Faith

Power Electronics Testing Instrument Manufacturer

Product Catalogue 2021

E-load / DC Source / AC Source / ATE

Company Introduction

Faithtech CO., LTD. manufactures high quality DC power supply and electronic load products to suit comprehensive applications. Faithtech products are providing consistent, accurate, and efficient measurements to the world's leading R&D labs, factory production lines, etc.. Faithtech CO., LTD. is a Hi-Tech corporation. Founded in 2002, Faithtech has passed ISO9001:2000 certification and obtained dozens of invention patents and other intellectual property rights.

Shenzhen Faithtech CO., LTD.

ADD: 3C, Building 1, Saitu Digital Industrial Park, No.137 Bulan Road, Longgang District, Shenzhen, China

Tel: (0086) 400-616-0086

Web: www.faithtech.cn

Email: ke.huang@faithtech.cn Cell: 008615813881662 Skype: aaesmart

Product catalogue 2021

Programmable Switching DC Power Supplies

FTP3000 Series Wide Output Range (900 W, 1500 W; 40...600 V)

FTP Series Wide Output Range (2 kW, 3.2 kW, 6.5 kW; 40...1500 V)

FTG Series Modular High Current (4 kW...600 kW, 10...1500 V)

FTP9000 Sereis Wide Output Range (5 kW...180 kW, 80...2250 V)

FTL Series **Linear** and Switching (90 W...900 W; 18...500 V)

Tripple-output FTL **Linear** series (30V/3A * 3CH, 30V/6A * 3CH, 60V/3A * 3CH)

Multi Channel Battery Cell Simulator FT8330 Series (6V/1A or 6V/2A, 24-CH)

FTP-C, FTH-C Series with Auto Waveform (2 kW or above, 40/80/600/1000 V)

Programmable DC Electronic Loads

FT6200A Series (150 W, 300 W)

FT6300A Series (150 W, 300 W, 600 W)

FT6400A Series (1200 W, 2000 W, 3000 W)

FT68200A/E Series (6 kW...60 kW)

FT6100 Series (45W * 12CH, 150W * 12CH, 300W * 6CH, 600W * 3CH)

FT6110 Series (150W * 8CH, 300W * 4CH, 600W * 2CH)

FT66100 Series (300W * 6CH, 600W * 3CH)

FTP3000 Power Supply (900 W, 1500 W)

Programmable DC Power Supply

FTP3009-150-20 900W/150V/20A

- Output voltages: 40 V, 80 V, 150 V, 300 V, 600 V;
- Output current: 5 A, 10 A, 20 A, 40 A, 80 A;
- Output power: 900 W, 1500 W;
- Wider voltage and current output range with constant power;
- 0.1%+0.1%F.S. and 0.1%+0.2%F.S. accuracy for voltage and current measurement respectively;
- 20 user programmable sequence files, each support up to 20 steps;
- 1ms typical transient response, Voltage & current slew rate control;
- CV / CC priority start (prevents voltage or current overshoot with output ON);
- Internal resistance simulating, voltage remote sense compensation;
- Optional analog programming & monitoring interface;
- ±OVP, ±OCP, ±OPP, OTP, ±LVP, foldback protection, as well as voltage / current limit;
- Standard RS232, LAN, optional GPIB and CAN ports;
- SCPI and ModBus RTU protocol;
- TFT color LCD display.

General

FTP3000 series DC power supplies provide wider voltage and current output range at full power, this means both low voltage/high current and high voltage/low current devices can be tested using a single power supply. The FTP3000 series adopt 1/2 2U chassis design, with output power 900 W or 1500 W, output voltage ranges from 40 V to 600 V, and output current ranges from 5 A to 80 A.

The FTP3000 series provide accurate output, fast transient response, low ripple noise, excellent line and load regulation, fast and precise programmability. With 4.3-inch color TFT screen, full keypad and rotary knob, convenient for benchtop users. In addition, this series offer standard LAN and RS232 interfaces support both SCPI and Modbus protocol, which is ideal for automated test systems.

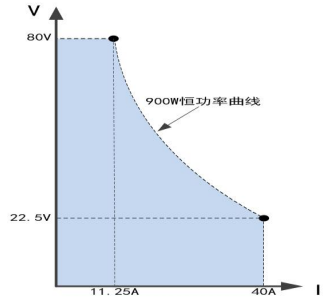
Furthermore, the FTP3000 series come standard with user programmable sequence, CV or CC priority start, CV-to-CC or CC-to-CV foldback and built-in test routines for battery internal resistance simulation, etc., to name a few.

AC input

All models are provided with an active Power Factor Correction (PFC) circuit and designed for a usage in single-phase 190 VAC ~ 265 VAC input, power factor 0.98, power supply efficiency is larger than 90%.

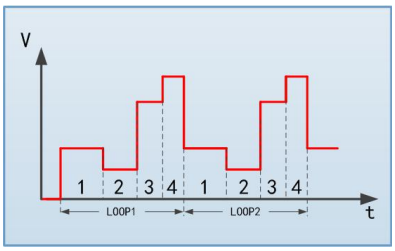
Wide operating region with constant power

All models provides wide range of output voltage & current within the power rating of the power supply, this means both low voltage/high current and high voltage/low current DUTs can be tested using a single supply avoiding the need for multiple power supplies.



Programmable sequence

All models provides users with a programmable sequence function, which can simulate power supply interruptions, instantaneous drops, and other voltage and current changes. The sequence feature allows users to program a list of steps to the power supply's internal memory and execute them. A total of 20 steps can be allocated to each internal memory location, up to a maximum of 20 locations (sequences). The test sequence can be programmed locally through the keypad and rotary knob. Test sequences can be linked, as well as configured for single or repeated execution. Each steps' settings include voltage, current, duration, and duration time range is 1 ms...86400 s.

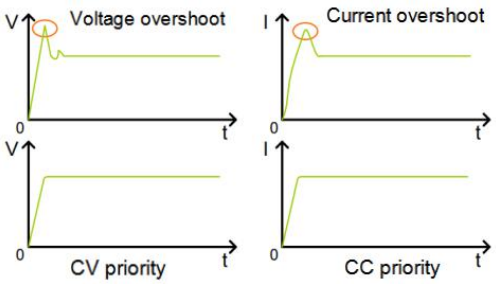


Internal resistance simulating

All models can simulate the output characteristic of battery by setting the internal resistance. When the output current of the power supply increases, the output voltage will be adjusted automatically according to the preset internal resistance value.

CV / CC priority

When power supply is connected to an inductive or capacitive load, it will cause voltage or current overshoot, which may trigger the protection of the device under test, or even cause the device under test to be damaged in severe cases. This series power supply provides CC priority and CV priority function, which forces the power supply to operate in CC or CV mode at the moment the output is turned on, effectively avoids the current or voltage overshoot resulted from capacitive or inductive load.



Optional analog programming and monitoring interface

In addition to front panel and remote interface control, there is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current from 0...100%F.S. through control voltages of 0 V...5 V. To monitor the output voltage and current, there are analog outputs with 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status. The controlling speed of analog programming is 1000 points per second.

Protective features

For protection of the equipment connected, the series provide programmable protection functions such as OVP, OCP, OPP and LVP. Moreover, there are built-in hardware protection functions OV, OC, OP and OTP. If a protection is triggered, the DC output will be shut off immediately and a status signal will be prompt on the display and via the interfaces. Similarly, foldback protection is used to disable the output when a transition is made between the CC and CV operating modes. The DC output will be shut off and locked in foldback mode after a specified delay if the power supply transitions into CV or CC mode, depending on the foldback mode settings. This feature is particularly useful for protecting current or voltage sensitive loads.

Digital interfaces

All models features two galvanically isolated digital interfaces by default, these are standard RS232 and LAN (optional GPIB, CAN interfaces). LAN and RS232 can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported, with CAN only CANopen is supported.

FTP3000 Series (900 W, 1500 W)

Control software

The series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Options

Anti backflow current module;
Digital interface modules for GPIB, CAN, CANopen;
Analog programming and monitoring interface.

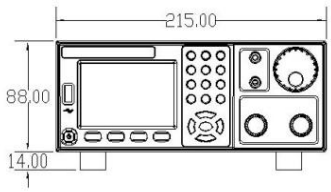
Model options

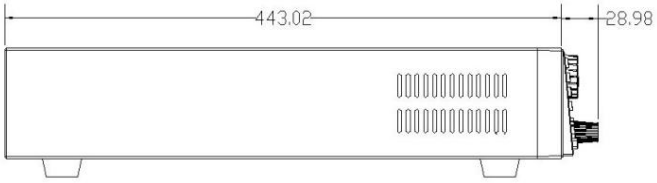
Voltage	Model	Current	Power	Voltage	Model	Current	Power
40V	FTP3009-40-80	80A	900W	80V	FTP3009-80-40	40A	900W
	FTP3015-40-80	80A	1500W		FTP3015-80-40	40A	1500W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
150V	FTP3009-150-20	20A	900W	300V	FTP3009-300-10	10A	900W
	FTP3015-150-20	20A	1500W		FTP3015-300-10	10A	1500W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
600V	FTP3009-600-5	5A	900W	--	--	--	--
	FTP3015-600-5	5A	1500W				

Optional accessories table 1

Item	Model name or specs	Notes
Analog interface	Model name ends with Suffix "F"	
Anti backflow current module	Model name ends with Suffix "D"	Excludes 40V model
CAN interface	Model name ends with Suffix "R"	
GPIB interface	FT7130	RS232 to GPIB

Dimension





Specifications					
Model	FTP3009-40-80	FTP3009-80-40	FTP3009-150-20	FTP3009-300-10	FTP3009-600-5
Voltage	0～40V	0～80V	0～150V	0～300V	0～600V
Current	0～80A	0～40A	0～20A	0～10A	0～5A
Power	900W				
Model	FTP3015-40-80	FTP3015-80-40	FTP3015-150-20	FTP3015-300-10	FTP3015-600-5
Voltage	0～40V	0～80V	0～150V	0～300V	0～600V
Current	0～80A	0～40A	0～20A	0～10A	0～5A
Power	1500W				

FTP3000 Series (900 W, 1500 W)

Voltage programming					
Resolution	16Bits				
Accuracy	0.1%+0.1%F.S.				
Current programming					
Resolution	16Bits				
Accuracy	0.1%+0.2% F.S.				
External analog programming					
Control voltage	0～5V corresponds to 0～100%F.S.				
Voltage accuracy	0.2%F.S.				
Current accuracy	0.5%F.S.				
Analog output					
Output voltage	0～100%F.S. corresponds to 0～5V.				
Voltage accuracy	0.5%F.S.				
Current accuracy	0.5%F.S.				
Line regulation					
Voltage	0.01%+0.01%F.S.				
Current	0.02%+0.01%F.S.				
Load regulation					
Voltage	0.01%+0.05%F.S.				
Current	0.02%+0.1%F.S.				
Voltage measurement					
Resolution	16Bits				
Accuracy	0.1%+0.1%F.S.				
Current measurement					
Resolution	16Bits				
Accuracy	0.1%+0.2%F.S.				
Output noise & ripple					
Ripple Vpp	40mV	60mV	80mV	150mV	300mV
Ripple Vrms	10mV	20mV	20mV	30mV	60mV
Slew rate					
Voltage	5V/ms(max)				
Current	2A/ms(max)				
OVP setting					
Range	0～110%F.S.				
Accuracy	1%F.S.				
Transient response	Typical 1ms, voltage recover to the designed accuracy after a 50% change of load				
Efficiency	0.9(Typical)				
Communication	RS232, LAN				
INPUT	190VAC～265VAC, 47Hz～63Hz, PF: 0.99(Typical)				
Working temp	0℃～40℃				
Storage temp	-20℃～70℃				
Altitude	＜2000m				
Size	215 (W)×88(H)×452.5(D)mm				
Weight	7kg				

FTP Power Supply (2 kW, 3.2 kW, 6.5 kW)

Programmable DC Power Supply

FTP020-80-60 2 kW/80V/60A (2U)

- Output voltage: 40 V up to 1500 V;
- Output current: 3.5 A up to 240 A;
- Output power: 2 / 3.2 / 6.5 kW;
- Wider voltage and current output range with constant power;
- Easy Master-Slave parallel or serial of up to 5 identical units;
- 0.1%+0.1%F.S. and 0.1%+0.2%F.S. accuracy for voltage and current measurement respectively;
- 20 user programmable sequence files, each support up to 20 steps;
- 1ms typical transient response, Voltage & current slew rate control;
- CV / CC priority start (prevents voltage or current overshoot with output ON);
- Remote sense compensation;
- Optional analog programming & monitoring interface;
- ±OVP, ±OCP, ±OPP, OTP, ±LVP, foldback protection, as well as voltage / current limit;
- Standard LAN, RS232, optional GPIB interface;
- SCPI and ModBus RTU protocol;
- TFT color LCD display.

General

FTP series DC power supplies provide wider voltage and current output range at full power, this means both low voltage/high current and high voltage/low current devices can be tested using a single power supply. The FTP series adopt 2U chassis for 2 kW and 3.2 kW mode, and 4U chassis for 6.5 kW model. The output voltage ranges from 40 V to 1500 V, and output current up to 240 A. Furthermore, FTP series allow for master-slave parallel or serial connection of up to 5 identical units to extend the output range.

The FTP series provide accurate output, fast transient response, low ripple noise, excellent line and load regulation, fast and precise programmability. With 4.3-inch color TFT screen, full keypad and rotary knob, convenient for benchtop users. In addition, this series offer standard LAN and RS232 interfaces support both SCPI and Modbus protocol, which is ideal for automated test systems.

Furthermore, the FTP series come standard with user programmable sequence, CV or CC priority start, CV-to-CC or CC-to-CV foldback, etc., to name a few.

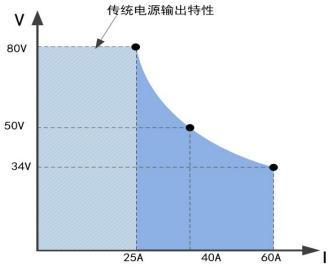
FTP Series (2 kW, 3.2 kW, 6.5 kW)

AC input

All models are provided with an active Power Factor Correction (PFC) circuit and designed for a usage in single-phase 190 VAC ~ 265 VAC input, power factor 0.98, power supply efficiency is larger than 90%.

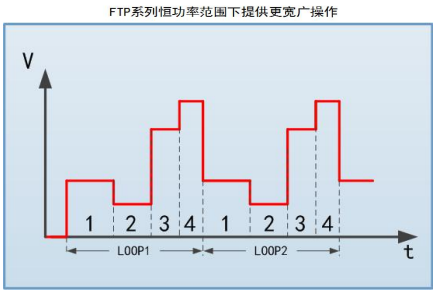
Wide operating region with constant power

FTP series power supply provides wide range of output voltage & current within the power rating of the power supply, this means both low voltage/high current and high voltage/low current DUTs can be tested using a single supply avoiding the need for multiple power supplies.



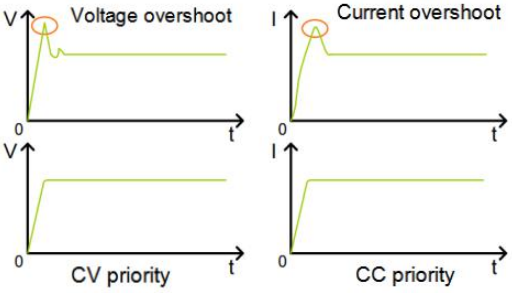
Programmable sequence

All models provides users with a programmable sequence function, which can simulate power supply interruptions, instantaneous drops, and other voltage and current changes. The sequence feature allows users to program a list of steps to the power supply's internal memory and execute them. A total of 20 steps can be allocated to each internal memory location, up to a maximum of 20 locations (sequences). The test sequence can be programmed locally through the keypad and rotary knob. Test sequences can be linked, as well as configured for single or repeated execution. Each steps' settings include voltage, current, duration, and duration time range is 1 ms...86400 s.



CV / CC priority

When power supply is connected to an inductive or capacitive load, it will cause voltage or current overshoot, which may trigger the protection of the device under test, or even cause the device under test to be damaged in severe cases. This series power supply provides CC priority and CV priority function, which forces the power supply to operate in CC or CV mode at the moment the output is turned on, effectively avoids the current or voltage overshoot resulted from capacitive or inductive load.



Optional analog programming and monitoring interface

In addition to front panel and remote interface control, there is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current from 0...100% through control voltages of 0 V...10 V or 0 V...5 V. To monitor the output voltage and current, there are analog outputs with 0 V...10 V or 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status. The controlling speed of analog programming is 1000 points per second.

