High Power DC Electronic Load
AN236(F) Series

Product Introduction

The AN236(F) Series is a new high power DC electronic load introduced by Ainuo Instrument Co., Ltd. It offers voltage ranges of 150V, 600V, and 1,200V, with power ranges from 2kW to 60kW. This series of electronic loads are mainly used for testing products in various fields such as new energy vehicle OBCs, power batteries, charging stations, power electronics, servo/server power supplies, high voltage UPS, military, photovoltaics, grid energy storage, aerospace, and more. Featuring a new generation digital controller, it comes with five basic modes, seven advanced modes, and sequence function to meet users' programming and automation test requirements.

Features

- High power density: 6kW in 4U height, and 24kW in 13U height. Compact, light, convenient.
- With precision measurement technology, it supports voltage accuracy of 0.015%+0.015%F.S., current accuracy of 0.04%+0.04%F.S., and power accuracy of 0.1%+0.1%F.S. (maintained constant at high temperatures).
- Built-in dynamic loading mode with a dynamic frequency of up to 25kHz and Vpk+/- test function.
- Built-in FLEX mode for simulating capacitive loads, inductive loads, and complex impedance loads.
- Wide range, offering nearly twice the current range of traditional high power loads with the same capacity.
- Excellent dynamic characteristics, with a maximum current slew rate of 96A/us.
- Built-in functions include constant current(CC), constant voltage(CV), constant resistance(CR), constant power(CP), short circuit simulation, overcurrent protection test, sequence test, etc.
- It has comprehensive protection features including overcurrent, overvoltage, overtemperature, reverse connection, SENSE protection, etc.
- It has a built-in temperature sensing chip and a speed-controlled fan.
- It has a built-in battery mode for discharging tests for energy integration and timing.
- Versatile Interfaces – Standard configurations include six communication interfaces: LAN, GPIB, USB, CAN, RS232, and RS485, ensuring seamless integration with various test systems.

Serialized Models

The AN236(F) Series offers a complete range of models to choose from, as shown in the table below.

	150V	600V	1200V	Height
2kW	AN23602E-150-200(F)	AN23602E-600-140(F)	AN23602E-1200-80(F)	4U
3kW	AN23603E-150-300(F)	AN23603E-600-210(F)	AN23603E-1200-120(F)	4U
4kW	AN23604E-150-400(F)	AN23604E-600-280(F)	AN23604E-1200-160(F)	4U
5kW	AN23605E-150-500(F)	AN23605E-600-350(F)	AN23605E-1200-200(F)	4U
6kW	AN23606E-150-600(F)	AN23606E-600-420(F)	AN23606E-1200-240(F)	4U
8kW	AN23608E-150-800(F)	AN23608E-600-560(F)	AN23608E-1200-320(F)	7U
10kW	AN23610E-150-1000(F)	AN23610E-600-700(F)	AN23610E-1200-400(F)	7U
12kW	AN23612E-150-1200(F)	AN23612E-600-840(F)	AN23612E-1200-480(F)	7U
15kW	AN23615E-150-1500(F)	AN23615E-600-1050(F)	AN23615E-1200-600(F)	10U
18kW	AN23618E-150-1800(F)	AN23618E-600-1260(F)	AN23618E-1200-720(F)	10U
20kW	AN23620E-150-2000(F)	AN23620E-600-1400(F)	AN23620E-1200-800(F)	13U
24kW	AN23624E-150-2400(F)	AN23624E-600-1680(F)	AN23624E-1200-960(F)	13U
30kW	AN23630E-150-2400(F)	AN23630E-600-2100(F)	AN23630E-1200-1200(F)	26U
36kW	AN23636E-150-2400(F)	AN23636E-600-2400(F)	AN23636E-1200-1440(F)	26U
42kW	AN23642E-150-2400(F)	AN23642E-600-2400(F)	AN23642E-1200-1680(F)	34U
48kW	AN23648E-150-2400(F)	AN23648E-600-2400(F)	AN23648E-1200-1920(F)	34U
54kW	AN23654E-150-2400(F)	AN23654E-600-2400(F)	AN23654E-1200-2160(F)	38U
60kW	AN23660E-150-2400(F)	AN23660E-600-2400(F)	AN23660E-1200-2400(F)	33U

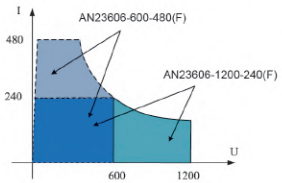
Any changes to the above parameter specifications will not be notified separately.

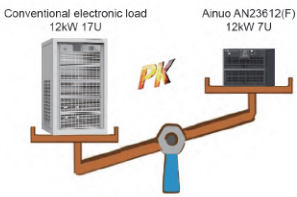
Applications

- DC charging pile/on-board charger and power electronics tests.
- Smart manufacturing and industrial motor tests.
- Automotive electronics tests, such as fuses, control boxes, etc.
- Relay simulation load test.
- Military aerospace power test.
- Server power supplies, high voltage UPS, and communication power tests.
- Battery discharge test.
- Virtual load tests for photovoltaic component array and wind power generation.
- Simulation test for energy storage systems.
- DC power supply and power electronic components.

High Power Density, Compact and Wide Voltage

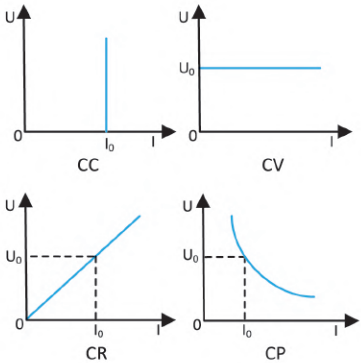
- The AN236(F) Series load features a wide input voltage and current range, meeting various testing needs for high current, low voltage, or high voltage, low current. With a high power density design, it has half the volume and one-third of the weight compared to traditional electronic loads.





