

Ultra low voltage and high current DC load

Faith

Ultra low voltage and high current DC load
NZ/N series



SHENZHEN FAITHTECH CO., LTD

|Summary

Ultra low voltage and high current DC electronic load is a high reliability and high performance electronic load product derived from FT conventional electronic load for low voltage and high current test scenarios such as fuel cell test and CPU power supply device test. For different current levels, this product includes two series: NZ and N. The voltage is 0-20V or 40V, in which the NZ series can be loaded with 0V full current, and the N series can be loaded with ultra-low voltage and full current. The load capacity is up to 0V@1200A and 0.2V@5000A . This series of products has high precision and high cost performance, which is your good choice for testing.

|Features

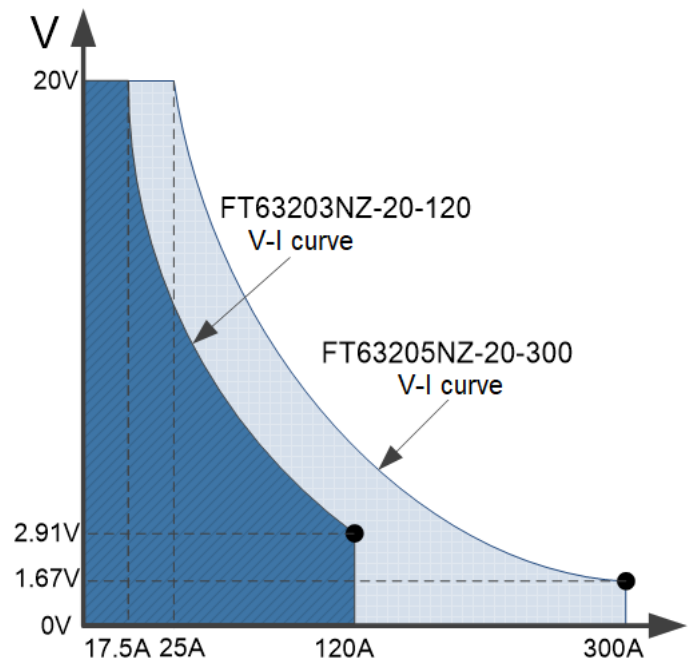
- Low voltage load capacity can reach 0V@1200A,0.2V@5000A ;
- The NZ series supports 0V full current load and reverse pole test;
- Support external analog programming control;
- Battery capacity and battery internal resistance test function;
- Four test modes: constant voltage, constant current, constant resistance and constant power;
- Short circuit simulation function;
- Support remote and local end measurement switching;
- TFT color LCD screen, Chinese and English menu interface, high brightness, wide viewing angle, more comprehensive information display;
- 20kHz transient test function, which can set the rise or fall slew rate;
- Provide multiple remote interfaces;
- Sequence test function supports the load capacity test of different sequences;
- Overvoltage/overcurrent/overpower/over temperature/polarity reverse connection and other all-round intelligent protection functions;
- Equipped with multiple communication interfaces: RS232, RS485, LAN, USB, CAN (optional);
- Support SCPI and ModBus communication protocols.

|Application field

- Fuel cell testing;
- Battery forced discharge test;
- Power supply system test of CPU and power components;
- Other low-voltage and high current test scenarios.