Protective features

For protection of the equipment connected, the series provide programmable protection functions such as OVP, OCP, OPP and LVP. Moreover, there are built-in hardware protection function OTP. If a protection is triggered, the DC output will be shut off immediately and a status signal will be prompt on the display and via the interfaces. Similarly, foldback protection is used to disable the output when a transition is made between the CC and CV operating modes. The DC output will be shut off and locked in foldback mode after a specified delay if the power supply transitions into CV or CC mode, depending on the foldback mode settings. This feature is particularly useful for protecting current or voltage sensitive loads.

Master-slave parallel or serial operation

The FTP series support master-slave parallel or series operation of up to 5 identical units. Parallel / series operation expands the output range of the power supply, greatly enhances the application area of the FTP power supply. Allowed maximum output voltage is 600V for series operation. Parallel and serial operation can not be mixed. When in serial operation, please plug out all current sharing cable, otherwise the power supply may be damaged.

Digital interfaces

All models features two galvanically isolated digital interfaces by default, these are standard LAN and USB (optional GPIB interface). USB, LAN can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported.

FTP Series (2 kW, 3.2 kW, 6.5 kW)

Control software

The series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Options

Automobile waveform;
GPIB interface;
Analog programming and monitoring interface;
Anti backflow current module.

Model options

Voltage	Model	Current	Power	Voltage	Model	Current	Power
40V	FTP020-40-120	120A	2kW	50V	FTP020-50-110	110A	2kW
	FTP032-40-120	120A	3.2kW		FTP032-50-110	110A	3.2kW
	FTP065-40-240	240A	6.5kW		FTP065-50-220	220A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
80V	FTP020-80-60	60A	2kW	120V	FTP020-120-40	40A	2kW
	FTP032-80-60	60A	3.2kW		FTP032-120-40	40A	3.2kW
	FTP065-80-120	120A	6.5kW		FTP065-120-80	80A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
160V	FTP020-160-30	30A	2kW	300V	FTP020-300-16	16A	2kW
	FTP032-160-30	60A	3.2kW		FTP032-300-16	16A	3.2kW
	FTP065-160-60	60A	6.5kW		FTP065-300-32	32A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
400V	FTP020-400-12	12A	2kW	600V	FTP020-600-8	8A	2kW
	FTP032-400-12	12A	3.2kW		FTP032-600-8	8A	3.2kW
	FTP065-400-24	24A	6.5kW		FTP065-600-16	16A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
800V	FTP020-800-8	8A	2kW	1000V	FTP020-1000-5	5A	2kW
	FTP032-800-8	8A	3.2kW		FTP032-1000-5	5A	3.2kW
	FTP065-800-16	16A	6.5kW		FTP065-1000-10	10A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
1200V	FTP020-1200-5	5A	2kW	1500V	FTP020-1500-3.5	3.5A	2kW
	FTP032-1200-5	5A	3.2kW		FTP032-1500-3.5	3.5A	3.2kW
	FTP065-1200-10	10A	6.5kW		FTP065-1500-7	7A	6.5kW

Optional accessories table 1

Item	Type or specifications	Notes
GPIB interface	FT7130	RS232 to GPIB
Composite signal port	Model name ends with Suffix “F”	
Anti backflow current	Model name ends with Suffix “D”	FT7130
Automobile waveform test	Model name ends with Suffix “C”	

Optional accessories table 2: High current test cable matching table

Specification	DC2-2P15M	DC16-2P20M	DC25-2P25M	DC50-2P20M	DC50-2P40M	DC120-2P20M	DC150-2P20M
Max voltage	750V						
Max current	10A	60A	100A	200A	200A	300A	400A
Terminal	M8/Alligator	M8/M8	M8/M8	M8/M8	M8/M8	M8/M8	M10/M10
Cross-sectional area	4.0mm²	16mm²	25mm²	50mm²	50mm²	120mm²	150mm²
Length	~1.5m	~2m	~2m	~2m	~4m	~2m	~2m
Shape							

Specification table 1						
Model	FTP020-40-120	FTP020-50-110	FTP020-80-60	FTP020-120-40	FTP020-160-30	FTP020-300-16
Voltage	0～40V	0～50V	0～80V	0～120V	0～160V	0～300V
Current	0～120A	0～110A	0～60A	0～40A	0～30A	0～16A
Power	2000W					
Model	FTP032-40-120	FTP032-50-110	FTP032-80-60	FTP032-120-40	FTP032-160-30	FTP032-300-16
Voltage	0～40V	0～50V	0～80V	0～120V	0～160V	0～300V
Current	0～120A	0～110A	0～60A	0～40A	0～30A	0～16A
Power	3200W					
Model	FTP065-40-240	FTP065-50-220	FTP065-80-120	FTP065-120-80	FTP065-160-60	FTP065-300-32
Voltage	0～40V	0～50V	0～80V	0～120V	0～160V	0～300V
Current	0～240A	0～220A	0～120A	0～80A	0～60A	0～32A
Power	6500W					
Voltage programming						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current programming						
Resolution	16Bits					
Accuracy	0.1%+0.3%F.S.		0.1%+0.2% F.S.			
External analog programming						
Control voltage	0～5V or 0～10V corresponds to 0～100%F.S.					
Voltage accuracy	0.2%F.S.					
Current accuracy	0.5%F.S.					
Analog output						
Output voltage	0～100%F.S. corresponds to 0～10V.					
Voltage accuracy	0.5%F.S.					
Current accuracy	0.5%F.S.					
Line regulation						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.01%F.S.					
Load regulation						
Voltage	0.01%+0.05%F.S.		0.01%+0.01%F.S.			
Current	0.02%+0.1%F.S.					

FTP Series (2 kW, 3.2 kW, 6.5 kW)

Voltage measurement						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current measurement						
Resolution	16Bits					
Accuracy	0.1%+0.3%F.S.		0.1%+0.2%F.S.			
Ripple noise						
Ripple Vpp	60mV	70mV	80mV	80mV	100mV	100mV
Ripple Vrms	20mV	20mV	20mV	20mV	40mV	40mV
Rise slew rate						
Voltage	5V/ms(max)					
Current	2A/ms(max)					
OVP Setting						
Range	0～110%F.S.					
Accuracy	1%F.S.					
Transient	Typical 1ms					
Efficiency	0.9(Typical)					
Parallel/Serial	Support master-slave parallel and serial operation					
Communication	RS232 and LAN					
AC input	190VAC～265VAC, 47Hz～63Hz, PF: 0.98(Typical)					
Operation temp	0℃～40℃					
Storage temp	-20℃～70℃					
Altitude	＜2000m					
Dimension	430(W)×88(H)×453(D)mm (2kW&3.2kW model); 430(W)×177(H)×503(D)mm (6.5kW model)					
Weight	15kg(2kW&3.2kW model); 29kg(6.5kW model)					

Specification table 2						
Model	FTP020-400-12	FTP020-600-8	FTP020-800-8	FTP020-1000-5	FTP020-1200-5	FTP020-1500-3.5
Voltage	0～400V	0～600V	0～800V	0～1000V	0～1200V	0～1500V
Current	0～12A	0～8A	0～8A	0～5A	0～5A	0～3.5A
Power	2000W					
Model	FTP032-400-12	FTP032-600-8	FTP032-800-8	FTP032-1000-5	FTP032-1200-5	FTP032-1500-3.5
Voltage	0～400V	0～600V	0～800V	0～1000V	0～1200V	0～1500V
Current	0～12A	0～8A	0～8A	0～5A	0～5A	0～3.5A
Power	3200W					
Model	FTP065-400-24	FTP065-600-16	FTP065-800-16	FTP065-1000-10	FTP065-1200-10	FTP065-1500-7
Voltage	0～400V	0～600V	0～800V	0～1000V	0～1200V	0～1500V
Current	0～24A	0～16A	0～16A	0～10A	0～10A	0～7A
Power	6500W					
Voltage programming						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current programming						
Resolution	16Bits					

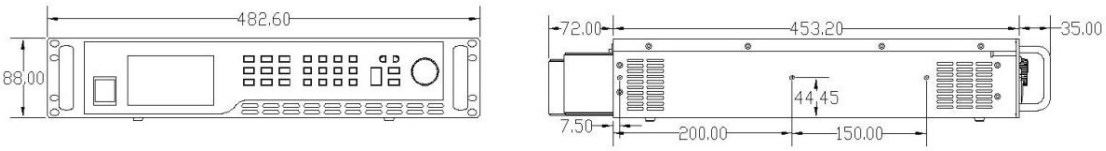
FTP Series (2 kW, 3.2 kW, 6.5 kW)

Accuracy	0.1%+0.2% F.S.					
External analog programming						
Control voltage	0～5V or 0～10V corresponds to 0～100%F.S.					
Voltage accuracy	0.2%F.S.					
Current accuracy	0.5%F.S.					
Analog output						
Output voltage	0～100%F.S. corresponds to 0～10V.					
Voltage accuracy	0.5%F.S.					
Current accuracy	0.5%F.S.					
Line regulation						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.01%F.S.					
Load regulation						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.1%F.S.					
Voltage measurement						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current measurement						
Resolution	16Bits					
Accuracy	0.1%+0.2%F.S.					
Ripple noise						
Ripple Vpp	300mV	300mV	500mV	450mV	500mV	700mV
Ripple Vrms	60mV	60mV	80mV	80mV	120mV	150mV
Rise slew rate						
Voltage	5V/ms(max)					
Current	2A/ms(max)					
OVP Setting						
Range	0～110%F.S.					
Accuracy	1%F.S.					
Transient	Typical 1ms					
Efficiency	0.9(Typical)					
Parallel/Serial	Support master-slave parallel and serial operation					
Communication	RS232 and LAN					
AC input	190VAC～265VAC, 47Hz～63Hz, PF: 0.98(Typical)					
Operation temp	0℃～40℃					
Storage temp	-20℃～70℃					
Altitude	＜2000m					
Dimension	430(W)×88(H)×453(D)mm(2kW&3.2kW model); 430(W)×177(H)×503(D)mm(6.5kW model)					
Weight	15kg(2kW&3.2kW model); 29kg(6.5kW model)					

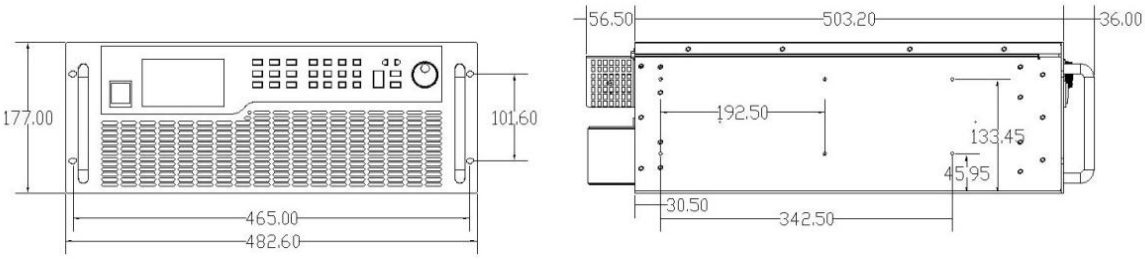
FTP Series (2 kW, 3.2 kW, 6.5 kW)

Dimension

2kW、3.2kW model dimension

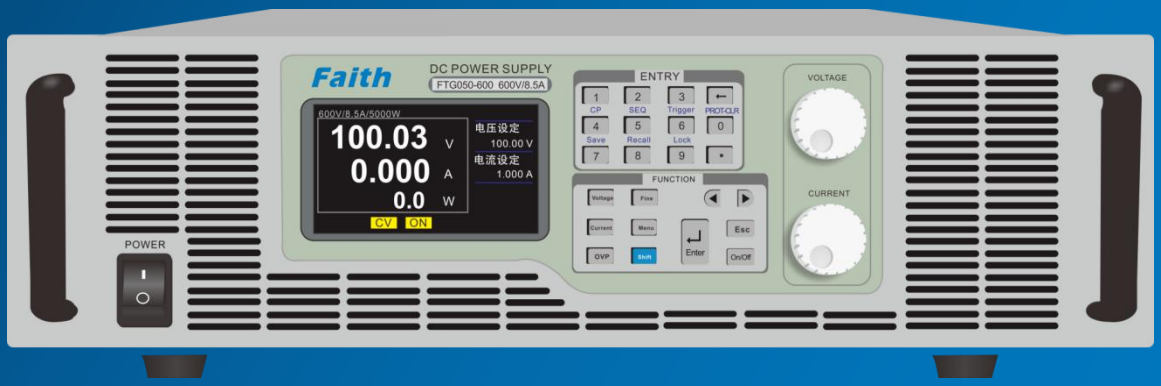


6.5kW model dimension



FTG Power Supply (4 kW...600 kW)

High-power Programmable DC Power Supply



FTG050-600　5 kW/600V/8.5A　（3U）

- Output voltage: 10 V up to 1500 V;
- Output current: 3.5 A to 12000 A;
- Output power: 4 kW up to 600 kW;
- 15 kW/3U high power density, constant power output;
- 0.1%+0.1%F.S. and 0.1%+0.2%F.S. accuracy for voltage and current measurement respectively;
- 10 user programmable sequence files, each support up to 100 steps;
- 1ms typical transient response, Voltage & current slew rate control;
- CV / CC priority start (prevents voltage or current overshoot with output ON);
- Internal resistance simulating, voltage remote sense compensation;
- Optional analog programming & monitoring interface;
- ±OVP, ±OCP, ±OPP, OTP, ±LVP, Foldback protection, as well as voltage / current limit;
- Standard LAN, RS232, optional GPIB ports;
- SCPI and ModBus RTU protocol;
- TFT color LCD display.

General

FTG series DC power supplies adopt modular architecture, which simplifies sparing and maintenance. The series offer a high power density, with 15 kW in a 3U chassis, output power ranges from 4 kW to 600 kW, voltage ranges from 10 V to 1500 V, and current up to 12000 A. Most importantly, its 10 V, 15V low voltage high current output makes it ideal for testing of sensors, superconducting materials, cables, etc..

The FTG series provide accurate output, fast transient response, low ripple noise, excellent line and load regulation, fast and precise programmability. With 4.3-inch color TFT screen, full keypad and rotary knob, convenient for benchtop users. In addition, this series offer standard LAN and RS232 interfaces support both SCPI and Modbus protocol, which is ideal for automated test systems.

Furthermore, the FTG series come standard with user programmable sequence, CV or CC priority start, CV-to-CC or CC-to-CV foldback and built-in test routines for battery internal resistance simulation, etc., to name a few. In conclusion, FTG series delivers unsurpassed quality with premium features at an affordable price, and models of large output power are provided in a convenient rack-mount cabinet with casters.

FTG Series (4 kW...600 kW)

AC input

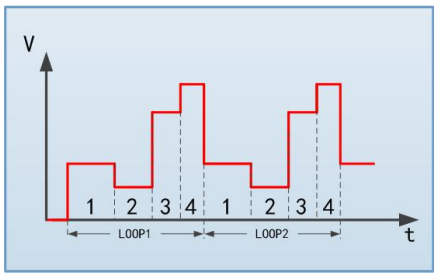
All models are designed for a usage in three-phase 340 VAC ~ 420 VAC input, power supply efficiency is larger than 87%.

15kW/3U high power density

The FTG series provides a high power density of 15kW/3U, with features such as accurate output, fast response, and low ripple noise.

Programmable sequence

All models provides users with a programmable sequence function, which can simulate power supply interruptions, instantaneous drops, and other voltage and current changes. The sequence feature allows users to program a list of steps to the power supply's internal memory and execute them. A total of 100 steps can be allocated to each internal memory location, up to a maximum of 10 locations (sequences). The test sequence can be programmed locally through the keypad and rotary knob. Test sequences can be linked, as well as configured for single or repeated execution. Each steps' settings include voltage current, duration, the duration time range is 1ms...86400 s.

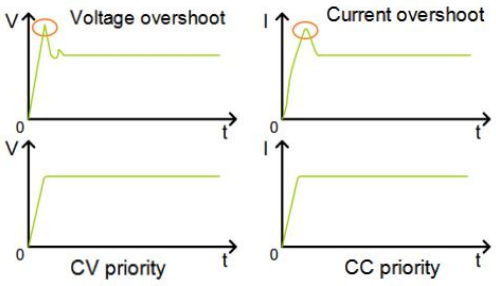


Internal resistance simulating

All models can simulate the output characteristic of battery by setting the internal resistance. When the output current of the power supply increases, the output voltage will be adjusted automatically according to the preset internal resistance value.

CV / CC priority

When power supply is connected to an inductive or capacitive load, it will cause voltage or current overshoot, which may trigger the protection of the device under test, or even cause the device under test to be damaged in severe cases. This series power supply provides CC priority and CV priority function, which forces the power supply to operate in CC or CV mode at the moment the output is turned on, effectively avoids the current or voltage overshoot resulted from capacitive or inductive load.



