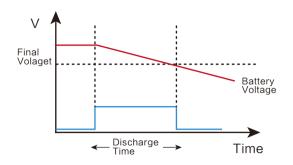
To avoid instrument damages by incorrect operations or abnormal ambient surroundings, IT8900 provides OVP, OCP, OPP, over heat protection, anti-reverse protection, current limit protection, power limit protection, and etc. When abnormal, IT8900 will immediately stop working to ensure the DUT safety.



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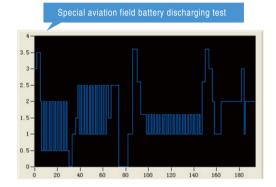
### **Battery Discharge Test**

Through operation panel or software, IT8900 can set 3 battery stop conditions: voltage, capacity and time. Whenever met any condition, it will automatically stop test. During the test, users can observe battery's voltage, time and already-discharged-capacity. The discharging curves can be checked through the software. The discharge test can reflect battery's reliability and residual service life.



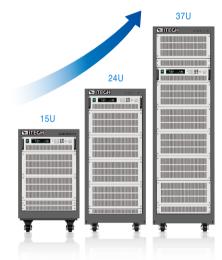
### **External Analog Test**

Analog control interface is to meet industrial control requirements, when there's no need to use PC controlling, user can control through PLC. IT8900 loads can control load voltage or current through the analog interface at the rear panel, to analog 0-full scale input range by connecting to 0-10V adjustable voltages, so as to adjust load's input voltage and current values.



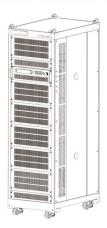
#### **Automatic Test**

IT8900 has a very strong automatic test function. The automatic test function is useful for simulating various tests and allows the user to edit up to 10 groups of testing files. It helps engineers to test out all kinds of data of the tested power supply at different loading status. Automatic test function can edit multiple product tests, such as CC, no-load, short-circuit, CV, so it can finish all test by one time. It makes tests convenient and fast, and to ensure high efficiency and testing accuracy.



### Power off memory

IT8900 can save 100 groups of frequently testing data in nonvolatile memory device, which makes it convenient for users to recall the data. IT8900 provides power off memory to guarantee that the long-term testing result data can be saved well when there's abnormal power-off or computer crash. Once the system is back to normal, the program can continue staring from the fault point. This function can avoid repeated tests, thus to improve testing efficiency. When it remains under power-off status, IT8900 will automatically stop working, and to make test safe and reliable.



**Your Power Testing Solution**IT8900 Series High performance High power DC Electronic Load

Model		IT8912-	600-480	IT8912-	1200-240
Rated (0~40 ℃)	Voltage	0~60	00V	0~1200V	
	Current	0~48A	0~480A	0~24A	0~240A
(0 40 0)	Power	Power 12kW		12kW	
	Range	0.1~60V	0.1~600V	0.1~120V	0.1~1200V
CV mode	Resolution	1mV	10mV	10mV	100mV
	Accuracy	±(0.05%+		0.05%FS)	
	Range	0~48A	0~480A	0~24A	0~240A
CC mode	Resolution	1mA	10mA	1mA	10mA
	Accuracy	±(0.05%+	0.1%FS)	±(0.05%	+0.1%FS)
	Range	0.01Ω~10Ω	10Ω~7.5kΩ	0.03Ω~10Ω	10Ω~7.5kΩ
CR mode <sup>1</sup>	Resolution	16		Sbit	
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S
	Range	12kW		12kW	
CP mode <sup>*3</sup>	Resolution	1W		1W	
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS	
	Range	0~60V	0~600V	0~120V	0~1200V
Readback Voltage	Resolution	1mV	10mV	10mV	100mV
romago	Accuracy	±(0.025%+	0.025%FS)	±(0.025%+0.025%FS)	
	Range	0~48A	0~480A	0~24A	0~240A
Readback Current	Resolution	1mA	10mA	1mA	10mV
0 0.110111	Accuracy	±(0.05%+0.1%FS)		±(0.05%+0.1%FS)	
Readback	Range	12kW		12kW	
Power <sup>2</sup>	Resolution	1W		1W	
	Accuracy	±(0.2%+	0.3%FS)	±(0.2%+0.3%FS)	
Height		15	U	1	5U