Basic Mode

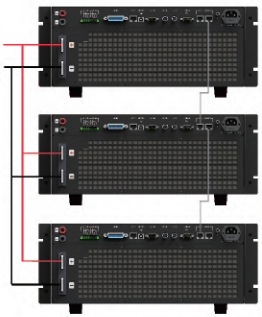
Built-in basic constant voltage(CV), constant current(CC), constant resistance(CR), and constant power(CP) modes, which can meet a wide range of testing needs.



Master/Slave Parallel Connection – Flexibl Power Configuration

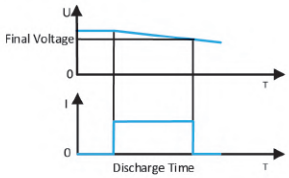
The 23600E(F) series employs digital parallel technology to achieve master/slave parallel functionality, supporting arbitrary parallel connection of different models within the same voltage rating. The maximum number of parallel units is 16, with a maximum combined power of 960 kW and a maximum combined current of 38.4 kA.

In parallel mode, only the master unit requires operation and control, providing the same convenience as a single unit. The master and slave units automatically distribute current and support multiple modes of load testing.



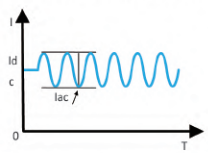
BATY Mode - Battery Test Dedicated Mode

For batteries, the AN236(F) Series load provides three discharge modes: constant current, constant resistance, and constant power modes. By setting voltage thresholds and test times (1s-100,000s), the electronic load can control the load to prevent over-discharge and battery damage. Additionally, the load also provides a display of the discharged energy. The BATY mode is also suitable for super capacitors and similar discharge testing scenarios.



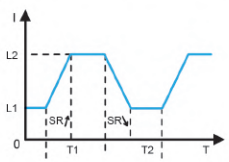
SWD Mode – Sine Wave Loading

The AN23600E(F) electronic load features a sine wave current loading function, where the current is output in a fixed-frequency sine wave. Users can control the output waveform by adjusting the DC current component (I_DC), the AC sine wave component (I_AC), and the sine wave frequency (Frequency). The minimum point of the sine wave loading current must not fall below zero amperes, and the frequency adjustment range is 0–20 kHz. This function is widely used in fuel cell ACIR testing.



CCD Mode - Rapid Dynamic and Vpp Testing

The AN236(F) Series of loads feature built-in high-speed dynamic loading testing capabilities, with dynamic changes possible up to 25kHz. Users can set a repeating number of cycles for a specified period, ranging from 1 to 100,000, or conduct continuous dynamic loading. As illustrated in the diagram below, users can set the high and low loading values of the current, loading time, rise and fall slopes, etc. While conducting dynamic loading, the load also provides measurements of the peak-to-peak voltage, with a sampling frequency of up to 500kHz.



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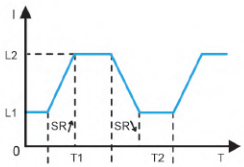
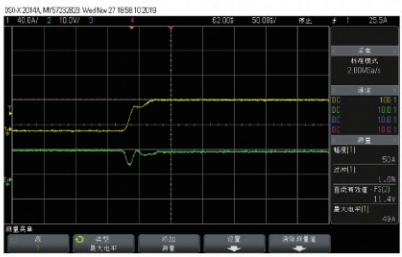
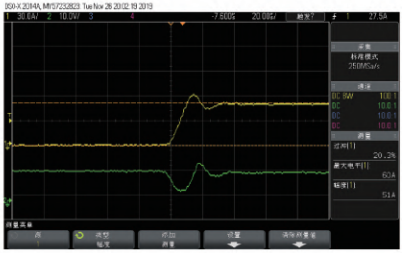


CC Mode - Ultra-Fast Loading Speed and Ultra-Low Overshoot

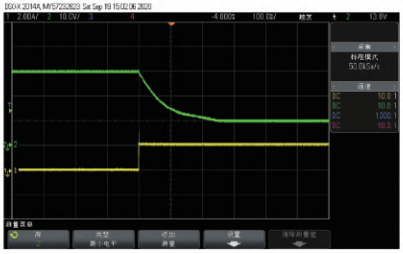
For example, the AN23606E-1200-240(F) can provide a rise speed of 12A/uS. While addressing fast loading issues, the load's built-in digital controller ensures minimal overshoot. The figure below shows the comparison of the current rise waveforms during full-speed loading between the AN236(F) Series load and a certain brand of electronic load.





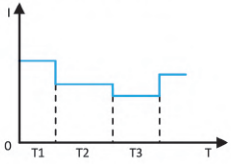
CV Mode - High-performance Controller with Adjustable Loop Speed

With the increasing application scenarios of constant current sources, the AN236(F) Series load is equipped with an optimized zero-point compensation controller. While meeting the requirements for fast, stable, and accurate loading, it offers three adjustable loop speeds, greatly expanding the load's adaptability. Unlike the ordinary integral lag control, as shown in the figure on the right, there is a distinct predictive control section. The current waveform below shows the "prediction" of the tested power supply at the earliest time, enabling a rapid and stable CV loading process.



LIST Mode - Sequence Loading Function

The AN236(F) load features a built-in sequence test function that can edit up to 8 sets of data, with each set editable for 200 steps. Each step can be edited for execution time within the range of 0-100s. In scenarios such as battery discharge, server, and communication power mixed load modulation, providing different load current waveforms as an effective supplement for dynamic current tests.