Optional analog programming and monitoring interface

In addition to front panel and remote interface control, there is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current from 0...100% through control voltages of 0 V...10 V or 0 V...5 V. To monitor the output voltage and current, there are analog outputs with 0 V...10 V or 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status. The controlling speed of analog programming is 1000 points per second.

Protective features

For protection of the equipment connected, the series provide programmable protection functions such as OVP, OCP, OPP and LVP. Moreover, there are built-in hardware protection function OTP. If a protection is triggered, the DC output will be shut off immediately and a status signal will be prompt on the display and via the interfaces. Similarly, foldback protection is used to disable the output when a transition is made between the CC and CV operating modes. The DC output will be shut off and locked in foldback mode after a specified delay if the power supply transitions into CV or CC mode, depending on the foldback mode settings. This feature is particularly useful for protecting current or voltage sensitive loads.

Digital interfaces

All models features two galvanically isolated digital interfaces by default, these are standard LAN and RS232 (optional GPIB interface). LAN and RS232 can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported.

FTG Series (4 kW...600 kW)

Control software

The series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Options

Digital interface modules for GPIB;
Analog programming and monitoring interface;
Anti backflow current module (Configurable for models of 50V or above).

Model options

* Other voltage range models such as 75V/80V/120V/150V/200V are not listed.
* Models with rated power larger than 120kW are not listed.

Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
10V	FTG040-010	400A	4kW	15V	FTG045-015	300A	4.5kW	20V	FTG050-020	250A	5kW
	FTG080-010	800A	8kW		FTG090-015	600A	9kW		FTG100-020	500A	10kW
	FTG120-010	1200A	12kW		FTG135-015	900A	13.5kW		FTG150-020	750A	15kW
	FTG160-010	1600A	16kW		FTG180-015	1200A	18kW		FTG200-020	1000A	20kW
	FTG200-010	2000A	20kW		FTG225-015	1500A	22.5kW		FTG250-020	1250A	25kW
	FTG240-010	2400A	24kW		FTG270-015	1800A	27kW		FTG300-020	1500A	30kW
	FTG360-010	3600A	36kW		FTG405-015	2700A	40.5kW		FTG450-020	2250A	45kW
	FTG480-010	4800A	48kW		FTG540-015	3600A	54kW		FTG600-020	3000A	60kW
	FTG600-010	6000A	60kW		FTG675-015	4500A	67.5kW		FTG900-020	4500A	90kW
	FTG1200-010	12000A	120kW		FTG1080-015	7200A	108kW		FTG1200-020	6000A	120kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
30V	FTG050-030	167A	5kW	40V	FTG050-040	125A	5kW	50V	FTG050-050	100A	5kW
	FTG100-030	334A	10kW		FTG100-040	250A	10kW		FTG100-050	200A	10kW
	FTG150-030	500A	15kW		FTG150-040	375A	15kW		FTG150-050	300A	15kW
	FTG200-030	667A	20kW		FTG200-040	500A	20kW		FTG200-050	400A	20kW
	FTG250-030	833.5A	25kW		FTG250-040	625A	25kW		FTG250-050	500A	25kW
	FTG300-030	1000A	30kW		FTG300-040	750A	30kW		FTG300-050	600A	30kW
	FTG450-030	1500A	45kW		FTG450-040	1125A	45kW		FTG450-050	900A	45kW
	FTG600-030	2000A	60kW		FTG600-040	1500A	60kW		FTG600-050	1200A	60kW
	FTG900-030	3000A	90kW		FTG900-040	2250A	90kW		FTG900-050	1800A	90kW
	FTG1200-030	4000A	120kW		FTG1200-040	3000A	120kW		FTG1200-050	2400A	120kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
60V	FTG050-060	83.5A	5kW	100V	FTG050-100	50A	5kW	160V	FTG050-160	31.5A	5kW
	FTG100-060	167A	10kW		FTG100-100	100A	10kW		FTG100-160	62.5A	10kW
	FTG150-060	250A	15kW		FTG150-100	150A	15kW		FTG150-160	94A	15kW
	FTG200-060	333.5A	20kW		FTG200-100	200A	20kW		FTG200-160	125A	20kW
	FTG250-060	417A	25kW		FTG250-100	250A	25kW		FTG250-160	156.5A	25kW
	FTG300-060	500A	30kW		FTG300-100	300A	30kW		FTG300-160	188A	30kW
	FTG450-060	750A	45kW		FTG450-100	450A	45kW		FTG450-160	281.5A	45kW
	FTG600-060	1000A	60kW		FTG600-100	600A	60kW		FTG600-160	375A	60kW
	FTG900-060	1500A	90kW		FTG900-100	900A	90kW		FTG900-160	562.5A	90kW
	FTG1200-060	2000A	120kW		FTG1200-100	1200A	120kW		FTG1200-160	750A	120kW

FTG Series (4 kW...600 kW)

Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
250V	FTG050-250	20A	5kW	300V	FTG050-300	17A	5kW	400V	FTG050-400	12.5A	5kW
	FTG100-250	40A	10kW		FTG100-300	33.5A	10kW		FTG100-400	25A	10kW
	FTG150-250	60A	15kW		FTG150-300	50A	15kW		FTG150-400	37.5A	15kW
	FTG200-250	80A	20kW		FTG200-300	67A	20kW		FTG200-400	50A	20kW
	FTG250-250	100A	25kW		FTG250-300	83.5A	25kW		FTG250-400	62.5A	25kW
	FTG300-250	120A	30kW		FTG300-300	100A	30kW		FTG300-400	75A	30kW
	FTG450-250	180A	45kW		FTG450-300	150A	45kW		FTG450-400	112.5A	45kW
	FTG600-250	240A	60kW		FTG600-300	200A	60kW		FTG600-400	150A	60kW
	FTG900-250	360A	90kW		FTG900-300	300A	90kW		FTG900-400	225A	90kW
	FTG1200-250	480A	120kW		FTG1200-300	400A	120kW		FTG1200-400	300A	120kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
500V	FTG050-500	10A	5kW	600V	FTG050-600	8.5A	5kW	800V	FTG050-800	6.5A	5kW
	FTG100-500	20A	10kW		FTG100-600	17A	10kW		FTG100-800	12.5A	10kW
	FTG150-500	30A	15kW		FTG150-600	25A	15kW		FTG150-800	19A	15kW
	FTG200-500	40A	20kW		FTG200-600	33.5A	20kW		FTG200-800	25A	20kW
	FTG250-500	50A	25kW		FTG250-600	42A	25kW		FTG250-800	31.5A	25kW
	FTG300-500	60A	30kW		FTG300-600	50A	30kW		FTG300-800	37.5A	30kW
	FTG450-500	90A	45kW		FTG450-600	75A	45kW		FTG450-800	56.5A	45kW
	FTG600-500	120A	60kW		FTG600-600	100A	60kW		FTG600-800	75A	60kW
	FTG900-500	180A	90kW		FTG900-600	150A	90kW		FTG900-800	112.5A	90kW
	FTG1200-500	240A	120kW		FTG1200-600	200A	120kW		FTG1200-800	150A	120kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power	Voltage	Model	Current	Power
1000V	FTG050-1000	5A	5kW	1200V	FTG050-1200	4.5A	5kW	1500V	FTG050-1500	3.5A	5kW
	FTG100-1000	10A	10kW		FTG100-1200	8.5A	10kW		FTG100-1500	7A	10kW
	FTG150-1000	15A	15kW		FTG150-1200	12.5A	15kW		FTG150-1500	10A	15kW
	FTG200-1000	20A	20kW		FTG200-1200	17A	20kW		FTG200-1500	13.5A	20kW
	FTG250-1000	25A	25kW		FTG250-1200	21A	25kW		FTG250-1500	17A	25kW
	FTG300-1000	30A	30kW		FTG300-1200	25A	30kW		FTG300-1500	20A	30kW
	FTG450-1000	45A	45kW		FTG450-1200	37.5A	45kW		FTG450-1500	30A	45kW
	FTG600-1000	60A	60kW		FTG600-1200	50A	60kW		FTG600-1500	40A	60kW
	FTG900-1000	90A	90kW		FTG900-1200	75A	90kW		FTG900-1500	60A	90kW
	FTG1200-1000	120A	120kW		FTG1200-1200	100A	120kW		FTG1200-1500	80A	120kW

Optional accessories table 1

Item	Model name suffix	Notes
GPIB interface	G	
Analog interface	F	
Anti backflow current	D	Configurable for models of 50V or above

Optional accessories table 2: High current test cable matching table

Specification	DC2-2P15M	DC16-2P20M	DC25-2P25M	DC50-2P20M	DC50-2P40M	DC120-2P20M	DC150-2P20M
Max voltage	750V						
Max current	10A	60A	100A	200A	200A	300A	400A
Terminal	M8/Alligator	M8/M8	M8/M8	M8/M8	M8/M8	M8/M8	M10/M10
Cross-sectional area	4.0mm²	16mm²	25mm²	50mm²	50mm²	120mm²	150mm²
Length	~1.5m	~2m	~2m	~2m	~4m	~2m	~2m
Shape							

Specification

General specification	
Item	Specification
AC Input	3 Phase input, 340VAC ~ 420VAC, 47Hz ~ 63Hz
Output Voltage	0 ~ rated voltage (Max 1500V)
Output Current	0 ~ rated current (Max 10000A)
Output Power	0 ~ rated power (Max 600kW)
Efficiency	0.87(Typical)
Line Regulation	Voltage: 0.01%F.S.; Current: 0.05%F.S.
Load Regulation	Voltage: 0.02%F.S.; Current: 0.1%F.S.
Analog Programming	V/I control; Support programming voltage: DC 0 ~ 5V/DC 0 ~ 10V input
Voltage Measurement Accuracy	0.1%+0.1%F.S.
Current Measurement Accuracy	0.1%+0.2%F.S.
Voltage/Current Monitoring	Voltage/Current monitoring output voltage: DC 0 ~ 10V
Protection	OVP/OCP/OPP/RVP/LVP/OTP
Transient Response	Typical 1ms
Voltage Temperature Coefficient	20ppm/℃
Current Temperature Coefficient	40ppm/℃
Display	4.3″ TFT color LCD
Operation	Function key, number key, and knobs
Communication	Standard RS232, LAN, optional GPIB
Memory capacity	20 groups of fast recall parameters + 10 sequence files+ 1 waveform file
Cooling	Air cooling
Working Temperature	0℃～40℃
Storage Temperature	-20℃～70℃
Altitude	＜2000m

Specification - 1									
Model	FTG045-015	FTG050-020	FTG050-030	FTG050-040	FTG050-050	FTG050-060	FTG050-100	FTG050-160	FTG050-250
Voltage	0~15V	0~20V	0~30V	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	0~300A	0~250A	0~167A	0~125A	0~100A	0~83.5A	0~50A	0~31.5A	0~20A
Power	4.5KW	5KW							

FTG Series (4 kW...600 kW)

Model	FTG090-015	FTG100-020	FTG100-030	FTG100-040	FTG100-050	FTG100-060	FTG100-100	FTG100-160	FTG100-250
Voltage	0~15V	0~20V	0~30V	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	0~600A	0~500A	0~334A	0~250A	0~200A	0~167A	0~100A	0~62.5A	0~40A
Power	9KW	10KW							
Model	FTG135-015	FTG150-020	FTG150-030	FTG150-040	FTG150-050	FTG150-060	FTG150-100	FTG150-160	FTG150-250
Voltage	0~15V	0~20V	0~30V	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	0~900A	0~750A	0~500A	0~375A	0~300A	0~250A	0~150A	0~94A	0~60A
Power	13.5KW	15KW							
Model	FTG270-015	FTG300-020	FTG300-030	FTG300-040	FTG300-050	FTG300-060	FTG300-100	FTG300-160	FTG300-250
Voltage	0~15V	0~20V	0~30V	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	0~1800A	0~1500A	0~1000A	0~750A	0~600A	0~500A	0~300A	0~188A	0~120A
Power	27KW	30KW							
Model	FTG540-015	FTG600-020	FTG600-030	FTG600-040	FTG600-050	FTG600-060	FTG600-100	FTG600-160	FTG600-250
Voltage	0~15V	0~20V	0~30V	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	0~3600A	0~3000A	0~2000A	0~1500A	0~1200A	0~1000A	0~600A	0~375A	0~240A
Power	54KW	60KW							
Model	◆	◆	◆	FTG1200-040	FTG1200-050	FTG1200-060	FTG1200-100	FTG1200-160	FTG1200-250
Voltage	◆	◆	◆	0~40V	0~50V	0~60V	0~100V	0~160V	0~250V
Current	◆	◆	◆	0~3000A	0~2400A	0~2000A	0~1200A	0~750A	0~480A
Power	◆	◆	◆	120kW					
Model	◆	◆	◆	◆	◆	FTG1500-060	FTG1500-100	FTG1500-160	FTG1500-250
Voltage	◆	◆	◆	◆	◆	0~60V	0~100V	0~160V	0~250V
Current	◆	◆	◆	◆	◆	0~2500A	0~1500A	0~940A	0~600A
Power	◆	◆	◆	◆	◆	150kW			
Model	◆	◆	◆	◆	◆	◆	FTG2100-100	FTG2100-160	FTG2100-250
Voltage	◆	◆	◆	◆	◆	◆	0~100V	0~160V	0~250V
Current	◆	◆	◆	◆	◆	◆	0~2100A	0~1313A	0~840A
Power	◆	◆	◆	◆	◆	◆	210kW		
Output Voltage Ripple									
V(p-p)	50mV	60mV	65mV	75mV	75mV	115mV	135mV	175mV	185mV
V(rms)	20mV	20mV	20mV	20mV	20mV	25mV	25mV	25mV	35mV
Voltage Programming									
Resolution	16Bits								
Accuracy	0.1%+0.1%F.S.								
Current Programming									
Resolution	16Bits								
Accuracy	0.1%+0.3%F.S.			0.1%+0.2%F.S.					
External Analog Programming									
Control Voltage	0~5V or 0~10V corresponds to 0~100%F.S.								
Voltage accuracy	0.2%F.S.								

Current Accuracy	0.5%F.S.			
Output Accuracy	0.5%F.S.			
Line Regulation				
Voltage	0.05%F.S.	0.01%F.S.		
Current	0.05%F.S.			
Load Regulation				
Voltage	0.05%F.S.	0.02%F.S.		
Current	0.1%F.S.			
Voltage Measurement				
Resolution	16Bits			
Accuracy	0.1%+0.1%F.S.			
Current Measurement				
Resolution	16Bits			
Accuracy	0.1%+0.3%F.S.	0.1%+0.2%F.S.		
OVP Setting				
Range	0~110%F.S.		Accuracy	1%F.S.
Dimension W x H x D	(≤15kW): 482.6mm x 132.0mm x 694.5mm; (20kW ~30kW): 482.6mm x 265.9mm x 694.5mm; (35kW~60kW): 482.6mm x 656mm x 710.5mm; ＞60kW: adopts 600mm x **XXX**mm x 800mm standard cabinet			
Weight	18.5kg/5kW; 25kg/10kW; 31.5kg/15kW; 62kg/30Kw; 123kg/60kW; other specification weight please refer to actual data.			