| 0V input full current on load

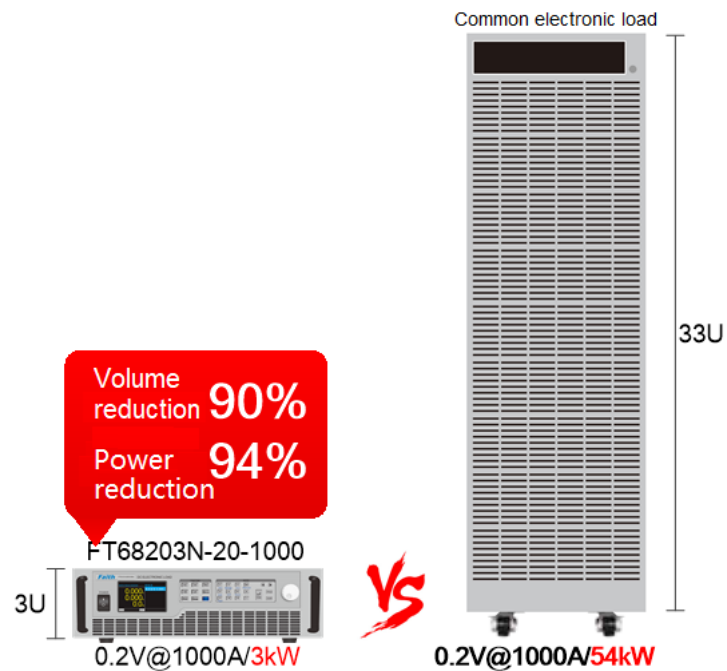
NZ series can realize full current loading at 0V input. The load characteristics of low voltage and high current make it a powerful advantage in the testing of fuel cells, battery forced discharge and CPU power supply systems.



Characteristic curve of NZ series products

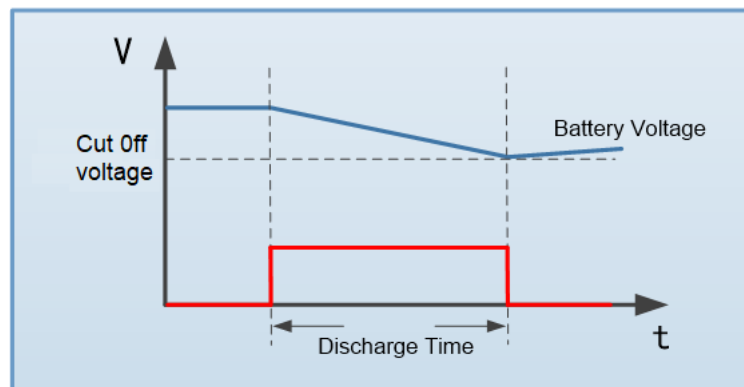
| Loading with ultra low voltage and full current

The ultra-low voltage high current DC electronic load has ultra-low internal resistance characteristics, and the minimum internal resistance is less than $0.2\text{m}\ \Omega$. The FT68203N-20-1000 can realize 1000A current pull load at 0.2V input, and the power is only 3kW. Compared with common electronic load, the power under the same low-voltage load condition is only one eighteenth of its power. Smaller test power can provide greater test current, which can greatly reduce test cost in fuel cell membrane electrode, monolithic cell and short stack testing.



| Battery capacity test

In order to facilitate the battery test, the electronic load provides the battery capacity test function. Battery test includes: battery internal resistance test and battery capacity test. The battery capacity test adopts constant current discharge. During discharge, the load automatically records voltage, current, time, AH and other parameters.