High Precision Measurement

The AN236(F) Series load offers three grade for voltage and current measurements. Taking the AN23606E-1200-240 as an example, it provides voltage ranges of 150V/600V/1,200V, catering to the needs of low, medium, and high voltage ranges. For current measurement, it offers 24A/120A/240A, providing more accurate measurement values for different application scenarios. Utilizing high-precision A/D and D/A chips, it supports accuracies of voltage 0.015%+0.015%F.S., current 0.04%+0.04%F.S., and power 0.1%+0.1%F.S.

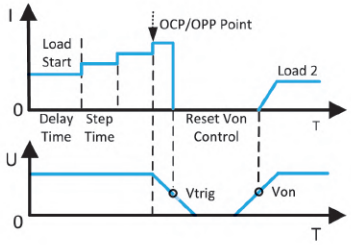
Instantaneous Overpower Function

The AN236(F) Series load has an instant 2 times overpower capability, allowing the load to withstand a load capacity exceeding the rated power for a short period of time. This effectively solves the selection issue for impact-type products. Users can select based on the rated power of the power supply or battery, rather than the maximum power, which saves costs and improves adaptability.

Precisely Lock Power Protection Point

Too large output current/power of the source under test may cause damage. Therefore, most of the power sources under test have overcurrent/overpower protection: the output voltage is reduced or stopped when overloaded. So this kind of load provides test modes for this situation. Over Current Point, Over Power Point (OCP, OPP).

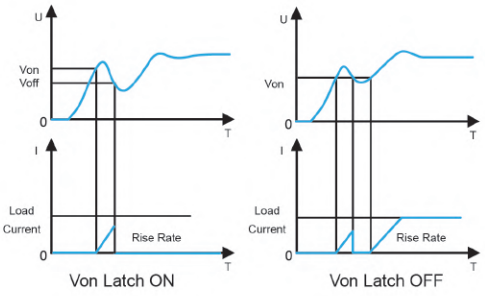
When the load detects that the voltage is less than or equal to the threshold after setting the loading current and the threshold, the loading stops, and the current power at the moment of protection is displayed on the screen, and the result is judged according to the protection point.



Von/Voff Function - Flexible Voltage Protection

During the power-on moment of the DUT (Device Under Test) when the output hasn't stabilized yet, immediate loading by the load can lead to the failure of the DUT's startup, risking voltage oscillations or damage to the DUT. Some DUTs cannot tolerate excessively low operating voltages, such as battery systems, where over-discharge can cause irreversible damage to the batteries. Therefore, the load provides a flexible automatic load and unload function - Von/Voff.

Once the voltage judgment is set, the load will remain unloaded when the voltage detected is lower than the Von voltage. It will start loading only when the voltage rises above the Von voltage, thus ensuring the startup voltage protection of the DUT. The automatic unload depends on the setting of Von Latch. If set to ON, the load unloads when the voltage is below Voff, and it won't load again. If set to OFF, the load unloads when the voltage is below Von, and it will reload when the voltage is higher than Von.



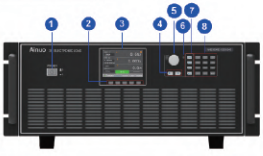
Visual Programming Software

Users can test by using the PC software programming load. It will be troublesome to set the series test (List) via load interface but can be set quickly via the graphical interface of the host, cooperated with the wave drawing, convenient for the testers. Over Current Point, Over Power Point (OCP, OPP), the host will store the test results and process data automatically, and generate a test result report.

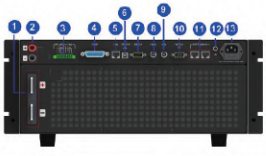
Data Acquisition Function

Users can utilize the load's data acquisition function in conjunction with a trigger source to capture instantaneous voltage and current data.
The upper computer software can then plot the data points into waveforms, and the test data can be exported to excel.
Sampling time: 1-40 microsecond; resolution: 1 microsecond;
Number of sampling points: 1-1,024 (total number of sampling points);
Trigger source: Load on/Load off/TTL/BUS/Manual.

Panel Instructions



No.	Name	Description
①	Power supply switch	AC power supply switch of the electronic load master unit
②	F1-F5 Menu	F1-F5, shortcut menu
③	Display screen	Shows settings and measured data
④	Direction key	Left and right key
⑤	Knob	Used for moving cursor up and down and adjusting parameters
⑥	Tricolor light	Indicator light for load working status
⑦	Control button	LOAD、MENU、ESC、ENTER
⑧	Number key	Number keys 0-9 and undo key



No.	Name	Description
①	DC load terminal	Load terminal
②	Vsense terminal	Remote detection of power supply voltage
③	RS485&CAN	485 Communication Interface, CAN Communication Interface
④	GPIB	GPIB Communication
⑤	LAN	Standard Ethernet Communication Interface
⑥	USB-B	Standard USB Communication Interface, PC Connectable
⑦	RS232	Standard RS232 Communication Interface
⑧	I_Monitor	Load current waveform detection
⑨	V_Monitor	Load voltage waveform detection
⑩	Digtal IO	Multiple input/output signals
⑪	Parallel terminal	Parallel connection port
⑫	Ground terminal	Connected to the ground
⑬	Power socket	Power supply input