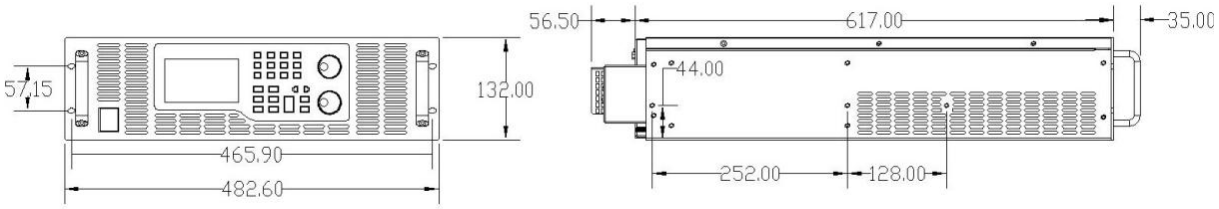
Specification - 2								
Model	FTG050-300	FTG050-400	FTG050-500	FTG050-600	FTG050-800	FTG050-1000	FTG050-1200	FTG050-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~17A	0~12.5A	0~10A	0~8.5A	0~6.5A	0~5A	0~4A	0~3.5A
Power	5kW							
Model	FTG100-300	FTG100-400	FTG100-500	FTG100-600	FTG100-800	FTG100-1000	FTG100-1200	FTG100-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~33.5A	0~25A	0~20A	0~17A	0~12.5A	0~10A	0~8.5A	0~7A
Power	10kW							
Model	FTG150-300	FTG150-400	FTG150-500	FTG150-600	FTG150-800	FTG150-1000	FTG150-1200	FTG150-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~50A	0~37.5A	0~30A	0~25A	0~19A	0~15A	0~12.5A	0~10A
Power	15kW							
Model	FTG300-300	FTG300-400	FTG300-500	FTG300-600	FTG300-800	FTG300-1000	FTG300-1200	FTG300-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~100A	0~75A	0~60A	0~50A	0~37.5A	0~30A	0~25A	0~20A
Power	30kW							
Model	FTG600-300	FTG600-400	FTG600-500	FTG600-600	FTG600-800	FTG600-1000	FTG600-1200	FTG600-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~200A	0~150A	0~120A	0~100A	0~75A	0~60A	0~50A	0~40A
Power	60kW							
Model	FTG1200-	FTG1200-	FTG1200-	FTG1200-	FTG1200-	FTG1200-	FTG1200-	FTG1200-

FTG Series (4 kW...600 kW)

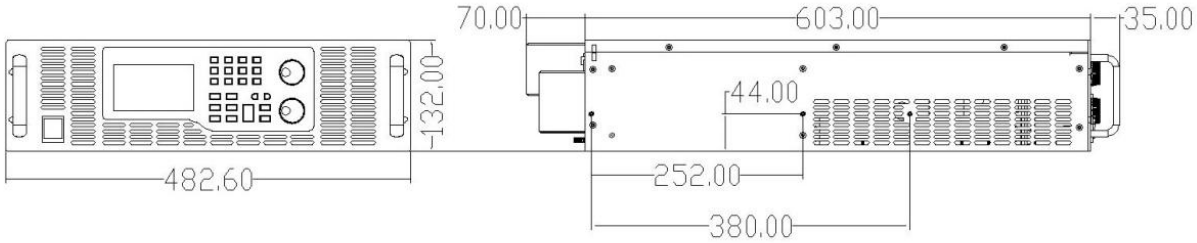
	300	400	500	600	800	1000	1200	1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~400A	0~300A	0~240A	0~200A	0~150A	0~120A	0~100A	0~80A
Power	120kW							
Model	FTG2100-300	FTG2100-400	FTG2100-500	FTG2100-600	FTG2100-800	FTG2100-1000	FTG2100-1200	FTG2100-1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~700A	0~525A	0~420A	0~350A	0~262A	0~210A	0~175A	0~140A
Power	210kW							
Output Voltage Ripple								
V(p-p)	200mV	300mV	350mV	350mV	500mV	650mV	750mV	850mV
V(rms)	40mV	50mV	50mV	60mV	80mV	100mV	120mV	140mV
Voltage Programming								
Resolution	16Bits							
Accuracy	0.1%+0.1%F.S.							
Current Programming								
Resolution	16Bits							
Accuracy	0.1%+0.2%F.S.							
External Analog Programming								
Control Voltage	0~5V or 0~10V corresponds to 0~100%F.S.							
Voltage accuracy	0.2%F.S.							
Current Accuracy	0.5%F.S.							
Output Accuracy	0.5%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.							
Voltage Measurement								
Resolution	16Bits							
Accuracy	0.1%+0.1%F.S.							
Current Measurement								
Resolution	16Bits							
Accuracy	0.1%+0.2%F.S.							
OVP Setting								
Range	0~110%F.S.				Accuracy	1%F.S.		
Dimension W x H x D	(≤15kW): 482.6mm x 132.0mm x 694.5mm; (20kW ~30kW): 482.6mm x 265.9mm x 694.5mm ; (35kW~60kW): 482.6mm x 656mm x 710.5mm ; ＞60kW: adopts 600mm x **XXX**mm x 800mm standard cabinet							
Weight	18.5kg/5kW; 25kg/10kW; 31.5kg/15kW; 62kg/30Kw; 123kg/60kW; other models please refer actual weight data.							

Dimension

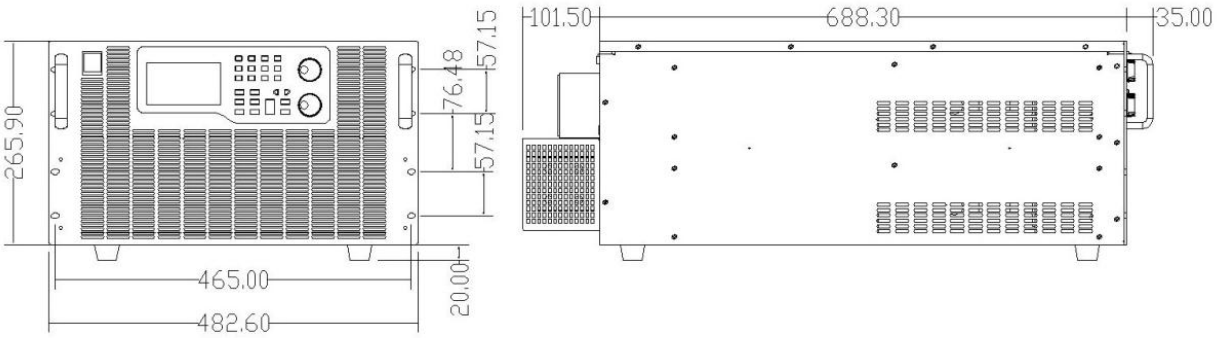
5kW～15kW model dimension (models of 40V or below)



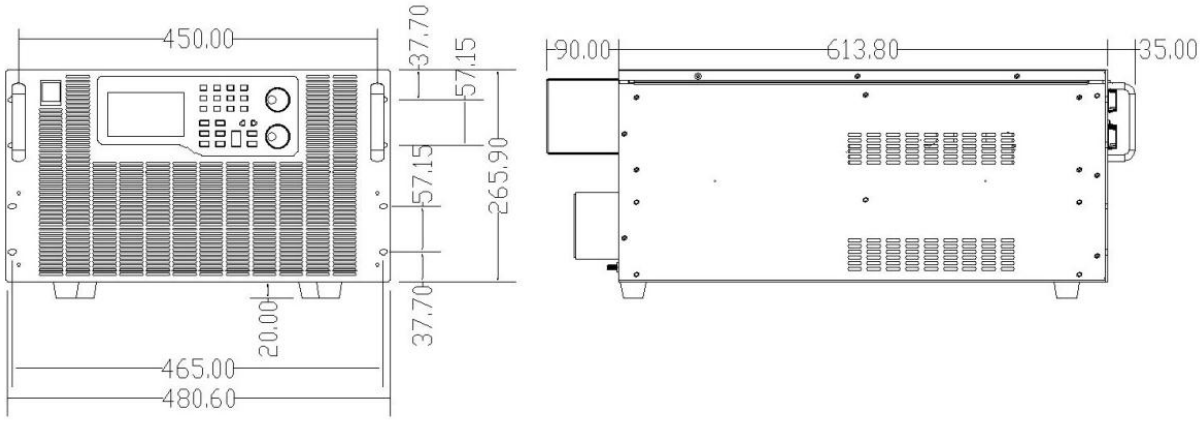
5kW～15kW model dimension (models with voltage > 40V)



20kW～30kW model dimension (models of 40V or below)



20kW～30kW model dimension (models with voltage > 40V)



FTP9000 Power Supply (5 kW...180 kW)

High-power Programmable DC Power Supply

FTP9150 15 kW/80V/510A (3U)

- Output voltage: 80 V up to 2250 V;
- Output current: 20 A up to 6120 A;
- Output power: standalone 5 kW up to 180 kW, parallel up to 1800 kW;
- Wider voltage and current output range with constant power;
- Master-slave parallel up to 10 identical units, with current automatically shared;
- 0.1%+0.1%F.S. and 0.1%+0.2%F.S. accuracy for voltage and current measurement respectively;
- 10 user programmable sequence files, each support up to 100 steps;
- 2ms typical transient response, Voltage & current slew rate control;
- CV / CC priority start (prevents voltage or current overshoot with output ON);
- Voltage ramp function, internal resistance simulating;
- Voltage remote sense compensation;
- Optional analog programming & monitoring interface;
- ±OVP, ±OCP, ±OPP, OTP, ±LVP, as well as voltage / current / power limit;
- Standard LAN, USB (serial), optional RS485, GPIB or CAN ports;
- SCPI and ModBus RTU protocol;

General

FTP9000 series DC power supplies provide wider voltage and current output range at full power, this means both low voltage/high current and high voltage/low current devices can be tested using a single power supply. The FTP9000 series offer a high power density, with 15 kW in a 3U chassis. The standalone power ranges from 5 kW to 180 kW, voltage ranges from 80 V to 2250 V, and current up to 6120 A. For ultra-high-power applications, FTP9000 series allow for master-slave parallel up to 10 identical units, maximum output 1.8 MW, with current automatically shared.

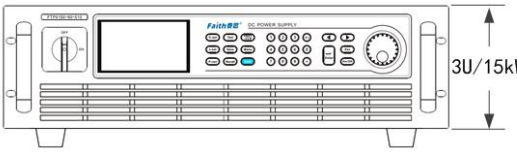
The FTP9000 series provide accurate output, fast transient response, low ripple noise, excellent line and load regulation, fast and precise programmability. With 4.3-inch color TFT screen, full keypad and rotary knob, convenient for benchtop users. In addition, this series offer standard LAN and USB (serial) interfaces support both SCPI and Modbus protocol, which is ideal for automated test systems.

Furthermore, the FTP9000 series come standard with user programmable sequence, CV or CC priority start and built-in test routines for battery internal resistance simulation, voltage ramp test, etc., to name a few.

FTP9000 Series (5 kW...180 kW)

AC input

All models are provided with an active Power Factor Correction (PFC) circuit and operates in three-phase 340 VAC ~ 460 VAC input, power factor 0.99, power supply efficiency is larger than 93%.

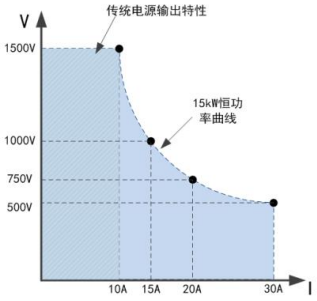


15kW/3U high power density

The FTP9000 series provides a high power density of 15kW/3U, with features such as accurate output, fast response, and low ripple noise.

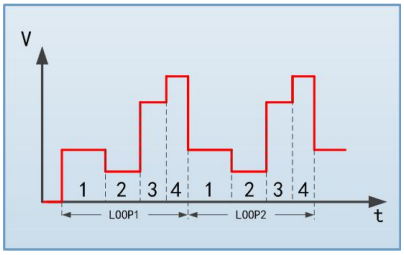
Wide operating region with constant power

All models provides wide range of output voltage & current within the power rating of the power supply, this means both low voltage/high current and high voltage/low current DUTs can be tested using a single supply avoiding the need for multiple power supplies.



Programmable sequence

All models provides users with a programmable sequence function, which can simulate power supply interruptions, instantaneous drops, and other voltage and current changes. The sequence feature allows users to program a list of steps to the power supply's internal memory and execute them. A total of 100 steps can be allocated to each internal memory location, up to a maximum of 10 locations (sequences). The test sequence can be programmed locally through the keypad and rotary knob. Test sequences can be linked, as well as configured for single or repeated execution. Each steps' settings include voltage, current, duration, the duration time range 1ms...86400 s.

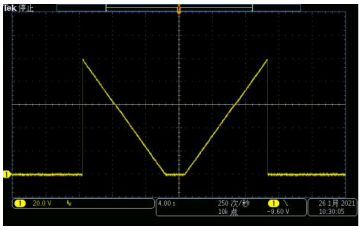


Internal resistance simulating

All models can simulate the output characteristic of battery by setting the internal resistance. When the output current of the power supply increases, the output voltage will be adjusted automatically according to the preset internal resistance value.

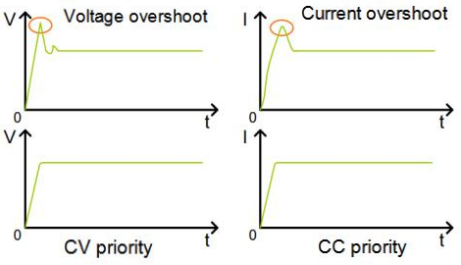
Voltage ramp function

FTP9000 series support voltage ramp-up and ramp-down, which can slowly increase the output voltage from a low level to a high level, or make the output voltage slowly drop from a high level to a low level.



CV / CC priority

When power supply is connected to an inductive or capacitive load, it will cause voltage or current overshoot, which may trigger the protection of the device under test, or even cause the device under test to be damaged in severe cases. This series power supply provides CC priority and CV priority function, which forces the power supply to operate in CC or CV mode at the moment the output is turned on, effectively avoids the current or voltage overshoot resulted from capacitive or inductive load.



Optional analog programming and monitoring interface

In addition to front panel and remote interface control, there is a galvanically isolated analog interface terminal, located on the rear of the device. It offers analog inputs to set voltage, current, power from 0...100% through control voltages of 0 V...5 V. To monitor the output voltage and current, there are analog outputs with 0 V...5 V. Also, several inputs and outputs are available for controlling and monitoring the device status. The controlling speed of analog programming is 1000 points per second.

Protective features

For protection of the equipment connected, the series provide programmable protection functions such as OVP, OCP, OPP and LVP. Moreover, there are built-in hardware protection functions OV, OC, OP and OTP. If a protection is triggered, the DC output will be shut off immediately and a status signal will be prompt on the display and via the interfaces. The power supply is also able to detect abnormally AC input and shut off DC output when this condition occurs.

Master-slave parallel

FTP9000 series power supply allows for master-slave parallel of up to 10 identical units. In parallel operation, slave units download parameters from master unit and current are shared automatically. FTP9000 series power supply does not support master-slave serial operation.

Digital interfaces

All models features two galvanically isolated digital interfaces by default, these are standard LAN and USB (optional RS485, GPIB, CAN interface). USB, LAN and RS485 can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported, with CAN only CANopen is supported.

Control software

FTP9000 series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Options

Graphical visualization of the actual values;
Digital interface modules for GPIB, CAN, RS485, CANopen;
Analog programming and monitoring interface (PRO-INT interface on the rear)

Model options

Voltage	Model	Current	Power	Voltage	Model	Current	Power
80V	FTP9050-80-170	170A	5kW	200V	FTP9050-200-70	70A	5kW
	FTP9100-80-340	340A	10kW		FTP9100-200-140	140A	10kW
	FTP9150-80-510	510A	15kW		FTP9150-200-210	210A	15kW
	FTP9300-80-1020	1020A	30kW		FTP9300-200-420	420A	30kW
	FTP9450-80-1530	1530A	45kW		FTP9450-200-630	630A	45kW
	FTP9600-80-2040	2040A	60kW		FTP9600-200-840	840A	60kW
	FTP9750-80-2550	2550A	75kW		FTP9750-200-1050	1050A	75kW
	FTP9900-80-3060	3060A	90kW		FTP9900-200-1260	1260A	90kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
400V	FTP9050-400-40	40A	5kW	500V	FTP9050-500-30	30A	5kW
	FTP9100-400-80	80A	10kW		FTP9100-500-60	60A	10kW
	FTP9150-400-120	120A	15kW		FTP9150-500-90	90A	15kW
	FTP9300-400-240	240A	30kW		FTP9300-500-180	180A	30kW
	FTP9450-400-360	360A	45kW		FTP9450-500-270	270A	45kW
	FTP9600-400-480	480A	60kW		FTP9600-500-360	360A	60kW
	FTP9750-400-600	720A	75kW		FTP9750-500-450	450A	75kW
	FTP9900-400-720	720A	90kW		FTP9900-500-540	540A	90kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
800V	FTP9050-800-25	25A	5kW	1000V	FTP9100-1000-30	30A	10kW
	FTP9100-800-50	50A	10kW		FTP9150-1000-40	40A	15kW
	FTP9150-800-75	75A	15kW		FTP9200-1000-60	60A	20kW
	FTP9300-800-150	150A	30kW		FTP9300-1000-80	80A	30kW
	FTP9450-800-225	225A	45kW		FTP9600-1000-160	160A	60kW
	FTP9600-800-300	300A	60kW		--	--	--
	FTP9750-800-375	375A	75kW		--	--	--
	FTP9900-800-450	450A	90kW		--	--	--

FTP9000 Series (5 kW...180 kW)