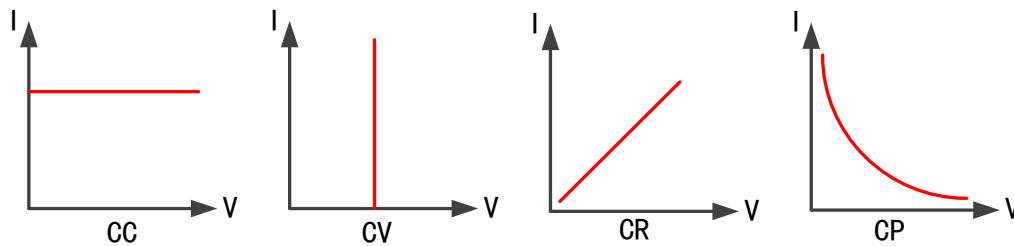


Voltage and current curve during capacity test

| Constant state function

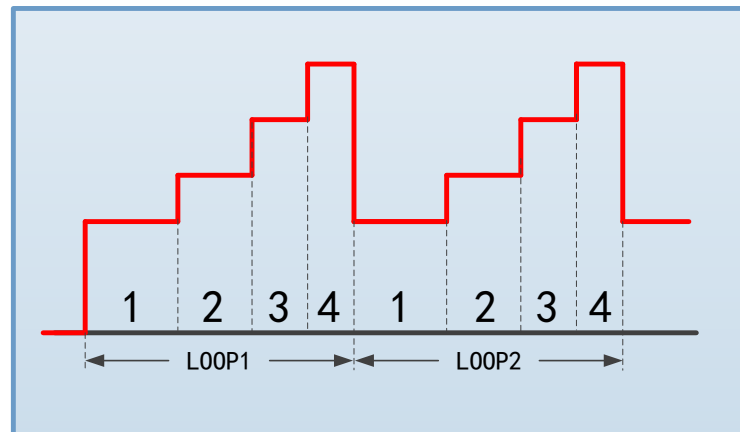
The electronic load has four test modes of constant current, constant voltage, constant resistance and constant power, which can meet a wide range of test requirements. Constant current and constant resistance modes can be used to test

whether the output voltage of voltage source maintains stable output under different load conditions. For the battery charger and adapter, the constant voltage mode can change the output voltage of the charger and adapter to verify whether the output current is correct.



Sequence function

The electronic load provides a sequence test function. The user can edit the test sequence of a load to simulate various changes of the load input, which is suitable for various complex load tests.



Ordering information

NZ series				
Voltage	Model	Specification	Size	Remark
20V	FT682003NZ-20-120	20V/120A/350W(0V@120A)	2U	load with 0V full current
	FT682011NZ-20-120	20V/120A/1100W(0V@120A)	2U	
	FT682005NZ-20-300	20V/300A/500W(0V@300A)	2U	
	FT682012NZ-20-300	20V/300A/1.2kW(0V@300A)	4U	
	FT68203NZ-20-300	20V/300A/3kW(0V@300A)	4U	
	FT682024NZ-20-600	20V/600A/2.4kW(0V@600A)	7U	
	FT68206NZ-20-600	20V/600A/6kW(0V@600A)	7U	
	FT682036NZ-20-900	20V/900A/3.6kW(0V@900A)	11U	
	FT68209NZ-20-900	20V/900A/9kW(0V@900A)	11U	
	FT682048NZ-20-1200	20V/1200A/4.8kW(0V@1200A)	14U	
	FT68212NZ-20-1200	20V/1200A/12kW(0V@1200A)	14U	
N series				
Voltage	Model	Specification	Size	Remark
40V	FT682007N-40-150	40V/150A/700W（0.2V@150A）	3U	load with 0.2V full current
	FT682015N-40-300	40V/300A/1.5kW（0.2V@300A）	3U	
	FT682022N-40-450	40V/450A/2.25kW（0.2V@450A）	3U	
	FT68203N-40-600	40V/600A/3kW(0.2@600A)	3U	
	FT682045N-40-900	40V/900A/4.5kW(0.2@900A)	5U	
	FT68206N-40-1200	40V/1200A/6kW(0.2@1200A)	5U	
	FT68209N-40-1800	40V/1800A/9kW(0.2@1800A)	12U	
	FT68212N-40-2400	40V/2400A/12kW(0.2@2400A)	12U	
	FT68215N-40-3000	40V/3000A/15kW(0.2@3000A)	12U	
20V	FT682007N-20-250	20V/250A/700W（0.2V@250A）	3U	
	FT682015N-20-500	20V/500A/1.5kW（0.2V@500A）	3U	
	FT682022N-20-750	20V/750A/2.25kW（0.2V@750A）	3U	
	FT68203N-20-1000	20V/1000A/3kW(0.2@1000A)	3U	
	FT682045N-20-1500	20V/1500A/4.5kW(0.2@1500A)	5U	
	FT68206N-20-2000	20V/2000A/6kW(0.2@2000A)	5U	
	FT68209N-20-3000	20V/3000A/9kW(0.2@3000A)	12U	
	FT68212N-20-4000	20V/4000A/12kW(0.2@4000A)	12U	
	FT68215N-20-5000	20V/5000A/15kW(0.2@5000A)	12U	
The larger specifications can be customized.				