Specifications

Model		AN23602E -150-200(F)	AN23603E -150-300(F)	AN23604E -150-400(F)	AN23605E -150-500(F)	AN23606E -150-600(F)	AN23608E -150-800(F)
Working range	Voltage	0-150V					
	Current	0-200A	0-300A	0-400A	0-500A	0-600A	0-800A
	Power	2kW	3kW	4kW	5kW	6kW	8kW
Minimum working voltage		1.8V@200A	1.8V@300A	1.8V@400A	1.8V@500A	1.8V@600A	1.8V@800A
Constant current loading	Range	20/100/200A	30/150/300A	40/200/400A	50/250/500A	60/300/600A	80/400/800A
	Resolution	0.2/1/2mA	0.2/1/2mA	0.4/2/4mA	0.5/2/5mA	0.5/2/5mA	1/5/10mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	16/80/150V					
	Resolution	0.1/0.5/1mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	15mΩ-150Ω(16V) 60mΩ-600Ω(80V) 1.5Ω-3000Ω(150V)	10mΩ-100Ω(16V) 40mΩ-400Ω(80V) 1Ω-2000Ω(150V)	7.5mΩ-75Ω(16V) 30mΩ-300Ω(80V) 0.75Ω-1500Ω(150V)	5mΩ-50Ω(16V) 20mΩ-200Ω(80V) 0.5Ω-1000Ω(150V)	5mΩ-50Ω(16V) 20mΩ-200Ω(80V) 0.5Ω-1000Ω(150V)	3.8mΩ-37.5Ω(16V) 15mΩ-150Ω(80V) 0.375Ω-750Ω(150V)
	Resolution	2mA/Vsense	2mA/Vsense	4mA/Vsense	5mA/Vsense	5mA/Vsense	10mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	200/1000/2000W	300/1500/3000W	400/2000/4000W	500/2500/5000W	600/3000/6000W	800/4000/8000W
	Resolution	5/20/50mW	5/20/50mW	10/50/100mW	10/50/100mW	10/50/100mW	20/100/200mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	0.2mA/us-2A/us (20A) 1mA/us-7A/us (100A) 2mA/us-14A/us (200A)	0.2mA/us-3A/us (30A) 1mA/us-10.5A/us (150A) 2mA/us-21A/us (300A)	0.4mA/us-4A/us (40A) 2mA/us-14A/us (200A) 4mA/us-28A/us (400A)	0.5mA/us-5A/us (50A) 2mA/us-17.5A/us (250A) 5mA/us-35A/us (500A)	0.5mA/us-6A/us (60A) 2mA/us-21A/us (300A) 5mA/us-42A/us (600A)	1mA/us-8A/us (80A) 5mA/us-24A/us (400A) 10mA/us-48A/us (800A)
	Resolution	0.2/1/2mA/us	0.2/1/2mA/us	0.4/2/4mA/us	1/5/10mA/us	0.5/2/5mA/us	1/5/10 mA/us
Specification	Dimension	426mm×177mm×600mm(W×H×D), The height can be increased by 201mm with detachable feet					426 mm×400 mm ×650 mm (W×H×D)
	Weight	24.5kg	29.5kg	29.5kg	35kg	35kg	61kg

Any changes to the above parameter specifications will not be notified separately.

Model		AN23610E -150-1000(F)	AN23612E -150-1200(F)	AN23615E -150-1500(F)	AN23618E -150-1800(F)	AN23620E -150-2000(F)	AN23624E -150-2400(F)
Working range	Voltage	0-150V					
	Current	0-1000A	0-1200A	0-1500A	0-1800A	0-2000A	0-2400A
	Power	10kW	12kW	15kW	18kW	20kW	24kW
Minimum working voltage		1.8V@1000A	1.8V@1200A	1.8V@1500A	1.8V@1800A	1.8V@2000A	1.8V@2400A
Constant current loading	Range	100/500/1000A	120/600/1200A	150/750/1500A	180/900/1800A	200/1000/2000A	240/1200/2400A
	Resolution	1/5/10mA	1/5/10mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	16/80/150V					
	Resolution	0.1/0.5/1mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	2.5mΩ-25Ω(16V) 10mΩ-100Ω(80V) 0.25Ω-500Ω(150V)	2.5mΩ-25Ω(16V) 10mΩ-100Ω(80V) 0.25Ω-500Ω(150V)	1.7mΩ-16.67Ω(16V) 6.7mΩ-66.67Ω(80V) 0.167Ω-333.34Ω(150V)	1.7mΩ-16.67Ω(16V) 6.7mΩ-66.67Ω(80V) 0.167Ω-333.34Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)
	Resolution	10mA/Vsense	10mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	1000/5000/10000W	1200/6000/12000W	1500/7500/15000W	1800/9000/18000W	2000/10000/20000W	2400/12000/24000W
	Resolution	20/100/200mW	20/100/200mW	40/200/400mW	40/200/400mW	40/200/400mW	100/500/1000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	1mA/us-10A/us (100A) 5mA/us-27.5A/us (500A) 10mA/us-55A/us (1000A)	1mA/us-12A/us (120A) 5mA/us-30A/us (600A) 10mA/us-60A/us (1200A)	2mA/us-15A/us (150A) 10mA/us-32A/us (750A) 20mA/us-64A/us (1500A)	2mA/us-18A/us (180A) 10mA/us-36A/us (900A) 20mA/us-72A/us (1800A)	2mA/us-20A/us (200A) 10mA/us-40A/us (1000A) 20mA/us-80A/us (2000A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)
	Resolution	1/5/10 mA/us	1/5/10 mA/us	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us
Specification	Dimensions	426 mm×400 mm×650 mm (W×H×D)		426 mm×532 mm×650 mm (W×H×D)		426 mm×665 mm×650 mm (W×H×D)	
	Weight	66.5kg	72kg	92.5kg	98kg	113kg	124kg

Any changes to the above parameter specifications will not be notified separately.