Voltage	Model	Current	Power	Voltage	Model	Current	Power
1200V	FTP9150-1200-40	40A	15kW	1500V	FTP9100-1500-25	25A	10kW
	FTP9300-1200-80	80A	30kW		FTP9150-1500-30	30A	15kW
	FTP9450-1200-120	120A	45kW		FTP9200-1500-50	50A	20kW
	FTP9600-1200-160	160A	60kW		FTP9300-1500-60	60A	30kW
	FTP9750-1200-200	200A	75kW		FTP9450-1500-90	90A	45kW
	FTP9900-1200-240	240A	90kW		FTP9600-1500-120	120A	60kW
	--	--	--		FTP9750-1500-150	150A	75kW
	--	--	--		FTP9900-1500-180	180A	90kW
Voltage	Model	Current	Power	--	--	--	--
2250V	FTP9150-2250-25	25A	15kW	--	--	--	--
	FTP9300-2250-50	50A	30kW	--	--	--	--
	FTP9450-2250-75	75A	45kW	--	--	--	--
	FTP9600-2250-100	100A	60kW	--	--	--	--
	FTP9750-2250-125	150A	90kW	--	--	--	--
	FTP9900-2250-150	150A	90kW	--	--	--	--

Optional accessories table 1

Item	Type or specifications	Notes
Graphical visualization of the actual values	FTP9000 FaithPower	software for FTP9000 series
GPIB interface	Model name ends with Suffix “G”	
CAN, RS485 interface	Model name ends with Suffix “R”	
PRO-INT interface	Model name ends with Suffix “F”	

Optional accessories table 2: High current test cable matching table

Specification	DC2-2P15M	DC16-2P20M	DC25-2P25M	DC50-2P20M	DC50-2P40M	DC120-2P20M	DC150-2P20M
Max voltage	750V						
Max current	10A	60A	100A	200A	200A	300A	400A
Terminal	M8/Alligator	M8/M8	M8/M8	M8/M8	M8/M8	M8/M8	M10/M10
Cross-sectional area	4.0mm²	16mm²	25mm²	50mm²	50mm²	120mm²	150mm²
Length	~1.5m	~2m	~2m	~2m	~4m	~2m	~2m
Shape							

General specification

Voltage rise slew rate	
Maximum slew rate	6000V/s

FTP9000 Series (5 kW...180 kW)

Voltage fall time	
No load	＜2s
Full load	≤30ms
Transient response	Typical 2ms
Parallel	Parallel up to 10 identical units through master-slave mode for max 1800W output
Protection	OVP, OCP, OPP, OTP, LVP etc..
Interface	Standard LAN、USB(serial) (optional GPIB、CAN、RS485)
Protocol	SCPI、MODBUS、CAN-Open protocols
Input characteristics	
Input voltage	340VAC～460VAC, 47Hz～63Hz
Power factor	0.99 (Typical)
Efficiency	＞93% (Typical)
Operation environment	
Working temp	0℃～40℃
Storage temp	-20℃～70℃
Altitude	＜2000m
Cooling	Air cooling

Specification table 1

Model	FTP9050-80-170	FTP9050-200-70	FTP9050-400-40	FTP9050-500-30	FTP9050-800-25
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～170A	0～70A	0～40A	0～30A	0～25A
Power	0～5kW				
Model	FTP9100-80-340	FTP9100-200-140	FTP9100-400-80	FTP9100-500-60	FTP9100-800-50
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～340A	0～140A	0～80A	0～60A	0～50A
Power	0～10kW				
Model	FTP9150-80-510	FTP9150-200-210	FTP9150-400-120	FTP9150-500-90	FTP9150-800-75
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～510A	0～210A	0～120A	0～90A	0～75A
Power	0～15kW				
Model	FTP9300-80-1020	FTP9300-200-420	FTP9300-400-240	FTP9300-500-180	FTP9300-800-150
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～1020A	0～420A	0～240A	0～180A	0～150A
Power	0～30kW				
Model	FTP9600-80-2040	FTP9600-200-840	FTP9600-400-480	FTP9600-500-360	FTP9600-800-300
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～2040 A	0～840A	0～480A	0～360A	0～300A
Power	0～60kW				
Model	FTP9900-80-3060	FTP9900-200-1260	FTP9900-400-720	FTP9900-500-540	FTP9900-800-450
Voltage	0～80V	0～200V	0～400V	0～500V	0～800V
Current	0～3060 A	0～1260A	0～720A	0～540A	0～450A
Power	0～90kW				
Model	～	FTP91200-200-1680	FTP91200-400-960	FTP91200-500-720	FTP91200-800-600

FTP9000 Series (5 kW...180 kW)

Voltage		～	0～200V	0～400V	0～500V	0～800V
Current		～	0～1680A	0～960A	0～720A	0～600A
Power		0～120kW				
Voltage programming①						
Resolution		16bits				
Accuracy		0.05%+0.1%F.S.				
Current programming①						
Resolution		16bits				
Accuracy		0.1%+0.2% F.S.				
Power programming①						
Accuracy		1%F.S.				
External analog programming①						
Control voltage		0～5V corresponds to 0～100%F.S.				
Voltage accuracy		0.5%F.S.				
Current accuracy		0.5%F.S.				
Line regulation②						
Voltage		0.02%F.S.				
Current		0.05%F.S.				
Power		0.05%F.S.				
Load regulation③						
Voltage		0.05%F.S.				
Current		0.15%F.S.				
Power		0.75%F.S.				
Voltage measurement①						
Resolution		16bits				
Accuracy		0.05%+0.1%F.S.				
Current measurement①						
Resolution		16Bits				
Accuracy		0.1%+0.2% F.S.				
Power measurement①						
Accuracy		1%F.S.				
Ripple noise④						
Ripple Vpp	5kW	160mV	300mV	550mV	450mV	800mV
	10kW	320mV	300mV	550mV	450mV	800mV
	15kW	320mV	300mV	550mV	450mV	800mV
Ripple Vrms	5kW	16mV	40mV	65mV	70mV	200mV
	10kW	25mV	40mV	65mV	70mV	200mV
	15kW	25mV	40mV	65mV	70mV	200mV
Size（W x H x D）		5kW～15kW: 482.6mm x 132.5mm x 702.0mm, includes output protection cover				
		20kW～30kW: 482.6mm x 266mm x 738.0mm, includes protection cover, excludes casters				
Weight		5kW≈17kg, 10kW≈24kg, 15kW≈30kg, 30kW≈65kg				

Specification table 2

Model	FTP9100-1000-30	-	FTP9100-1500-25	-
Voltage	0～1000V	-	0～1500V	-

FTP9000 Series (5 kW...180 kW)

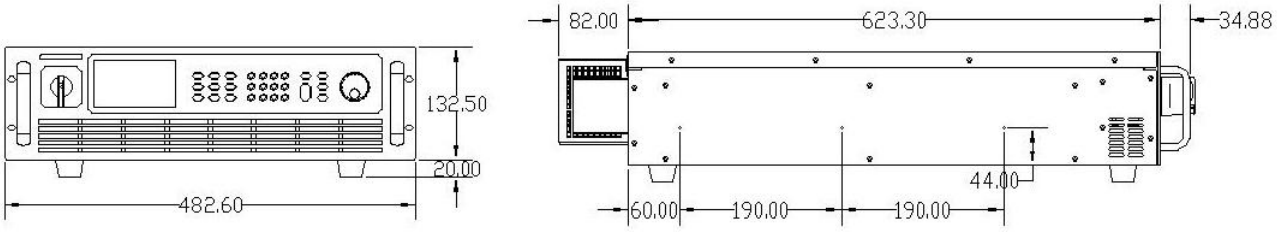
Current	0～30A	-	0～25A	-
Power	0～10kW			
Model	FTP9150-1000-40	FTP9150-1200-40	FTP9150-1500-30	FTP9150-2250-25
Voltage	0～1000V	0～1200V	0～1500V	0～2250V
Current	0～40A	0～40A	0～30A	0～25A
Power	0～15kW			
Model	FTP9200-1000-60	-	FTP9200-1500-50	
Voltage	0～1000V	-	0～1500V	
Current	0～60A	-	0～50A	
Power	0～20kW			
Model	FTP9300-1000-80	FTP9300-1200-80	FTP9300-1500-60	FTP9300-2250-50
Voltage	0～1000V	0～1200V	0～1500V	0～2250V
Current	0～80A	0～80A	0～60A	0～50A
Power	0～30kW			
Model	FTP9400-1000-120	-	FTP9400-1500-100	-
Voltage	0～1000V	-	0～1500V	-
Current	0～120A	-	0～100A	-
Power	0～40kW			
Model	FTP9600-1000-180	FTP9600-1200-160	FTP9600-1500-120	FTP9600-2250-100
Voltage	0～1000V	0～1200V	0～1500V	0～2250V
Current	0～180A	0～160A	0～120A	0～100A
Power	0～60kW			
Model	FTP9800-1000-240	FTP9900-1200-240	FTP9900-1500-180	FTP9900-2250-150
Voltage	0～1000V	0～1200V	0～1500V	0～2250V
Current	0～240A	0～240A	0～180A	0～150A
Power	0～80kW		0～90kW	
Model	FTP91000-1000-300	FTP91200-1200-320	FTP91200-1500-240	FTP91200-2250-200
Voltage	0～1000V	0～1200V	0～1500V	0～2250V
Current	0～300A	0～320A	0～240A	0～200A
Power	0～100kW		0～120kW	
Voltage programming①				
Resolution	16bits			
Accuracy	0.05%+0.1%F.S.			
Current programming①				
Resolution	16bits			
Accuracy	0.1%+0.2% F.S.			
Power programming①				
Accuracy	1%F.S.			
External analog programming①				
Control voltage	0～10V corresponds to 0～100%F.S.			
Voltage accuracy	0.5%F.S.			
Current accuracy	0.5%F.S.			
Line regulation②				
Voltage	0.02%F.S.			
Current	0.05%F.S.			

FTP9000 Series (5 kW...180 kW)

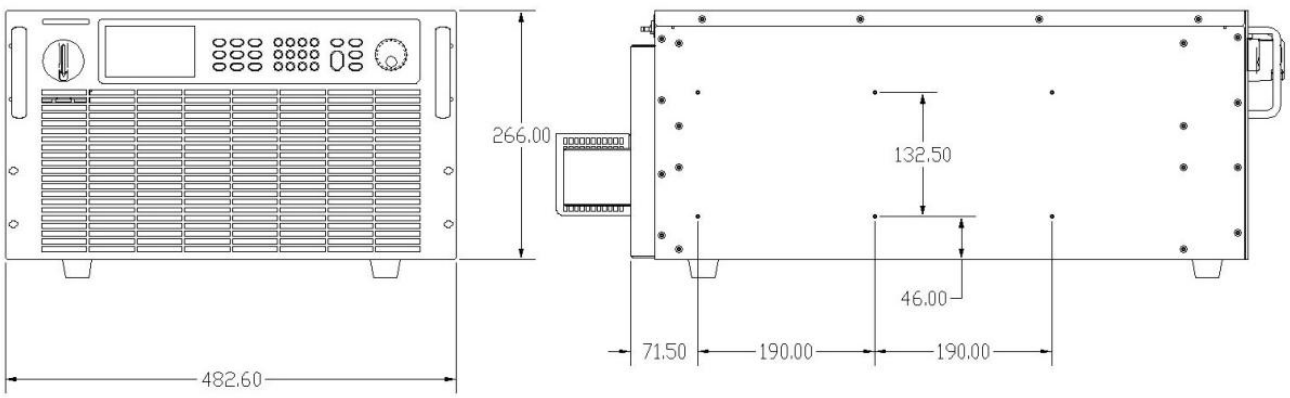
Power		0.05%F.S.			
Load regulation③					
Voltage		0.05%F.S.			
Current		0.15%F.S.			
Power		0.75%F.S.			
Voltage measurement①					
Resolution		16bits			
Accuracy		0.05%+0.05%F.S.			
Current measurement①					
Resolution		16Bits			
Accuracy		0.1%+0.2% F.S.			
Power measurement①					
Accuracy		1%F.S.			
Ripple noise④					
Ripple Vpp	10kW	1600mV		-	-
	15kW	2000mV	2000mV	2400mV	3600mV
Ripple Vrms	10kW	350mV		-	-
	15kW	350mV	350mV	400mV	400mV
Size（W x H x D）		5kW～15kW: 482.6mm x 132.5mm x 702.0mm, includes output protection cover			
		20kW～30kW: 482.6mm x 266mm x 738.0mm, includes protection cover, excludes casters			
Weight		5kW≈17kg, 10kW≈24kg, 15kW≈30kg, 30kW≈65kg			

Dimension

5kW～15kW model dimension



20kW～30kW model dimension



FTL Linear DC Power Supply (90 W...900 W)

Programmable Linear DC Power Supply

FTL2030K 600W/20V/30A

- < 0.01% low regulation rate;
- Ultra high resolution and accuracy of 1mV/1mA;
- Low ripple noise;
- OCP, OVP, OPP, OTP, RVP;
- CV, CC output modes, switched automatically according to the load condition;
- One-key lock function, prevent misoperation;
- Store/recall 100 groups of V/I data;
- Remote sense voltage compensation;
- Support battery charging;
- Dual range (some models);
- Standard RS232, support SCPI;
- Optional analog interface, optional RS485 or LAN interface, optional MODBUS-RTU protocol.
- 4.3-inch LCD display

General

The FTL series is a programmable DC linear power supply with high performance, multi-function, medium and small power features. The product is stable and mature, and has comprehensive protection functions such as reverse polarity, overvoltage, overcurrent, overload and overtemperature, which can keep the power supply and load safe in unstable environments. FTL has a regulation rate of < 0.01%, ripple and noise of < 1mVrms and fine transient performance, and is suitable for application environments like current surges. The FTL series DC power supply is not only suitable for high-grade laboratory, but also for high-performance test systems.

CV/CC auto crossover

The FTL series power supply is self-adaptive to constant voltage or constant current output state according to the load. The power supply automatically switches the working state between CV and CC.

Shortcut Recall

The FTL series power supply supports a shortcut recall function, which can call the corresponding power output parameters and state with one key, hence greatly improves the test speed, as well as prevents misoperation. It is very helpful for testing, quality control, and production.

Sequence

FTL series power supply supports multi-step sequence function, the power supply will change the working state according to time or trigger, which is used to test the function and stability of load products.

Remote sense

When the load consumes a large current, a voltage drop will be generated on the connection line from the power supply to the load terminal, and remote sensing can automatically compensate for the voltage drop.

Battery charging function

FTL series power supply allows for battery charging based on specified parameters. Users can define the parameters such as: trickle charge threshold voltage, float charge voltage, trickle charge current, standard charge current, termination current threshold, charging time, etc., hence fully simulate the battery charging process and effectively protect the battery .