Specification

Specification-1						
Model	FT682024NZ-20-600		FT682036NZ-20-900		FT682048NZ-20-1200	
Voltage	20V		20V		20V	
Current	600A		900A		1200A	
Power	2400W		3600W		4800W	
Minimum operating voltage at full current	-1.5V/600A		-1.5V/900A		-1.5V/1200A	
CC mode						
Range	0~60A	0~600A	0~90A	0~900A	0~120A	0~1200A
Resolution	1mA	10mA	1.5mA	15mA	2mA	20mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
CV mode						
Range	0~4V	0~20V	0~4V	0~20V	0~4V	0~20V
Resolution	0.08mV	0.4mV	0.08mV	0.4mV	0.08mV	0.4mV
Accuracy	0.025%+0.05%F.S.	0.025%+0.025%F.S.	0.025%+0.05%F.S.	0.025%+0.025%F.S.	0.025%+0.05%F.S.	0.025%+0.025%F.S.
CP mode						
Range	0~2400W		0~3600W		0~4,800W	
Resolution	40mW		60mW		80mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
CR mode						
Range	0.0012~6.7Ω	0.012~33Ω	0.0008~4.4Ω	0.008~22Ω	0.0006~3.3Ω	0.006~16.5Ω
Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.	
Transient status measurement						
T1&T2	10us~60s		10us~60s		10us~60s	
Accuracy	1us+20ppm		1us+20ppm		1us+20ppm	
Current slew rate	0.0001~0.6A/us	0.0001~6A/us	0.0001~0.9A/us	0.0001~9A/us	0.0001~1.2A/us	0.0001~12A/us
Current measurement						
Range	0~60A	0~600A	0~90A	0~900A	0~120A	0~1200A
Accuracy	1mA	10mA	1.5mA	15mA	2mA	20mA
Resolution	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	-0.7V~4V	-3.3V~20V	-0.7V~4V	-3.3V~20V	-0.7V~4V	-3.3V~20V
Accuracy	0.08mV	0.4mV	0.08mV	0.4mV	0.08mV	0.4mV
Resolution	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Others						
AC voltage	220VAC ±10%, 50~60Hz, 3600VA		220VAC ±10%, 50~60Hz, 5400VA		220VAC ±10%, 50~60Hz, 7200VA	
Operation temperature	0~40℃		0~40℃		0~40℃	
Operation temperature(full load)	0~25℃		0~25℃		0~25℃	
Weight	67kg		90kg		122kg	