Specifications

Model		AN23630E -150-2400(F)	AN23636E -150-2400(F)	AN23642E -150-2400(F)	AN23648E -150-2400(F)	AN23654E -150-2400(F)	AN23660E -150-2400(F)
Working range	Voltage	0-150V					
	Current	0-2400A	0-2400A	0-2400A	0-2400A	0-2400A	0-2400A
	Power	30kW	36kW	42kW	48kW	54kW	60kW
Minimum working voltage		1.8V@2400A	1.8V@2400A	1.8V@2400A	1.8V@2400A	1.8V@2400A	1.8V@2400A
Constant current loading	Range	240/1200/2400A	240/1200/2400A	240/1200/2400A	240/1200/2400A	240/1200/2400A	240/1200/2400A
	Resolution	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	16/80/150V					
	Resolution	0.1/0.5/1mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)	1.3mΩ-12.5Ω(16V) 5mΩ-50Ω(80V) 0.125Ω-250Ω(150V)
	Resolution	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	3000/15000/30000W	3600/18000/36000W	4200/21000/42000W	4800/24000/48000W	5400/27000/54000W	6000/30000/60000W
	Resolution	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	400/2000/4000mW	400/2000/4000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)	2mA/us-24A/us (240A) 10mA/us-48A/us (1200A) 20mA/us-96A/us (2400A)
	Resolution	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us	2/10/20 mA/us
Specification	Dimensions	610 mm×1410 mm ×800 mm (W×H×D)	610 mm×1410mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1940 mm ×800 mm (W×H×D)	610 mm×1720 mm ×800 mm (W×H×D)
	Weight	205kg	231kg	272kg	298kg	435kg	469kg

Any changes to the above parameter specifications will not be notified separately.

Model		AN23602E -600-140(F)	AN23603E -600-210(F)	AN23604E -600-280(F)	AN23605E -600-350(F)	AN23606E -600-420(F)	AN23608E -600-560(F)
Working range	Voltage	0-600V					
	Current	0-140A	0-210A	0-280A	0-350A	0-420A	0-560A
	Power	2kW	3kW	4kW	5kW	6kW	8kW
Minimum working voltage		14V@140A	14V@210A	14V@280A	14V@350A	14V@420A	14V@560A
Constant current loading	Range	14/70/140A	21/105/210A	28/140/280A	35/175/350A	42/210/420A	56/280/560A
	Resolution	0.2/1/2mA	0.2/1/2mA	0.4/2/4mA	0.4/2/4mA	0.4/2/4mA	0.5/2/5mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	80/150/600V					
	Resolution	0.5/1/5mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	0.15Ω-1500Ω(80V) 0.6Ω-6000Ω(150V) 6Ω-12000Ω(600V)	0.1Ω-1000Ω(80V) 0.4Ω-4000Ω(150V) 4Ω-8000Ω(600V)	75mΩ-750Ω(80V) 300mΩ-3000Ω(150V) 3Ω-6000Ω(600V)	50mΩ-500Ω(80V) 200mΩ-2000Ω(150V) 2Ω-4000Ω(600V)	50mΩ-500Ω(80V) 200mΩ-2000Ω(150V) 2Ω-4000Ω(600V	38mΩ-375Ω(80V) 150mΩ-1.5kΩ(150V) 1.5Ω-3kΩ(600V)
	Resolution	2mA/Vsense	2mA/Vsense	4mA/Vsense	4mA/Vsense	4mA/Vsense	5mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	200/1000/2000W	300/1500/3000W	400/2000/4000W	500/2500/5000W	600/3000/6000W	800/4000/8000W
	Resolution	5/20/50mW	5/20/50mW	10/50/100mW	10/50/100mW	10/50/100mW	20/100/200mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	0.2mA/us-0.6A/us (14A) 1mA/us-3A/us (70A) 2mA/us-6A/us (140A)	0.2mA/us-0.9A/us (21A) 1mA/us-4.5A/us (105A) 2mA/us-9A/us (210A)	0.4mA/us-1.2A/us (28A) 2mA/us-6A/us (140A) 4mA/us-12A/us (280A)	0.4mA/us-1.5A/us (35A) 2mA/us-7.5A/us (175A) 4mA/us-15A/us (350A)	0.4mA/us-1.8A/us (42A) 2mA/us-9A/us (210A) 4mA/us-18A/us (420A)	0.5mA/us-1.8A/us (56A) 2mA/us-9A/us (280A) 5mA/us-18A/us (560A)
	Resolution	0.2/1/2mA/us	0.2/1/2mA/us	0.4/2/4mA/us	0.4/2/4mA/us	0.4/2/4mA/us	0.5/2/5mA/us
Specification	Dimensions	426mm×177mm×600mm(W×H×D), The height can be increased by 201mm with detachable feet					426 mm×400 mm ×650 mm (W×H×D)
	Weight	24.5kg	29.5kg	29.5kg	35kg	35kg	61kg

Any changes to the above parameter specifications will not be notified separately.