Model options

M	Specification	Voltage resolution	Current resolution	Hardware limit
FTL3003	30V/3A/90W	1mV	0.1mA	32V/3.2A/90W
FTL3005	30V/5A/150W	1mV	0.1mA	32V/5.5A/150W
FTL3603	36V/3A/108W	1mV	0.1mA	40V/3.2A/108W
FTL3605	36V/5A/180W	1mV	0.1mA	40V/5.5A/180W
FTL6003	60V/3A/180W	1mV	0.1mA	64V/3.2A/180W
FTL6005	60V/5A/300W	1mV	0.1mA	64V/5.5A/300W
FTL7503	75V/3A/225W	1mV	0.1mA	80V/3.2A/225W
FTL7505	75V/5A/375W	1mV	0.1mA	80V/5.5A/375W
FTL3010	30V/10A/300W	1mV	1mA	32V/11A/300W
FTL12001	120V/1A/120W	10mV	0.1mA	128V/1.1A/120W
FTL12002	120V/2A/240W	10mV	0.1mA	128V/2.2A/240W
FTL150015	150V/1.5A/225W	10mV	0.1mA	160V/1.6A/225W
FTL1820	18V/20A/360W	1mV	1mA	19V/21A/360W
FTL12003	120V/3A/360W	10mV	0.1mA	128V/3.2A/360W
FTL300012	300V/1.2A/360W	10mV	0.1mA	320V/1.2A/360W
FTL500007	500V/0.7A/350W	10mV	0.1mA	500V/0.7A/350W
FTL2030K	20V/30A/600W	1mV	1mA	20.5V/30.5A/600W
FTL3020K	30V/20A/600W	1mV	1mA	31V/21A/600W
FTL6010K	60V/10A/600W	1mV	1mA	60.5V/10.5A/600W
FTL80075K	80V/7.5A/600W	1mV	1mA	80.5V/8A/600W
FTL1560K	15V/60A/900W	1mV	1mA	15.5V/60.5A/900W
FTL2045K	20V/45A/900W	1mV	1mA	20.5V/45.5A/900W
FTL3030K	30V/30A/900W	1mV	1mA	31V/31A/900W
FTL3625K	36V/25A/900W	1mV	1mA	36.5V/25.5A/900W
FTL4520K	45V/20A/900W	1mV	1mA	45.5V/20.5A/900W
FTL6015K	60V/15A/900W	1mV	1mA	60.5V/15.5A/900W
FTL8011K	80V/11A/900W	1mV	1mA	80.5V/11.5A/900W
FTL120075K	120V/7.5A/900W	10mV	1mA	121V/7.6A/900W
FTL15006K	150V/6A/900W	10mV	1mA	151V/6.1A/900W

Specifications - 1	
Model	FTL
Voltage Output	
Line Regulation	≤0.01%+3mV
Load Regulation	≤0.01%+3mV(I≤3A)/≤0.02%+5mV(I>3A)
Recover time	≤100us(50% load change, minimum load 0.5A)
Ripple Noise	≤1mVrms(I≤3A) (5Hz～1MHz)/≤2mVrms(I>3A) (5Hz～1MHz)
Temperature coefficient	≤100ppm/℃
Set Accuracy	±(0.03%+10mV) (25±5℃)
Current Output	
Line Regulation	≤0.1%+3mA
Load Regulation	≤0.1%+3mA(I≤3A)/≤0.1%+5mA(I>3A)
Ripple Noise	≤3mArms(I≤3A)/≤6mArms(I>3A)
Set Accuracy	±(0.1%+0.1%F.S.)(25±5℃)
Display	
Voltage	5 digits display
Current	5 digits display
Voltage Accuracy	±(0.02% of reading+5mV) (25±5℃)
Current Accuracy	±(0.1% of reading+0.1%F.S.) (25±5℃)
Other Characteristics	
Protection	OVP, OCP, OPP, OTP, RVP
Remote Sense	Max conpensate voltage 5%F.S.
Battery charging	Lithium ion battery charging curve
Keyboard Lock	Yes
Interface	Standard RS232, support SCPI (optional: analog interface, RS485, MODBUS-RTU protocol)
Memory	100 groups
Insulation	Mainframe and DC terminal: ≥20MΩ/500VDC Mainframe and AC INPUT: ≥30MΩ/500VDC
AC Input	AC 110V/220V±10%，50/60Hz
Dimension	352(D)×215(W)×89(H)mm
Weight	6.8～9.8kg

Specifications - 2	
Model	FTL (with Suffix "K")
Voltage Output	
Line Regulation	≤ 0.01%+4mV
Load Regulation	≤0.1%+5mV
Recover time	≤1.5ms(50% load change)
Ripple Noise	2mVrms，30mVpp
Temperature coefficient	≤100ppm/℃
Set Accuracy	±(0.03% of reading+10mV)(25±5℃)
Set Accuracy	1mV
Current Output	
Line Regulation	≤0.1%+3mA
Load Regulation	≤0.1%+5mA
Ripple Noise	≤10mArms
Set Accuracy	±(0.1% of reading+0.1% F.S.)(25±5℃)
Set Resolution	1mA
Display	
Voltage	5 digits display
Current	5 digits display
Voltage Resolution	1mV
Current Resolution	1mA
Voltage Accuracy	±(0.02% of reading+5mV)(25±5℃)
Current Accuracy	±(0.1% of reading+0.1%F.S.)(25±5℃)
Other Characteristic	
Protection	OVP, OCP, OPP, OTP, RVP
Keyboard Lock	Yes
Interface	Standard RS232, support SCPI (optional: analog interface, RS485, MODBUS-RTU protocol)
Memory	100 Groups
AC INPUT	AC 220V±%，50/60Hz
Dimension	352(D)×215(W)×89(H)mm
Weight	4.5～5.5kg

Tripple-output Programmable DC Power Supply

30V-3A * 3CH or 30V-6A * 3CH or 60V-3A * 3CH

Optional FTL3006-3 30V/6A * 2CH, 6V/3A *1CH

- 2U half-rack instrument delivers up to 540 W of power with low ripple and noise, or 180 W per channel;
- Linear type high resolution, high precision (1mV/1mA), high stability DC power supply;
- Capability to do series or parallel, or tracking among the channels;
- Monitor the voltage and current output in real time for all channels;
- All channels are individually controllable;
- Save and recall up to 40 groups of V/I setups;
- Voltage remote sense compensation;
- Output timer (0.1 ~ 3600 seconds);
- Overvoltage, overtemperature protections;
- Standard RS232, USB, support SCPI commands;
- Intelligent fan control, reduces noise.

General

FTL tripple-output series linear DC power supplies provide three individually controllable output channels, which can be operated in series, parallel or tracking mode. The 2U half-rack device delivers up to 540 W of power with low ripple and noise, or 180 W per channel, and offers functionalities such as remote sense, output timer, channel max voltage, overvoltage and overtemperature protections etc.. The instrument comes standard with RS232, USB ports, supports SCPI programming commands.

Model options

Model Name	CH1		CH2		CH3	
	Voltage	Current	Voltage	Current	Voltage	Current
FTL3003-3	30V	3A	30V	3A	6V	3A
FTL3006-3	30V	6A	30V	6A	6V	3A
FTL6003-3	60V	3A	60V	3A	6V	3A
FTL3003-3X	30V	3A	30V	3A	30V	3A
FTL3006-3X	30V	6A	30V	6A	30V	6A
FTL6003-3X	60V	3A	60V	3A	60V	3A

FTL Tripple-output Series

Specifications

Model		FTL3003-3	FTL3006-3	FTL6003-3	FTL3003-3X	FTL3006-3X	FTL6003-3X
Rated Output	Voltage	0...30V*2/0...6V*1	0...30V*2/0...6V*1	0...60V*2/0...6V*1	0...30 V* 3	0...30 V* 3	0...60 V* 3
	Current	0...3 A* 3	0...6A*2/0...3A*1	0...3 A* 3	0...3 A* 3	0...6 A* 3	0...3 A* 3
Load Regulation	Voltage	≤0.01%+3mV					
	Current	≤0.01%+3mA					
Line Regulation	Voltage	≤0.01%+3mV					
	Current	≤0.01%+3mA					
Set Resolution	Voltage	1mV					
	Current	1mA					
Readback Resolution	Voltage	1mV					
	Current	1mA					
Set Accuracy	Voltage	≤0.03%+10mV					
	Current	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA
Readback Accuracy	Voltage	≤0.03%+10mV					
	Current	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA	≤0.1%+5mA	≤0.1%+8mA	≤0.1%+5mA
Ripple Noise	Voltage	≤2mVrms					
	Current	≤5mArms					
Serial/Parallel Set Accuracy	Voltage	≤0.02%+5mV	≤0.02%+10mV	≤0.02%+5mV	≤0.02%+10mV	≤0.02%+10mV	≤0.02%+5mV
	Current	≤0.1%+30mA					
Memory	Save/Call	40 Goups of Setups					
	Function	Timing power off					
Timer	Range	0.1 s~ 3600 s					
	Resolution	0.1 s					
Work Temp.		0 ~ 40℃					
Dimension （W* H* D)	mm	255*110*380	255*110*380	255*110*380	255*110*480	255*110*480	255*110*480
Carton(W*H*D)	mm	325*210*475	325*210*475	325*210*475	325*210*575	325*210*575	325*210*575
N.W.	kg	8.5	8.5	8.5	11	11	11
G.W.	kg	10	10	10	13	13	13

FT8330A Series BCS power supply (6V/1A, 6V/2A, max 24CH)

Multi channel Battery Cell Simulator (BCS) Power Supply

FT8330A 6 V/1 A * 24 CH (2U)

- Voltage range：0 ~ 6V, current range: 0 ~ 1A/2A;
- High voltage accuracy, resolution up to 0.01%;
- Multi-channel power supply, support up to 24 channels in a single unit;
- Channels are isolated, support arbitrary serial / parallel operation;
- Temperature coefficient < 30ppm/℃
- Standard LAN, RS485 communication interfaces;
- Supports standard Modbus protocol;
- Professional test software, support data report and data analysis;
- 19-inch rack-mounted 2U chassis, facilitates system integration.

General

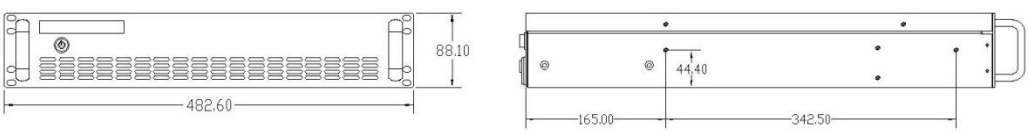
The FT8330 multi-channel battery cell simulator power supply is a highly integrated power supply product developed and designed for applications such as power battery, super capacitor testing, BMS testing, CMS testing and other applications. The FT8330 adopts a standard 19-inch chassis, 2U height, and 24 channels, supports standard Modbus protocol, which is easy to be integrated into the R&D and production line automated test platform, also it can be used alone.

Model options

Model	Specifications	Notes
FT8330A	FT8330 series cabinet	Max 24CH, different models can not be mixed in one cabinet
FT83306E-6-1	6V/1A/6W, 6-CH module	
FT83306E-6-2	6V/2A/12W, 6-CH module	

Dimension

FT8330A cabinet dimension



FT8330A Series BCS (6V/1A, 6V/2A, max 24CH)

Specification - 1		
Model	FT83306E-6-1	FT83306E-6-2
Current	1A	2A
Voltage	6V	6V
Power	6W	12W
Channel	6CH	6CH
Constant Voltage		
Range	0～6V	0～6V
Setting Resolution	0.1mV	0.1mV
Setting accuracy (25±3℃)	0.01%+0.01%F.S.	0.01%+0.01%F.S.
Reading resolution	0.1mV	0.1mV
Reading accuracy (25±3℃)	0.01%+0.01%F.S.	0.01%+0.01%F.S.
Voltage Load Regulation	＜0.02%F.S.	
Temperature Coefficient	＜30ppm/℃	
Voltage Ripple (rms)	2mV	2mV
Current Ripple (rms)	1.2mA	1.2mA
Voltage Rise Time (No load)	＜100μs	＜100μs
Voltage Rise Time (Ful load)	＜100μs	＜100μs
Voltage Fall Time (No load)	＜100μs	＜100μs
Voltage Fall Time (Ful load)	＜100μs	＜100μs
Transient Response Time	＜50μs	＜50μs
Constant current		
Range	0～1A	0～2A
Setting Resolution	0.25mA	0.5mA
Setting accuracy (25±3℃)	0.05%+0.05%F.S	0.05%+0.05%F.S
Reading resolution	0.25mA	0.5mA
Reading accuracy (25±3℃)	0.05%+0.05%F.S	0.05%+0.05%F.S
Current load regulation	＜0.01%F.S.	
Temperature coefficient	＜30ppm/℃	
Other features		
Insulation (DC output to earth)	1500VDC	1500VDC
Insulation (Channel to Channel)	1500VDC	1500VDC
Channel connection way	aviation connector	aviation connector
Programming response time	＜10ms	
Communication Interface	LAN/RS485 (isolated)	
AC input	220VAC±10%	
Dimension（H×W×D）	88.1mm×482.6mm×521.4mm	
Weight	10kg	

Automotive Waveform Simulation Test DC Power Supply

FTP-C, FTH-C (2 kW...90 kW)

FTP020-80-60C　2 kW/80V/60A　(2U)

- Voltage range: 40 V, 80 V, 600 V, 1000 V;
- Power range: 2 kW...90 kW;
- 16-bit ADC/DAC, high precision V/I measurement;
- Low line/load regulation, low ripple noise;
- Voltage & current slew rate control;
- 2ms typical transient response;
- ±OVP, ±OCP, ±OPP, OTP, ±LVP;
- Optional analog programming & monitoring interface;
- Support ISO16750-2, VW80000, VW80300 standards.
- PC control software: waveform display, standard test waveform import, power supply control, sample data storage and display, data sampling rate up to 100 points per second;
- Standard LAN, RS232, optional GPIB communication interfaces;
- Support SCPI and ModBus-RTU protocol;
- Large TFT color display

General

The automotive power supply system often exhibits abnormal phenomena such as large fluctuations in the power supply voltage due to the complex electrical use environment, for example the startup and shutdown of various components such as motors and solenoid valves. In order to improve the reliability of automotive electrical and electronic equipments, automotive electronics manufacturers and vehicle manufacturers often use traditional programmable DC power supplies for electrical reliability testing. Due to the diversity of test standards, the complexity of programming functions, and the slow speed of traditional power supplies, automotive electronics manufacturers and vehicle manufacturers are confronted with difficulties and large expenditures.

To address this problem, Faithtech developed FTP-C series and FTH-C series programmable power supplies, which greatly enhances customers' ability in automotive electronic products testing and reduces clients' test cost.

FTP-C series power supply can realize ISO16750-2 (Road Vehicles - Environmental Conditions and Testing for Electrical and Electronic Equipment - Part 2: Electrical Loads) and Volkswagen VW80000 electrical and electronic equipment test waveform functions.
FTH-C series power supplies are more suitable for new energy vehicle electrical and electronic equipment testing, and the test waveforms meet the testing requirements of Volkswagen VW80300.

FTP-C, FTH-C (2 kW...90 kW)

Automotive waveform simulation test

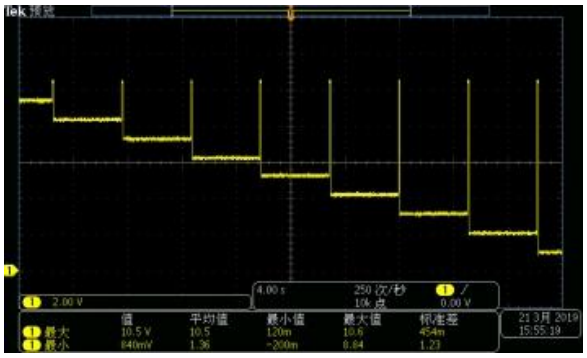
The 40 V and 80 V models of FTP-C, FTH-C are able to conduct following automotive test waveform:

- ISO16750-2 standard waveforms: voltage ramp-up and ramp-down, voltage startup characteristic, voltage instantaneous drop, voltage instantaneous drop and resume feature.
- VW80000 standard waveforms: E-02, E-03, E-04, E-05, E-07, E- 08, E-09, E-11, E-12.

The 600 V and 1000 V models of FTH-C are able to conduct following automotive test waveform:

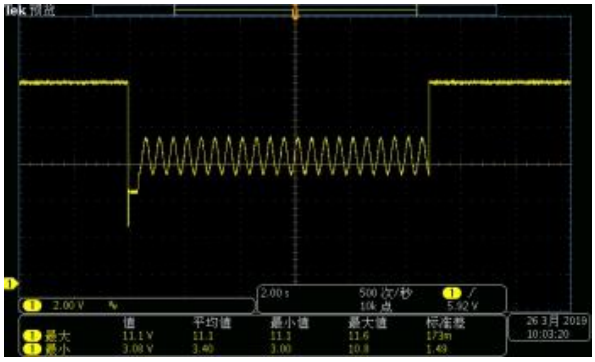
- VW80300 standard waveforms: HVPT-1, EHV-01, EHV-02, EHV- 03, EHV-05, EHV-06.