Model		IT8915-1	50-960	IT8918-600-720	
	Voltage	0~15	OV .	0~600V	
Rated (0~40 ℃)	Current	0~96A	0~960A	0~72A	0~720A
(0-40 C)	Power	wer 15kW		18kW	
	Range	0.1~18V	0.1~150V	0.1~60V	0.1~600V
CV mode	Resolution	1mV	10mV	1mV	10mV
	Accuracy		±(0.05%+	0.05%FS)	
	Range	0~96A	0~960A	0~72A	0~720A
CC mode	Resolution	1mA	10mA	1mA	10mA
	Accuracy	±(0.1%+0	.1%FS)	±(0.1%+0.	1%FS)
	Range	0.005Ω~10Ω	10Ω~7.5kΩ	0.01Ω~10Ω	10Ω~7.5kΩ
CR mode*1	Resolution	16		Sbit	
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S
	Range	15kW		18kW	
CP mode <sup>*3</sup>	Resolution	1W		1W	
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS	
B	Range	0~18V	0~150V	0~60V	0~600V
Readback Voltage	Resolution	1mV	10mV	1mV	10mV
	Accuracy	±(0.025%+0	.025%FS)	±(0.025%+0.025%FS)	
D	Range	0~96A	0~960A	0~72A	0~720A
Readback Current	Resolution	1mA	10mA	1mA	10mA
	Accuracy	±(0.1%+0.1%FS)		±(0.1%+0.1%FS)	
Readback	Range	15kW		18kW	
Power*2	Resolution	1W		1W	
	Accuracy	±(0.2%+0	3%FS)	±(0.2%+0.3	3%FS)
Height		151	J	24U	

IT8900 Series High performance High power DC Electronic Load

Model		IT8918-1	200-360	IT8922-150-1440		
	Voltage	0~12	00V	0~150V		
Rated (0~40 ℃)	Current	0~36A	0~360A	0~144A	0~1440A	
	Power	18kW		22.5kW		
	Range	0.1~120V	0.1~1200V	0.1~18V	0.1~150V	
CV mode	Resolution	10mV	100mV	1mV	10mV	
	Accuracy		±(0.05%+	-0.05%FS)		
	Range	0~36A	0~360A	0~144A	0~1440A	
CC mode	Resolution	1mA	10mA	10mA	100mA	
	Accuracy	±(0.05%+0.1%FS)	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)	
	Range	0.02Ω~10Ω	10Ω~7.5kΩ	0.005Ω~10Ω	10Ω~7.5kΩ	
CR mode <sup>*1</sup>	Resolution	16		bit		
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	
	Range	18kW		22.5kW		
CP mode <sup>*3</sup>	Resolution	1W		1W		
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS		
Dandhada	Range	0~120V	0~1200V	0~18V	0~150V	
Readback Voltage	Resolution	10mV	100mV	1mV	10mV	
	Accuracy	±(0.025%+0	0.025%FS)	±(0.025%+0.025%FS)		
	Range	0~36A	0~360A	0~144A	0~1440A	
Readback Current	Resolution	1mA	10mA	10mA	100mV	
	Accuracy	±(0.05%+0.1%FS)	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)	
Readback	Range	18kW		22.5kW		
Power*2	Resolution	1W		1W		
	Accuracy	±(0.2%+0.3%FS)		±(0.2%+0.3%FS)		
Height		24	U	24	4U	