Specifications

Model		AN23610E -600-700(F)	AN23612E -600-840(F)	AN23615E -600-1050(F)	AN23618E -600-1260(F)	AN23620E -600-1400(F)	AN23624E -600-1680(F)
Working range	Voltage	0-600V					
	Current	0-700A	0-840A	0-1050A	0-1260A	0-1400A	0-1680A
	Power	10kW	12kW	15kW	18kW	20kW	24kW
Minimum working voltage		14V@700A	14V@840A	14V@1050A	14V@1260A	14V@1400A	14V@1680A
Constant current loading	Range	70/350/700A	84/420/840A	105/525/1050A	128/630/1260A	140/700/1400A	168/840/1680A
	Resolution	0.5/2.5/5mA	1/5/10mA	1/5/10mA	1/5/10mA	2/10/20mA	2/10/20mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	80/150/600V					
	Resolution	0.5/1/5mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	25mΩ-250Ω(80V) 0.1Ω-1000Ω(150V) 1Ω-2000Ω(600V)	25mΩ-250Ω(80V) 0.1Ω-1000Ω(150V) 1Ω-2000Ω(600V)	17mΩ-166.67Ω(80V) 67Ω-666.67Ω(150V) 0.67Ω-1333.34Ω(600V)	17mΩ-166.67Ω(80V) 67Ω-666.67Ω(150V) 0.67Ω-1333.34Ω(600V)	13mΩ-125Ω(80V) 50mΩ-500Ω(150V) 0.5Ω-1000Ω(600V)	13mΩ-125Ω(80V) 50mΩ-500Ω(150V) 0.5Ω-1000Ω(600V)
	Resolution	5mA/Vsense	10mA/Vsense	10mA/Vsense	10mA/Vsense	20mA/Vsense	20mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	1000/5000/10000W	1200/6000/12000W	1500/7500/15000W	1800/9000/18000W	2000/10000/20000W	2400/12000/24000W
	Resolution	20/100/200mW	20/100/200mW	40/200/400mW	40/200/400mW	100/500/1000mW	100/500/1000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	0.5mA/us-2.1A/us (70A) 2.5mA/us-10.5A/us (350A) 5mA/us-21A/us (700A)	1mA/us-2.4A/us (84A) 5mA/us-12A/us (420A) 10mA/us-24A/us (840A)	1mA/us-2.7A/us (105A) 5mA/us-13.5A/us (525A) 10mA/us-27A/us (1050A)	1mA/us-3A/us (128A) 5mA/us-15A/us (630A) 10mA/us-30A/us (1260A)	2mA/us-3.3A/us (140A) 10mA/us-16.5A/us (700A) 20mA/us-33A/us (1400A)	2mA/us-3.6A/us (168A) 10mA/us-18A/us (840A) 20mA/us-36A/us (1680A)
	Resolution	0.5/2.5/5mA/us	1/5/10mA/us	1/5/10mA/us	1/5/10mA/us	2/10/20mA/us	2/10/20mA/us
Specification	Dimensions	426 mm×400 mm×650 mm (W×H×D)		426 mm×532 mm×650 mm (W×H×D)		426 mm×665 mm×650 mm (W×H×D)	
	Weight	66.5kg	72kg	92.5kg	98kg	113kg	124kg

Any changes to the above parameter specifications will not be notified separately.

Model		AN23630E -600-2100(F)	AN23636E -600-2400(F)	AN23642E -600-2400(F)	AN23648E -600-2400(F)	AN23654E -600-2400(F)	AN23660E -600-2400(F)
Working range	Voltage	0-600V					
	Current	0-2100A	0-2400A	0-2400A	0-2400A	0-2400A	0-2400A
	Power	30kW	36kW	42kW	48kW	54kW	60kW
Minimum working voltage		14V@2100A	14V@2400A	14V@2400A	14V@2400A	14V@2400A	14V@2400A
Constant current loading	Range	210/1050/2100A	240/1200/2400A	240/1200/2400A	240/1200/2400A	240/1200/2400A	240/1200/2400A
	Resolution	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA
	Accuracy	0.05%+0.05%F.S.					
Constant voltage loading	Range	80/150/600V					
	Resolution	0.5/1/5mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	10mΩ-100Ω(80V) 40mΩ-400Ω(150V) 0.4Ω-800Ω(600V)	9mΩ-87.5Ω(80V) 4mΩ-350Ω(150V) 0.35Ω-700Ω(600V)	9mΩ-87.5Ω(80V) 4mΩ-350Ω(150V) 0.35Ω-700Ω(600V)	9mΩ-87.5Ω(80V) 4mΩ-350Ω(150V) 0.35Ω-700Ω(600V)	9mΩ-87.5Ω(80V) 4mΩ-350Ω(150V) 0.35Ω-700Ω(600V)	9mΩ-87.5Ω(80V) 4mΩ-350Ω(150V) 0.35Ω-700Ω(600V)
	Resolution	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	3000/15000/30000W	3600/18000/36000W	4200/21000/42000W	4800/24000/48000W	5400/27000/54000W	6000/30000/60000W
	Resolution	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	400/2000/4000mW	400/2000/4000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	2mA/us-3.6A/us (210A) 10mA/us-18A/us (1050A) 20mA/us-36A/us (2100A)	2mA/us-3.6A/us (240A) 10mA/us-18A/us (1200A) 20mA/us-36A/us (2400A)	2mA/us-3.6A/us (240A) 10mA/us-18A/us (1200A) 20mA/us-36A/us (2400A)	2mA/us-3.6A/us (240A) 10mA/us-18A/us (1200A) 20mA/us-36A/us (2400A)	2mA/us-3.6A/us (240A) 10mA/us-18A/us (1200A) 20mA/us-36A/us (2400A)	2mA/us-3.6A/us (240A) 10mA/us-18A/us (1200A) 20mA/us-36A/us (2400A)
	Resolution	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us
Specification	Dimensions	610 mm×1410 mm ×800 mm (W×H×D)	610 mm×1410 mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1940 mm ×800 mm (W×H×D)	610 mm×1720 mm ×800 mm (W×H×D)
	Weight	205kg	231kg	272kg	298kg	435kg	469kg

Any changes to the above parameter specifications will not be notified separately.