Typical waveforms examples:

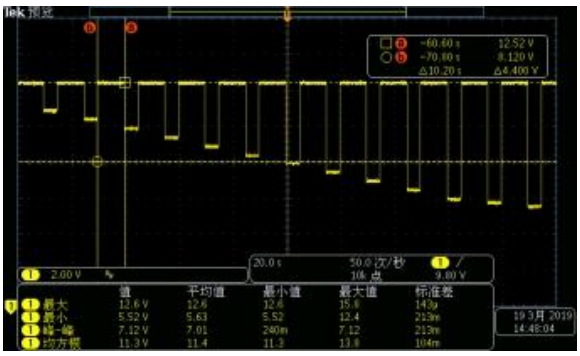


ISO16750 voltage instantaneous drop and resume

ISO16750 voltage ramp-up and ramp-down



VW80000 E-11



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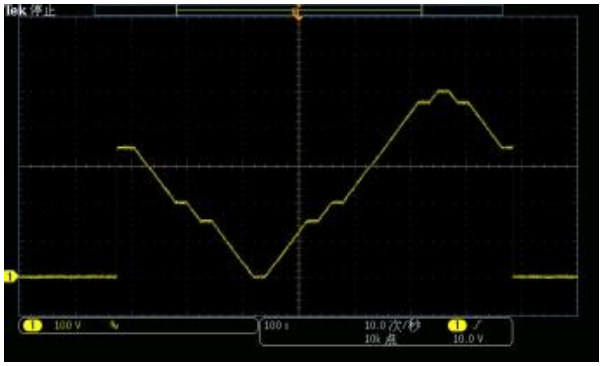
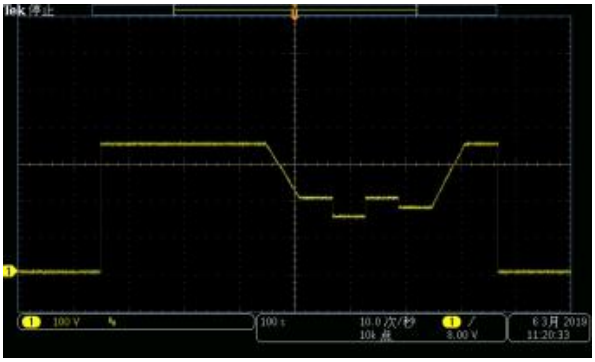


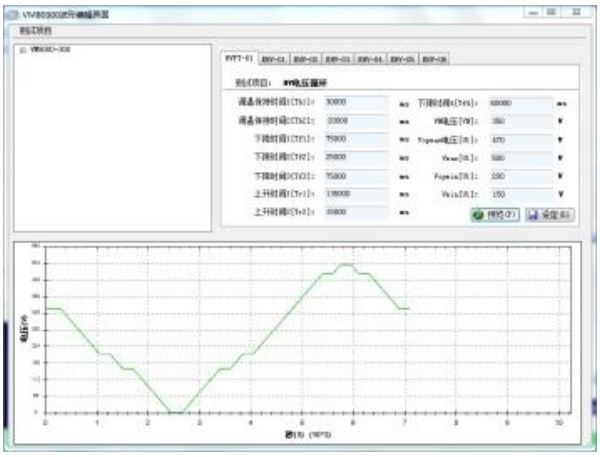
VW80300 HVPT-1



VW80300 EHV-03

PC software

Main Page



Standard waveform operation interface

Model options

Model	Specification	Compatible standards
FTP020-40-120C	2kW/40V/120A	ISO16750-2, VW80000
FTP020-80-60C	2kW/80V/60A	
FTP032-40-120C	3.2kW/40V/120A	
FTP032-80-60C	3.2kW/80V/60A	
FTH050-40C	5kW/40V/125A	
FTH050-80C	5kW/80V/62.5A	
FTH100-40C	10kW/40V/250A	
FTH100-80C	10kW/80V/125A	
FTH150-40C	15kW/40V/375A	
FTH150-80C	15kW/80V/187.5A	
FTH300-40C	30kW/40V/750A	
FTH300-80C	30kW/80V/375A	
FTH050-600C	5kW/600V/8.5A	VW80300
FTH050-1000C	5kW/1000V/5A	
FTH100-600C	10kW/600V/17A	
FTH100-1000C	10kW/1000V/10A	
FTH150-600C	15kW/600V/25A	
FTH150-1000C	15kW/1000V/15A	
FTH300-600C	30kW/600V/50A	
FTH300-1000C	30kW/1000V/30A	

FTP-C, FTH-C (2 kW...90 kW)

Specifications

Model	FTP032-40-120C	FTP032-80-60C	FTH150-40C	FTH150-80C	FTH150-600C	FTH150-1000C
Voltage	0~40V	0~80V	0~40V	0~80V	0~600V	0~1000V
Current	0~120A	0~60A	0~375A	0~187.5A	0~25A	0~15A
Power	3.2kW		15kW		15kW	
Voltage programming						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current programming						
Resolution	16Bits					
Accuracy	0.1%+0.3%F.S.	0.1%+0.2% F.S.				
Voltage measurement						
Resolution	16Bits					
Accuracy	0.1%+0.1%F.S.					
Current measurement						
Resolution	16Bits					
Accuracy	0.1%+0.3%F.S.	0.1%+0.2%F.S.				
Ripple Noise						
Voltage ripple(p-p)	60mV	80mV	60mV	80mV	350mV	650 mV
Voltage ripple(rms)	20mV	20mV	20mV	20mV	60mV	100mV
Slew rate						
Voltage	Max:10V/ms				Max：40V/ms (below 50% rated current)	
Current	Max：2A/ms					
OVP set						
Range	0~110%F.S.					
Accuracy	1%F.S.					
Transient response	Typical 2ms, for a 50% load change					
Efficiency	0.9 (typical value)		0.87 (typical value)			
Wave Standards	ISO16750-2, VW80000				VW80300	
Interfaces	RS232 and LAN					
AC Input	190VAC~265VAC, 47Hz~63Hz, PF: 0.98(Typical)		340VAC~420VAC, 47Hz~63Hz			
Dimension (mm)	430(W) X 88(H) X 453(D)		482(W) X265(H) X694(D)			
Weight	~15kg		~60kg			

FT6200A Series Load (150 W, 300 W)

Low-power Programmable DC Electronic Load

FT6213A 300 W/500V/15A (1/2 2U)

- Voltage range: 150 V, 500 V;
- Current range: 15 A, 30 A;
- Rated power:150 W, 300 W;
- Voltage Accuracy (0.025%+0.025%F.S.), Current Accuracy (0.05%+0.05%F.S.);
- Min resolution: voltage 0.5mV, current 0.05mA;
- CC, CV, CR, CP static test mode, dynamic test up to 50 Khz;
- Fast NG/GO detection to tell if the DUT is within specification (in static test and dynamic test mode);
- Adjustable current slew rate, Von and Voff are settable;
- Testing of OCP, OPP, LED simulation, Load effect, battery inner resistance, battery discharge;
- Short circuit simulation;
- 10 programmable sequence test files, each with 100 steps, sequence file can be linked;
- 50 programmable automatic test files, each with 20 steps, self-starting is allowed;
- Store and recall up to 20 groups of setups;
- Flexible triggering options via front panel, external input, or bus (used for dynamic test, automatic test);
- Voltage remote sense function;
- Standard current monitoring port and digital I/O port;
- ±OVP, ±OCP, ±OPP, ±LVP, OTP etc.. protection functions;
- Standard RS232, supports SCPI programming commands;
- 4.3-inch TFT color LCD display.

General

FT6200A series is a full-featured 150 W/300 W programmable electronic load. The load adopts 2U half-rack chassis design, offers 150 V or 500 V voltage range and 15 A or 30 A current range. It provides a 4.3-inch color LCD, GO/NG output port, and advanced features such as sequence mode programming, auto test programming, OCP test, OPP test, battery discharge test, short circuit simulation, etc., to name a few. Enhanced features include dynamic test and auto test file sequencing and step triggering for synchronizing events. Additionally, the GO/NG output port is useful for UUT's pass/fail testing on an automated production line or ATE system.

Overall, the FT6200A series loads are reliable, high efficient and precision instruments primarily designed to test switching power supplies, A/D power supplies, power electronic components, adapters, 3C batteries and chargers, etc..

Transient test

Modern electronic devices operate at very high speeds and demand rapid transient response characteristics. To address these applications, the series offers high speed, programmable dynamic current loading (CCD). The user programmable parameters includes current high/low level, T1/T2, rise/fall rate. The dynamic loading supports continuous, pulse, and toggle modes. When configured as pulse or toggle mode, the load can accept a trigger signal via front panel, external input, or bus, which allow the dynamic load behavior to be synchronized with other events. The dynamic change is up to 50kHz.

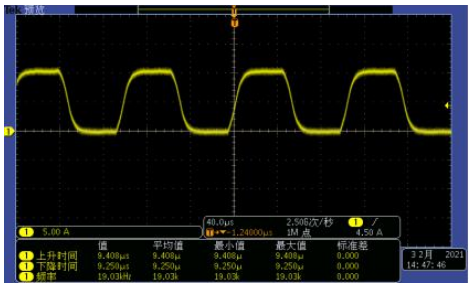
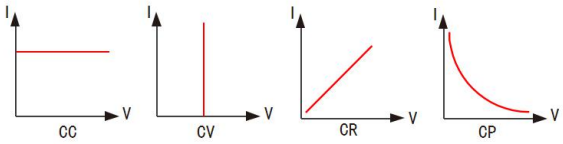


Figure: 10 Khz dynamic loading

Static test

The FT6200A series electronic load has four static test modes: constant current, constant voltage, constant resistance and constant power, which can meet comprehensive test requirements.

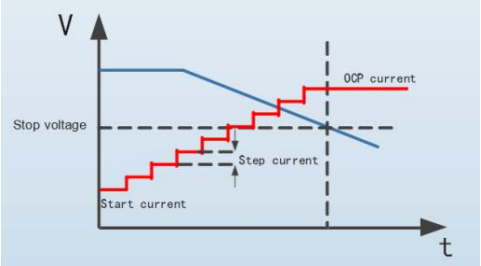


Programmable sequence test

All models provides a programmable sequence function to simulate various load input changes. The sequence feature allows users to program a list of steps to the electronic load's internal memory and execute them. Sequence operates in CCH mode, with max. current slew rate by default. A total of 100 steps can be allocated to each internal memory location, up to a maximum of 10 locations (sequences). The test sequence can be programmed locally through the keypad and knob. Each steps' settings include load value, duration time (50 us ~ 36000 s). Sequence files runs continuously, can be linked to specified sequences, or run for a specified cycles.

OCP/OPP test

All models provides OCP and OPP test feature, which enables the user to set current or power orders to test overcurrent or overpower protections, also to judge the test result as Pass or Fail on electronic load. The maximum current (I_{max}) or maximum power (P_{max}) during test can be captured and showed on the display without using an oscilloscope to verify the correctness of designed overcurrent or overpower.



Automatic test

The principle of the automatic test function is: the load executes the test steps in programmed order according to the automatic test file. In each test step, the load is loaded in specified mode (CC , CV, CR, CP) for a period of time, in the mean time the voltage, current and power are checked to see if they are within the specified range. After running all the test steps, the final result PASS or FAIL is given. In addition, in automatic test the load can accept a trigger signal via front panel, external input, or bus, which allow the test behavior to be synchronized with other events. FT6200A series load can store up to 50 automatic test files, and each file with up to 20 test steps.

Battery discharge test

The battery discharge test function offers three discharge modes: CC, CR and CP. Users can set the cut-off voltage/time/AH, discharge process shall terminate either condition is satisfied. The load will record the AH, WH and discharge time during the discharge process. This discharge test feature can also apply to super capacitor discharge test.

Model options

Model	Specification	Size
FT6211A	150V/30A/150W	1/2 2U
FT6212A	150V/30A/300W	1/2 2U
FT6213A	500V/15A/300W	1/2 2U

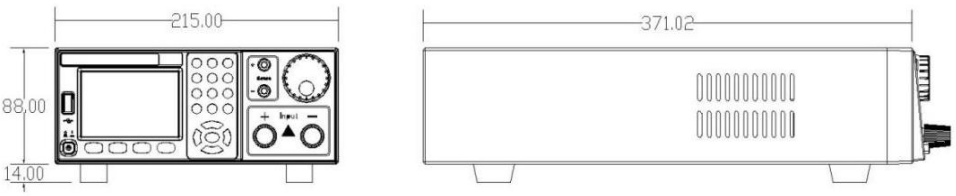


Figure: Dimensions of the FT6200A series

FT6200A Series (150 W, 300 W)

Specifications						
Model	FT6211A		FT6212A		FT6213A	
Voltage	150V		150V		500V	
Current	30A		30A		15A	
Power	150W		300W		300W	
Min Operate Voltage	1.2V@30A		0.9V@30A		3V@15A	
Constant Current (CC)						
Range	3A	30A	3A	30A	3A	15A
Resolution	0.05mA	0.5mA	0.05mA	0.5mA	0.05mA	0.25mA
Accuracy	0.05%+0.05%F.S.					
Constant Voltage (CV)						
Range	30V	150V	30V	150V	100V	500V
Resolution	0.5mV	2.5mV	0.5mV	2.5mV	2mV	8.5mV
Accuracy	0.025%+0.025%F.S					
Constant Resistance (CR)						
Range	0.04Ω～10 Ω	10Ω～20kΩ	0.03Ω～10Ω	10Ω～20kΩ	0.2Ω～10Ω	10Ω～20kΩ
Accuracy	0.01%+0.08S	0.01%+0.0008S	0.01%+0.08S	0.01%+0.0008S	0.01%+0.08S	0.01%+0.0008S
Constant Power (CP)						
Range	150W		300W		300W	
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Dynamic						
T1&T2	10us ～ 50s		10us ～ 50s		10us ～ 50s	
Slew Rate	0.6A/ms ～1.2A/us		0.6A/ms ～ 1.2A/us		0.6A/ms ～ 0.6A/us	
Current Measurement						
Range	3A	30A	3A	30A	3A	15A
Resolution	0.05mA	0.5mA	0.05mA	0.5mA	0.05mA	0.25mA
Accuracy	0.05%+0.05%F.S.					
Voltage Measurement						
Range	30V	150V	30V	150V	100V	500V
Resolution	0.5mV	2.5mV	0.5mV	2.5mV	2mV	8.5mV
Accuracy	0.025%+0.025%F.S					
Short Circuit						
Current（CC）	≒3A	≒30A	≒3A	≒30A	≒3A	≒15A
Voltage（CV）	≒0V	≒0V	≒0V	≒0V	≒0V	≒0V
Power（CP）	≒150W	≒150W	≒300W	≒300W	≒300W	≒300W
Others						
Dimension（H*W*D）	88×215×380					
Weight	4kg		5kg		5kg	
Operate Temperature	0℃～40℃					

FT6300A Series E-load (150W, 300W, 600W)

Programmable DC Electronic Load

FT6301A 120V/30A/150W (1/2 3U)

- Voltage range: 120 V, 500 V;
- Current range: 15 A, 30 A, 60 A, 120 A;
- Rated power: 150 W, 300 W, 600 W;
- CC, CV, CR and CP test modes;
- Sequence test, simulate complex load changes;
- Intelligent auto test function, automatic PASS/FAIL check;
- Battery internal resistance and battery capacity test;
- Remote sensing to compensate voltage drop;
- OCP test, automatically find the OCP point;
- high-brightness VFD display;
- OVP, OCP, OPP, OTP and reverse connection protection;
- Support SCPI commands;
- Standard RS232 interface facilitates remote control;
- Standard PC software;
- 1/2 3U size;

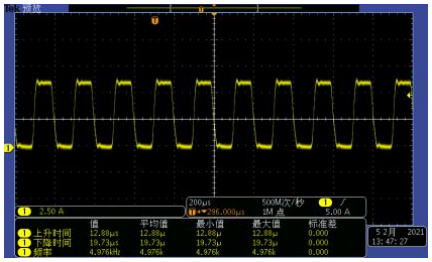
General

The FT6300 series of electronic loads have a variety of models, with power ranging from 150W to 600W and current up to 120A. It is mainly used in the testing of various chargers/adapters, switching power supplies, LED drivers, power batteries, telecom power supplies, fuses, solar cells and their components. The FT6300 series provides basic functions such as CC, CV, CR and CP; it has dynamic and sequence test functions to simulate various load changes; the intelligent automatic test function can greatly improve the test efficiency of the production line.

FT6300A Series (150 W, 300 W, 600 W)

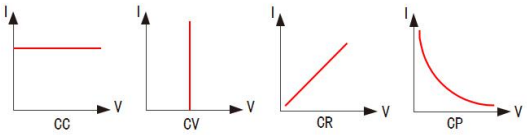
Transient test

FT6300A series electronic load provides programmable dynamic test function, which includes three modes: continuous, pulse, and flip. It is suitable for testing the dynamic characteristics and stability of the power supply, the protection point and protection time of the battery, etc.



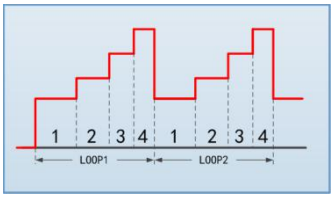
Static test

The FT6300A series electronic load has four test modes: constant current, constant voltage, constant resistance and constant power, which can meet comprehensive test requirements.



Programmable sequence test

FT600 series electronic loads provide sequence test function. Users can edit a load test sequence to simulate various load input changes.

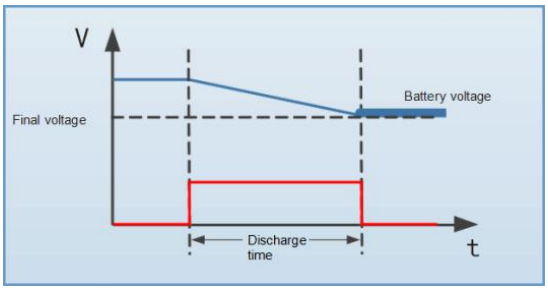


Protections

For protection of the equipment connected, it is possible to set an overvoltage protection threshold (OVP), as well as one for overcurrent (OCP) and overpower (OPP). As soon as one of these thresholds is reached for any reason, the loading will be immediately shut off and a status signal will be prompt on the display. There is furthermore an overtemperature protection (OTP), which will shut off the loading if the power supply overheats.