Model	el IT8924-600-960		IT8924-1200-480		
	Voltage	0~	600V	0~1200V	
Rated (0~40 ℃)	Current	0~96A	0~960A	0~48A	0~480A
(0 10 0)	Power	24	4kW	24kW	
	Range	0.1~60V	0.1~600V	0.1~120V	0.1~1200V
CV mode	Resolution	1mV	10mV	10mV	100mV
	Accuracy		±(0.05%	+0.05%FS)	
	Range	0~96A	0~960A	0~48A	0~480A
CC mode	Resolution	1mA	10mA	1mA	10mA
	Accuracy	±(0.1%	+0.1%FS)	±(0.05%+0.1%FS)	±(0.1%+0.1%FS)
	Range	0.01Ω~10Ω	10Ω~7.5kΩ	0.02Ω~10Ω	10Ω~7.5kΩ
CR mode <sup>11</sup>	Resolution	166		bit	
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S*2	0.01%+0.0008S
	Range	24kW		24	kW
CP mode <sup>*3</sup>	Resolution	1W		1	W
	Accuracy	0.2%+0.3%FS		0.2%+	0.3%FS
Dandland.	Range	0~60V	0~600V	0~120V	0~1200V
Readback Voltage	Resolution	1mV	10mV	10mV	100mV
3 .	Accuracy	±(0.025%+0.025%FS)		±(0.025%+0.025%FS)	
<b>D</b>	Range	0~96A	0~960A	0~48A	0~480A
Readback Current	Resolution	1mA	10mA	1mA	10mA
	Accuracy	±(0.1%+0.1%FS)		±(0.05%+0.1%FS)	±(0.1%+0.1%FS)
Readback	Range	24kW		24kW	
Power*2	Resolution	1W		1W	
	Accuracy	±(0.2%+0.3%FS)		±(0.2%+	-0.3%FS)
Height		2	24U	24	4U

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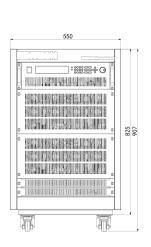
Model	IT8930-150-1920			IT8930-600-1200	
	Voltage	0~1	50V	0~60	00V
Rated (0~40 ℃)	Current	0~192A	0~1920A	0~120A	0~1200A
	Power	er 30kW		30k	W
	Range	0.1~18V	0.1~150V	0.1~60V	0.1~600V
CV mode	Resolution	1mV	10mV	1mV	10mV
	Accuracy		±(0.05%+	-0.05%FS)	
	Range	0~192A	0~1920A	0~120A	0~1200A
CC mode	Resolution	10mA	100mA	10mA	100mA
	Accuracy	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)
	Range	0.005Ω~10Ω	10Ω~7.5kΩ	0.005Ω~10Ω	10Ω~7.5kΩ
CR mode <sup>11</sup>	Resolution	161		pit	
	Accuracy	0.01%+0.08S*2	0.01%+0.0008S	0.01%+0.08S*2	0.01%+0.0008S
	Range	30kW		30kW	
CP mode <sup>*3</sup>	Resolution	1W		1\	V
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS	
Dandhaal	Range	0~18V	0~150V	0~60V	0~600V
Readback Voltage	Resolution	1mV	10mV	1mV	10mV
3	Accuracy	±(0.025%+	0.025%FS)	±(0.025%+0.025%FS)	
D	Range	0~192A	0~1920A	0~120A	0~1200A
Readback Current	Resolution	10mA	100mA	10mA	100mA
	Accuracy	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)
Readback	Range	30kW		30kW	
Power <sup>2</sup>	Resolution	1\	V	1W	
	Accuracy	±(0.2%+	0.3%FS)	±(0.2%+0.3%FS)	
Height		24	U	37	U

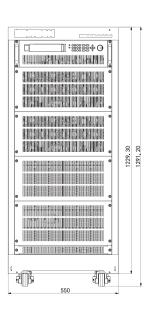
Model		IT8930-1	200-600	IT8936-600-1440	
5	Voltage	0~12	00V	0~600V	
Rated (0~40°C)	Current	0~60A	0~600A	0~144A	0~1440A
	Power	30kW		36kW	
	Range	0.1~120V	0.1~1200V	0.1~60V	0.1~600V
CV mode	Resolution	10mV	100mV	1mV	10mV
	Accuracy	±(0.05%+0		0.05%FS)	
	Range	0~60A	0~600A	0~144A	0~1440A
CC mode	Resolution	1mA	10mA	10mA	100mA
	Accuracy	±(0.1%+	0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)
	Range	0.02Ω~10Ω	10Ω~7.5kΩ	0.005Ω~10Ω	10Ω~7.5kΩ
CR mode <sup>*1</sup>	Resolution	16		6bit	
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S <sup>-2</sup>	0.01%+0.0008S
	Range	30kW		36	:W
CP mode*3	Resolution	1W		1W	
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS	
Readback	Range	0~120V	0~1200V	0~60V	0~600V
Voltage	Resolution	10mV	100mV	1mV	10mV
Ü	Accuracy	±(0.025%+	0.025%FS)	±(0.025%+0.025%FS)	
Readback	Range	0~60A	0~600A	0~144A	0~1440A
Current	Resolution	1mA	10mA	10mA	100mA
	Accuracy	±(0.1%+	0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.1%FS)
Readback	Range	30kW		36kW	
Power*2	Resolution	1W		1W	
	Accuracy	±(0.2%+0.3%FS)		±(0.2%+0.3%FS)	
Height		37	U	37	'U