Dimension (W×H×D include foot-wheel)	432mm*385mm*712.2mm	432mm*563mm*715.2mm	432mm*700mm*712.2mm
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Specification-2						
Model	FT682007N-40-150		FT68203N-40-600		FT68206N-40-1200	
Voltage*3	40V		40V		40V	
Current	150A		600A		1200A	
Power*2	750W		3,000W		6,000W	
Minimum operating voltage at full current	0.2V/150A		0.2V/600A		0.2V/1200A	
CC mode						
Range	0-15A	0-150A	0-60A	0-600A	0-120A	0-1200A
Resolution	0.25mA	2.5mA	1mA	10mA	2mA	20mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
CV mode						
Range	0-8V	0-40V	0-8V	0-40V	0-8V	0-40V
Resolution	0.14mV	0.66mV	0.14mV	0.66mV	0.14mV	0.66mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
CP mode*4						
Range	0- 750W		0- 3,000W		0- 6,000W	
Resolution	12.5mW		50mW		100mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
CR mode*4						
Range	0.01~53Ω	0.1~266Ω	0.002~13.2Ω	0.02~66Ω	0.001~6.7Ω	0.013~33Ω
Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.	
Transient status measurement						
T1&T2	10us~60s		10us~60s		10us~60s	
Resolution	2us		2us		2us	
Accuracy	2us+100ppm		2us+100ppm		2us+100ppm	
Current slew rate	0.0001~0.15A/us	0.0001~1.5A/us	0.0001~0.6A/us	0.0001~6A/us	0.0001~1.2A/us	0.0001~12A/us
Current measurement						
Range	0-15A	0-150A	0-60A	0-600A	0-120A	0-1200A
Resolution	0.25mA	2.5mA	1mA	10mA	2mA	20mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	0-8V	0-40V	0-8V	0-40V	0-8V	0-40V
Resolution	0.14mV	0.66mV	0.14mV	0.66mV	0.14mV	0.66mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Others						
AC voltage	220VAC ±10%, 50~60Hz, 300VA		220VAC ±10%, 50~60Hz, 300VA		220VAC ±10%, 50~60Hz, 480VA	
Operation temperature	0~40℃		0~40℃		0~40℃	
Operation	0~25℃		0~25℃		0~25℃	

temperature(full load)			
Weight	28kg	40kg	72kg
Dimension	432mm(W)*132mm(H)*662.2mm(D)	432mm(W)*132mm(H)*662.2mm(D)	432mm(W)*222mm(H)*662.2mm(D)

Specification-3						
Model	FT682007N-20-250		FT68203N-20-1000		FT68206N-20-2000	
Voltage*3	20V		20V		20V	
Current	250A		1000A		2000A	
Power*2	750W		3,000W		6,000W	
Minimum operating voltage at full current	0.2V/250A		0.2V/1000A		0.2V/2000A	
CC mode						
Range	0-25A	0-250A	0-100A	0-1000A	0-200A	0-2000A
Resolution	0.42mA	4.2mA	1.6mA	17mA	3.2mA	33mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
CV mode						
Range	0-4V	0-20V	0-4V	0-20V	0-4V	0-20V
Resolution	0.07mV	0.33mV	0.07mV	0.33mV	0.07mV	0.33mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
CP mode*4						
Range	0- 750W		0- 3,000W		0- 6,000W	
Resolution	12.5mW		50mW		100mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
CR mode*4						
Range	0.003~16Ω	0.03~80Ω	0.0008~4Ω	0.008~20Ω	0.0004~2Ω	0.004~10Ω
Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.		Vin/Rset*(0.2%)+0.2%IF.S.	
Transient status measurement						
T1&T2	10us~60s		10us~60s		10us~60s	
Accuracy	2us+100ppm		2us+100ppm		2us+100ppm	
Current slew rate	0.0001~ 0.25A/us	0.0001~ 2.5A/us	0.0001~1A/us	0.0001~10A/us	0.0001~2A/us	0.0001~20A/us
Current measurement						
Range	0-25A	0-250A	0-100A	0-1000A	0-200A	0-2000A
Resolution	0.42mA	4.2mA	1.6mA	17mA	3.2mA	33mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	0-4V	0-20V	0-4V	0-20V	0-4V	0-20V
Resolution	0.07mV	0.33mV	0.07mV	0.33mV	0.07mV	0.33mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Others						
AC voltage	220VAC ±10%, 50~60Hz, 300VA		220VAC ±10%, 50~60Hz, 300VA		220VAC ±10%, 50~60Hz, 480VA	

Operation temperature	0~40°C	0~40°C	0~40°C
Operation temperature(full load)	0~25°C	0~25°C	0~25°C
Weight	28kg	40kg	72kg
Dimension	432mm(W)*132mm(H)*662.2mm(D)	432mm(W)*132mm(H)*662.2mm(D)	432mm(W)*222mm(H)*662.2mm(D)