Specifications

Model		AN23602E -1200-80(F)	AN23603E -1200-120(F)	AN23604E -1200-160(F)	AN23605E -1200-200(F)	AN23606E -1200-240(F)	AN23608E -1200-320(F)
Working range	Voltage	0-1200V					
	Current	0-80A	0-120A	0-160A	0-200A	0-240A	0-320A
	Power	2kW	3kW	4kW	5kW	6kW	8kW
Minimum working voltage		20V@80A	20V@120A	20V@160A	20V@200A	20V@240A	20V@320A
Constant current loading	Range	8/40/80A	12/60/120A	16/80/160A	20/100/200A	24/120/240A	32/160/320A
	Resolution	0.1/0.5/1mA	0.1/0.5/1mA	0.2/1/2mA	0.2/1/2mA	0.2/1/2mA	0.4/2/4mA
	Accuracy	0.04%+0.06%F.S.					
Constant voltage loading	Range	150/600/1200V					
	Resolution	1/5/10mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	0.3Ω-3kΩ(150V) 1.2Ω-12kΩ(600V) 30Ω-60kΩ(1200V)	0.2Ω-2kΩ(150V) 0.8Ω-8kΩ(600V) 20Ω-40kΩ(1200V)	0.15Ω-1.5kΩ(150V) 0.6Ω-6kΩ(600V) 15Ω-30kΩ(1200V)	0.1Ω-1kΩ(150V) 0.4Ω-4kΩ(600V) 10Ω-20kΩ(1200V)	0.1Ω-1kΩ(150V) 0.4Ω-4kΩ(600V) 10Ω-20kΩ(1200V)	75mΩ-0.75kΩ(150V) 0.3Ω-3kΩ(600V) 7.5Ω-15kΩ(1200V)
	Resolution	1mA/Vsense	1mA/Vsense	2mA/Vsense	2mA/Vsense	2mA/Vsense	4mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	200/1000/2000W	300/1500/3000W	400/2000/4000W	500/2500/5000W	600/3000/6000W	800/4000/8000W
	Resolution	5/20/50mW	5/20/50mW	10/50/100mW	10/50/100mW	10/50/100mW	20/100/200mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	0.1mA/us-0.4A/us (8A) 0.5mA/us-2A/us (40A) 1mA/us-4A/us (80A)	0.1mA/us-0.6A/us (12A) 0.5mA/us-3A/us (60A) 1mA/us-6A/us (120A)	0.2mA/us-0.8A/us (16A) 1mA/us-4A/us (80A) 2mA/us-8A/us (160A)	0.2mA/us-1A/us (20A) 1mA/us-5A/us (100A) 2mA/us-10A/us (200A)	0.2mA/us-1.2A/us (24A) 1mA/us-6A/us (120A) 2mA/us-12A/us (240A)	0.4mA/us-1.2A/us (32A) 2mA/us-6A/us (160A) 4mA/us-12A/us (320A)
	Resolution	0.1/0.5/1mA/us	0.1/0.5/1mA/us	0.2/1/2mA/us	0.2/1/2mA/us	0.2/1/2mA/us	0.4/2/4mA/us
Specification	Dimensions	426mm×177mm×600mm(W×H×D), The height can be increased by 201mm with detachable feet					426 mm×400 mm ×650 mm (W×H×D)
	Weight	24.5kg	29.5kg	29.5kg	35kg	35kg	61kg

Any changes to the above parameter specifications will not be notified separately.

Model		AN23610E -1200-400(F)	AN23612E -1200-480(F)	AN23615E -1200-600(F)	AN23618E -1200-720(F)	AN23620E -1200-800(F)	AN23624E -1200-960(F)
Working range	Voltage	0-1200V					
	Current	0-400A	0-480A	0-600A	0-720A	0-800A	0-960A
	Power	10kW	12kW	15kW	18kW	20kW	24kW
Minimum working voltage		20V@400A	20V@480A	20V@600A	20V@720A	20V@800A	20V@960A
Constant current loading	Range	40/200/400A	48/240/480A	60/300/600A	72/360/720A	80/400/800A	96/480/960A
	Resolution	0.4/2/4mA	0.5/2/5mA	0.5/2/5mA	0.5/2/5mA	1/5/10mA	1/5/10mA
	Accuracy	0.04%+0.06%F.S.					
Constant voltage loading	Range	150/600/1200V					
	Resolution	1/5/10mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	50mΩ-0.5kΩ(150V) 0.2Ω-2kΩ(600V) 5Ω-10kΩ(1200V)	50mΩ-0.5kΩ(150V) 0.2Ω-2kΩ(600V) 5Ω-10kΩ(1200V)	34mΩ-0.34kΩ(150V) 0.14Ω-1.34kΩ(600V) 3.34Ω-6.67kΩ(1200V)	34mΩ-0.34kΩ(150V) 0.14Ω-1.34kΩ(600V) 3.34Ω-6.67kΩ(1200V)	25mΩ-0.25kΩ(150V) 0.1Ω-1kΩ(600V) 2.5Ω-5kΩ(1200V)	25mΩ-0.25kΩ(150V) 0.1Ω-1kΩ(600V) 2.5Ω-5kΩ(1200V)
	Resolution	4mA/Vsense	5mA/Vsense	5mA/Vsense	5mA/Vsense	10mA/Vsense	10mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	1000/5000/10000W	1200/6000/12000W	1500/7500/15000W	1800/9000/18000W	2000/10000/20000W	2400/12000/24000W
	Resolution	20/100/200mW	20/100/200mW	40/200/400mW	40/200/400mW	100/500/1000mW	100/500/1000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	0.4mA/us-1.4A/us (40A) 2mA/us-7A/us (200A) 4mA/us-14A/us (400A)	0.4mA/us-1.6A/us (48A) 2mA/us-8A/us (240A) 4mA/us-16A/us (480A)	0.5mA/us-1.8A/us (60A) 2mA/us-9A/us (300A) 5mA/us-18A/us (600A)	0.5mA/us-2A/us (72A) 2mA/us-10A/us (360A) 5mA/us-20A/us (720A)	1mA/us-2.2A/us (80A) 5mA/us-11A/us (400A) 10mA/us-22A/us (800A)	1mA/us-2.4A/us (96A) 5mA/us-12A/us (480A) 10mA/us-24A/us (960A)
	Resolution	0.4/2/4mA/us	0.4/2/4mA/us	0.5/2/5mA/us	0.5/2/5mA/us	1/5/10mA/us	1/5/10mA/us
Specification	Dimensions	426 mm×400 mm ×650 mm(W×H×D)		426 mm×532 mm ×650 mm(W×H×D)		426 mm×665 mm ×650 mm(W×H×D)	
	Weight	66.5kg	72kg	92.5kg	98kg	113kg	124kg

Any changes to the above parameter specifications will not be notified separately.