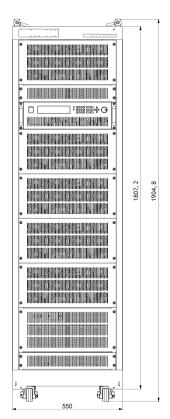
IT8900 Series High performance High power DC Electronic Load

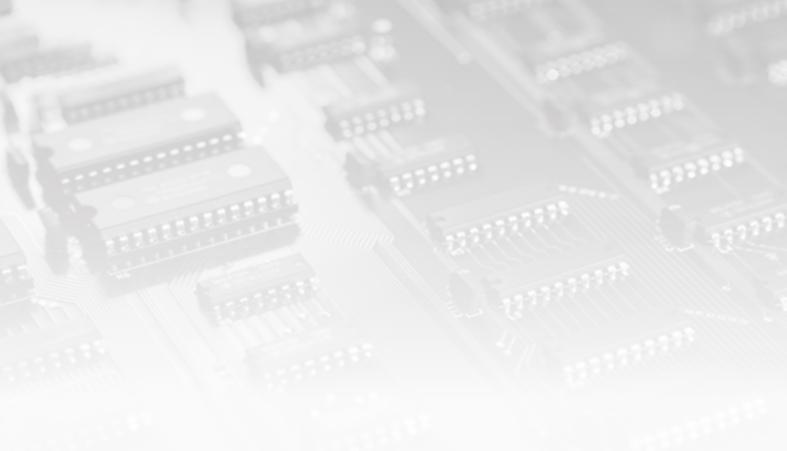
Model		IT8936-1	200-720	IT8945-	150-2500
	Voltage	0~12	00V	0~150V	
Rated (0~40 ℃)	Current	0~72A	0~720A	0~250A	0~2500A
(0 40 0)	Power	36kW		45kW	
	Range	0.1~120V	0.1~1200V	0.1~18V	0.1~150V
CV mode	Resolution	10mV	100mV	1mV	10mV
	Accuracy		±(0.05%+	-0.05%FS)	
	Range	0~72A	0~720A	0~250A	0~2500A
CC mode	Resolution	1mA	10mA	10mA	100mA
	Accuracy	±(0.05%+0.1%FS)	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.2%FS)
	Range	0.01Ω~10Ω	10Ω~7.5kΩ	0.005Ω~10Ω	10Ω~7.5kΩ
CR mode <sup>11</sup>	Resolution	16		Sbit	
	Accuracy	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S	0.01%+0.08S <sup>*2</sup>	0.01%+0.0008S
	Range	36kW		45kW	
CP mode <sup>*3</sup>	Resolution	1W		1	W
	Accuracy	0.2%+0.3%FS		0.2%+0.3%FS	
	Range	0~120V	0~1200V	0~18V	0~150V
Readback Voltage	Resolution	10mV	100mV	1mV	10mV
voltage	Accuracy	±(0.025%+0	0.025%FS)	±(0.025%+0.025%FS)	
5 " '	Range	0~72A	0~720A	0~250A	0~2500A
Readback Current	Resolution	1mA	10mA	10mA	100mA
Carront	Accuracy	±(0.05%+0.1%FS)	±(0.1%+0.1%FS)	±(0.1%+0.1%FS)	±(0.2%+0.2%FS)
Readback	Range	36k	W	45kW	
Power*2	Resolution	1W		1W	
	Accuracy	±(0.2%+0.3%FS)		±(0.2%+0.3%FS)	
Height		37	U	3	7U

- \*1 Voltage/Current is not less than 10%FS (FS is full range)
- $^*$ 2 Readback resistance range: (1/(1/R+(1/R)\*0.01%+0.08),1/(1/R-(1/R)\*0.01%-0.08))
- \*3 Voltage/Current is not less than 10%FS











This information is subject to change without notice.
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