Specifications

Model		AN23630E -1200-1200(F)	AN23636E -1200-1440(F)	AN23642E -1200-1680(F)	AN23648E -1200-1920(F)	AN23654E -1200-2160(F)	AN23660E -1200-2400(F)
Working range	Voltage	0-1200V					
	Current	0-1200A	0-1440A	0-1680A	0-1920A	0-2160A	0-2400A
	Power	30kW	36kW	42kW	48kW	54kW	60kW
Minimum working voltage		20V@1200A	20V@1440A	20V@1680A	20V@1920A	20V@2160A	20V@2400A
Constant current loading	Range	120/600/1200A	144/720/1440A	168/840/1680A	192/960/1920A	216/1080/2160A	240/1200/2400A
	Resolution	1/5/10mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA	2/10/20mA
	Accuracy	0.04%+0.06%F.S.					
Constant voltage loading	Range	150/600/1200V					
	Resolution	1/5/10mV					
	Accuracy	0.025%+0.025%F.S.					
Constant resistance load	Range	20mΩ-0.2kΩ(150V) 80mΩ-0.8kΩ(600V) 2Ω-4kΩ(1200V)	17mΩ-0.17kΩ(150V) 67mΩ-0.67kΩ(600V) 1.67Ω-3.33kΩ(1200V)	14mΩ-0.14kΩ(150V) 57mΩ-0.57kΩ(600V) 1.43Ω-2.86kΩ(1200V)	13mΩ-0.13kΩ(150V) 50mΩ-0.5kΩ(600V) 1.25Ω-2.5kΩ(1200V)	11mΩ-0.11kΩ(150V) 44mΩ- 0.44kΩ(600V) 1.11Ω-2.22kΩ(1200V)	10mΩ-0.1kΩ(150V) 40mΩ-0.4kΩ(600V) 1Ω-2kΩ(1200V)
	Resolution	10mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense	20mA/Vsense
	Accuracy	Vin/Rset*(0.2%)+0.2%IF.S.					
Constant power loading	Range	3000/15000/30000W	3600/18000/36000W	4200/21000/42000W	4800/24000/48000W	5400/27000/54000W	6000/30000/60000W
	Resolution	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	200/1000/2000mW	400/2000/4000mW	400/2000/4000mW
	Accuracy	0.2%+0.2%F.S.					
Current change rate	Setting range	1mA/us-2.4A/us (120A) 5mA/us-12A/us (600A) 10mA/us-24A/us (1200A)	2mA/us-2.4A/us (144A) 10mA/us-12A/us (720A) 20mA/us-24A/us (1440A)	2mA/us-2.4A/us (168A) 10mA/us-12A/us (840A) 20mA/us-24A/us (1680A)	2mA/us-2.4A/us (192A) 10mA/us-12A/us (960A) 20mA/us-24A/us (1920A)	2mA/us-2.4A/us (216A) 10mA/us-12A/us (1080A) 20mA/us-24A/us (2160A)	2mA/us-2.4A/us (240A) 10mA/us-12A/us (1200A) 20mA/us-24A/us (2400A)
	Resolution	1/5/10mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us	2/10/20mA/us
Specification	Dimensions	610 mm×1410mm ×800 mm (W×H×D)	610 mm×1410mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1762 mm ×800 mm (W×H×D)	610 mm×1940 mm ×800 mm (W×H×D)	610 mm×1720 mm ×800 mm (W×H×D)
	Weight	205kg	231kg	272kg	298kg	435kg	469kg

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Model		Common Parameters		
Voltage		150V	600V	1200V
Composite Impedance	Range	LS: 0.1uH~20uH RS: 30mΩ~20Ω CL: 30uF~50000uF RL: Consistent with CR mode high grade		
	Resolution	LS: 0.1uH RS: 1 mΩ CL: 1uF RL: Consistent with CR mode high grade		
LED Test	Range	coeff: 0.01~1		
Battery Test	Discharge Time	1s~100000s		
	Resolution	1s		
Current Dynamics	T1&T2	0.020~99.999ms/100ms~99999ms		
	Resolution	1us/1ms		
	Accuracy	2us+100ppm		
	Minimum Rise Time	10us(Typical)	20us(Typical)	20us(Typical)
Current Measurement	Range, Resolution	Same as current loading		
	Accuracy	0.04%+0.04%F.S.		0.04%+0.06%F.S.
Voltage Measurement	Range, Resolution	Same as voltage loading		
	Accuracy	0.015%+0.015%F.S.		
	Input Resistance	800kΩ(Typical)	1MΩ(Typical)	2MΩ(Typical)
Power Measurement	Range, Resolution	Same as power loading		
	Accuracy	0.1%+0.1%IF.S.*UF.S.		
Operating Temperature, Humidity		0 ~ 40℃, 20-90%RH		
Temperature Coefficient		100ppm/℃(Typical)		

Any changes to the above parameter specifications will not be notified separately.