Battery test

Battery testing includes: battery internal resistance test and battery capacity test. Battery capacity test is implemented in the constant current (CC) mode , users only need to set the protection voltage and discharge current. The load records the voltage, current, time and AH automatically, and it will terminate the test process when voltage drops to the protection voltage. Users can collaborate with the host PC software for testing and analyzing of more parameters.



Automatic test

The FT6300A series has a flexible automatic test feature. The automatic test feature includes multiple test modes such as CC, CV, CR and CP, which can compare the test parameters with corresponding upper and lower limits, and display the test results in the form of PASS/FAILED. This feature greatly improves the test efficiency.

SCPI and remote control

FT6300A series supports standard SCPI commands, all panel operations can be realized through SCPI commands. It facilitates the establishment of the intelligent test platform and secondary development. Remote control is available through RS232 interface.

PC software

The FT6300 series provides a host PC software with virtual instrument function, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Model options

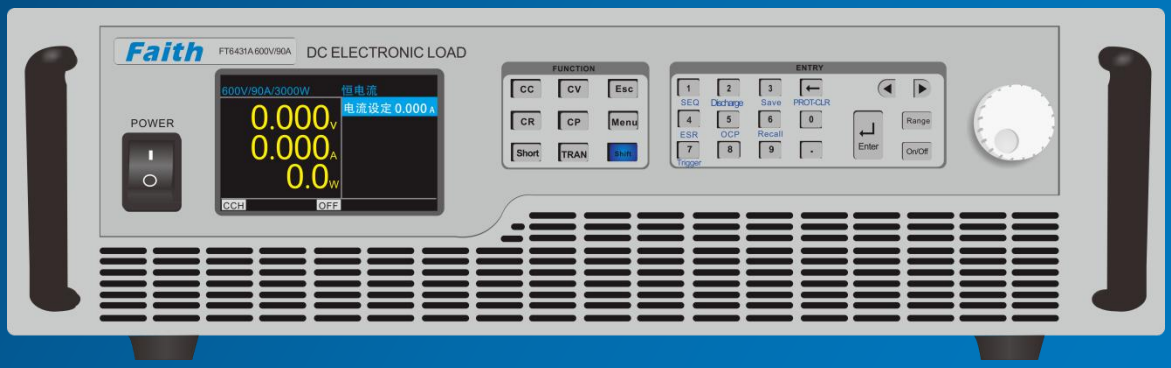
Model	Specification	Size
FT6301A	120V/30A/150W	1/2 3U
FT6302A	120V/30A/300W	1/2 3U
FT6303A	500V/15A/300W	1/2 3U
FT6304A	120V/60A/300W	1/2 3U
FT6305A	500V/30A/600W	1/2 3U
FT6306A	120V/120A/600W	1/2 3U

FT6300A Series (150 W, 300 W, 600 W)

Specifications - 1						
Model	FT6301A	FT6302A	FT6303A	FT6304A	FT6305A	FT6306A
Voltage	0～120V	0～120V	0～500V	0～120V	0～500V	0～120V
Current	0～30A	0～30A	0～15A	0～60A	0～30A	0～120A
Power	150W	300W	300W	300W	600W	600W
Min operation voltage	1.2V@30A	1V@30A	1.6V@15A	1.5V@60A	1.5V@30A	1.8V@120A
Constant Voltage (CV)						
Range	20V/120V	20V/120V	50V/500V	20V/120V	50V/500V	12V/120V
Resolution	1mV/10mV	1mV/10mV	1mV/10mV	1mV/10mV	1mV/10mV	1mV/10mV
Low range accuracy	0.05%+4mV	0.05%+4mV	0.05%+10mV	0.05%+4mV	0.05%+10mV	0.05%+3mV
High range accuracy	0.05%+30mV	0.05%+30mV	0.05%+130mV	0.05%+30mV	0.05%+130mV	0.05%+30mV
Constant Current (CC)						
Range	3A/30A	3A/30A	3A/15A	6A/60A	3A/30A	12A/120A
Resolution	0.1mA/1mA	0.1mA/1mA	0.1mA/1mA	0.1mA/1mA	0.1mA/1mA	1mA/10mA
Low range accuracy	0.05%+3mA	0.05%+3mA	0.05%+1.5mA	0.1%+6mA	0.1%+3mA	0.1%+12mA
High range accuracy	0.1%+30mA	0.1%+30mA	0.1%+15mA	0.1%+60mA	0.1%+30mA	0.1%+120mA
Constant Resistance (CR)（Input voltage & current ≥ 10%F.S.）						
Low range	0.1～10Ω	0.1～10Ω	0.1～10Ω	0.1～10Ω	0.1～10Ω	0.1～10Ω
High range	10.00 ～4kΩ	10.00～4kΩ	10.00～4kΩ	10.00～4kΩ	10.00～4kΩ	10.00～4kΩ
Resolution	16bit	16bit	16bit	16bit	16bit	16bit
Low range accuracy	0.35%+0.08S	0.35%+0.08S	0.35%+0.08S	0.35%+0.08S	0.35%+0.08S	0.35%+0.08S
High range accuracy	0.35%+0.008S	0.35%+0.008S	0.35%+0.008S	0.35%+0.008S	0.35%+0.008S	0.35%+0.008S
Constant Power (CP) Input voltage & current ≥ 10%F.S.）						
Range	100W/150W	100W/300W	100W/300W	100W/300W	100W/600W	100W/600W
Resolution	1mW/10mW	1mW/10mW	1mW/10mW	1mW/10mW	1mW/10mW	1mW/10mW
Low range accuracy	1%+100mW					
High range accuracy	1%+150mW	1%+300mW	1%+300mW	1%+300mW	1%+600mW	1%+600mW
Current measurement						
Low range accuracy	0.1%+3mA	0.1%+3mA	0.1%+3mA	0.1%+12mA	0.1%+3mA	0.1%+12mA
High range accuracy	0.1%+30mA	0.1%+30mA	0.1%+15mA	0.1%+60mA	0.1%+30mA	0.1%+120mA
Voltage measurement						
Low range accuracy	0.02%+4mV	0.02%+4mV	0.02%+10mV	0.02%+4mV	0.02%+10mV	0.02%+3mV
High range accuracy	0.02%+30mV	0.02%+30mV	0.02%+130mV	0.02% + 30mV	0.02%+130mV	0.02%+30mV
Power measurement						
Accuracy	1%+150mW	1%+300mW	1%+300mW	1%+300mW	1%+600mW	1%+600mW
Transient	Dynamic frequency： 0.083Hz～1kHz					
Dimension（mm）	213（W）×134（H）×374（D）（FT6301A/FT6302A/FT6303A/FT6304A）					
	213（W）×134（H）×594（D）（FT6305A/FT6306A）					

FT6400A Series E-load (1200W, 2000W, 3000W)

Programmable DC Electronic Load



FT6431A 600V/90A/3000W (3U)

- Voltage range: 150 V, 600 V;
- Current range: 30A...240A;
- Rated power: 1200 W, 2000 W, 3000 W;
- 20kHz dynamic test, adjustable rising/falling slew rate up to 9.6 A/us;
- OCP test, battery test, short circuit simulating;
- Time measurement, ($V_{peak+/-}$) measurement;
- Programmable sequence test support CC, CV, CP, CR;
- OVP, OCP, OPP, OTP, RVP etc.;
- Support analog programming;
- Support SCPI, facilitates secondary development;
- Standard LAN, RS232 communication interfaces;
- 19-inch rack-mount 3U chassis, facilitates system integration.

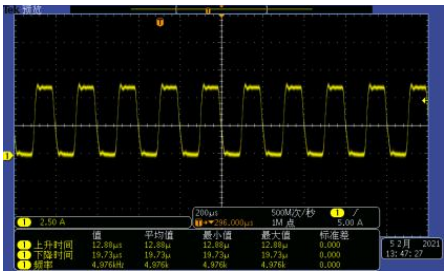
General

FT6400A series DC electronic load is complete with 150 V, 600 V voltage ranges and 1200 W, 2000 W and 3000 W power ranges. The current of a single unit ranges from 30 A to 240 A. The series provide 0.05%+0.05%F.S. and 0.1%+0.1%F.S. accuracy for voltage and current measurement respectively. In addition, FT6400 series offer 20 kHz dynamic load and adjustable rising and falling current slew rate. Moreover, the current slew rate is up to 4.8 A/μs, 6.4 A/μs and 9.6 A/μs for 150V/120A/1200W, 150V/160A/2000W, 150V/240A/3000W models respectively.

FT6400 series adopt 19-inch rack-mount 3U chassis design, 4.3-inch color TFT screen, full keypad and rotary knob, convenient for benchtop users. The series also come with standard LAN and RS232 interfaces, support SCPI protocol, which is ideal for automated test systems.

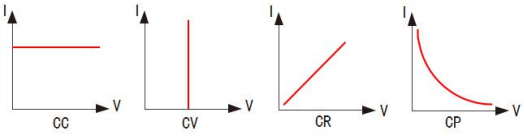
Furthermore, the FT6400 series come standard with user programmable sequence, CV/CC/CP/CR modes and and built-in test routines for battery test, OCP test, short circuit simulation, time measurement, V_{peak+}/ V_{peak-} measurement, etc., to name a few.

Transient test



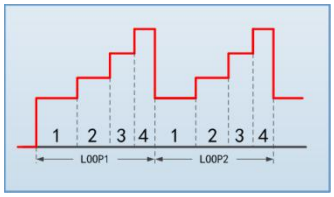
The FT6400A series programmable dc electronic loads provide high- speed programmable dynamic test functions (current dynamic and resistance dynamic testing). The dynamic test function allows users to set load high/low level, T1/T2 time and slew rate with a maximum slew rate 10A/us. It is often used to test the dynamic characteristics of the power supply.To meet the needs of different situations, the dynamic test includes three modes: continuous, pulse and flip. Continuous mode can provide up to 20kHz load frequency; in pulse and flip mode, trigger signal can be received to generate load change, allowing you to test as you want.

Static test



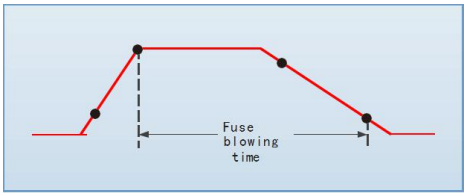
The FT6400 series loads provides constant current, constant voltage, constant resistance and constant power operation modes to satisfy a wide range of test requirements.

Programmable sequence test



FT6400 series electronic loads provide sequence test function. Users can edit a load test sequence to simulate various load input changes.

Time measurement



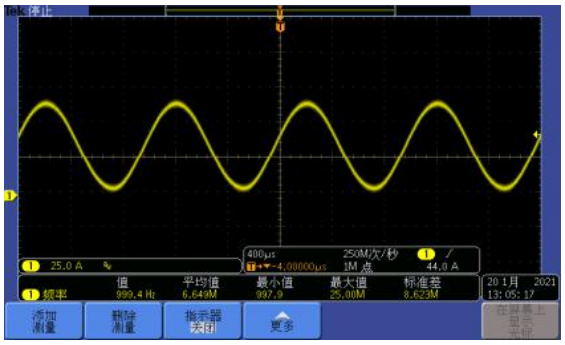
The FT6400A series has time measurement feature, which can capture external switching signals, combining with voltage and current signals to test system response and action time. For pulse currents, it can test its pulse width. It is mainly used to test the switching time, holding time, rising edge and falling edge time of the power supply. It can also measure the fuse blowing time and circuit breaker response time.

Protections

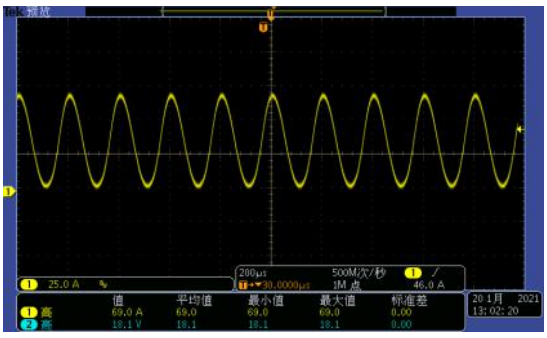
The FT6400A series provides OVP, OCP, OPP, OTP, voltage inversion protections, etc. In addition, users can set voltage, current, and power protection values as needed. When the output voltage of the device under test rises or falls slowly, the Von and Voff functions can be turned on. To meet more test requirements, the Von load voltage supports locking or non-locking.

External analog programming

Other devices can continuously control the load through an external voltage signal (DC or AC). The external voltage signal of 0～10V corresponds to 0～100% full-scale load current. This function is also suitable for various complex load waveforms test.

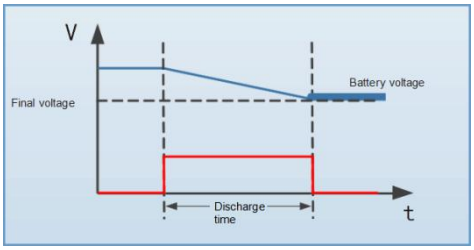


1kHz sine wave



5kHz sine wave

Battery test



Battery test includes battery internal resistance test and battery capacity test. It adopts the constant current method for battery discharging process. The electronic load will records the discharge time and AH/WH automatically during the process.

FT6400A Series (1200 W, 2000 W, 3000 W)

PC software

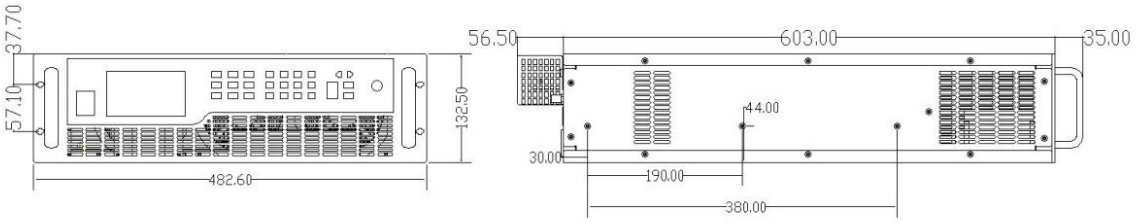
The FT6400 series provides a host PC software with virtual instrument function, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.

Model options

Model	Specification	Size
FT6412A	150V/120A/1200W	3U
FT6413A	600V/30A/1200W	3U
FT6420A	150V/160A/2000W	3U
FT6421A	600V/60A/2000W	3U
FT6430A	150V/240A/3000W	3U
FT6431A	600V/90A/3000W	3U

Dimension

FT6412~FT6431 Model dimension



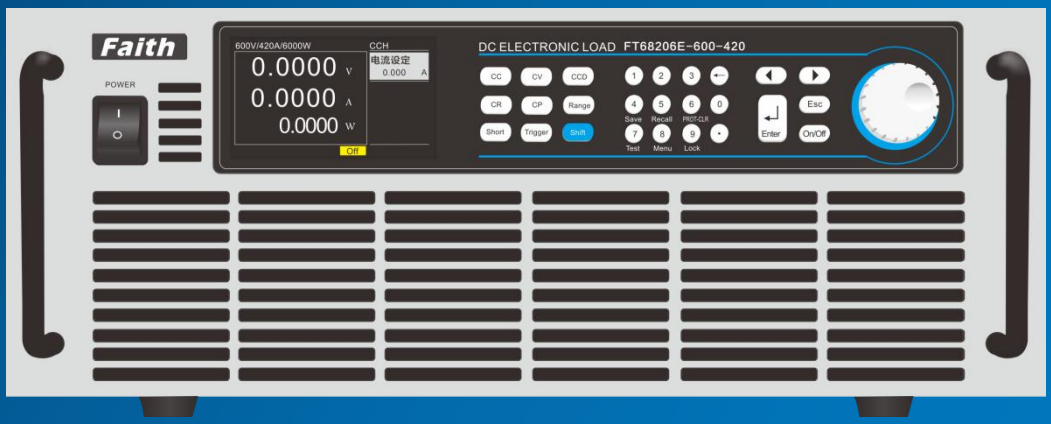
Specification - 1						
Model	FT6412A	FT6413A	FT6420A	FT6421A	FT6430A	FT6431A
Voltage	150V	600V	150V	600V	150V	600V
Current	120A	30A	160A	60A	240A	90A
Power	1200W	1200W	2000W	2000W	3000W	3000W
Min Operate Voltage	2V@120A	5V@30A	2V@160A	5V@60A	2V@240A	5V@90A
Constant Current (CC)						
Range	12A/120A	3A/30A	16A/160A	6A/60A	24A/240A	9A/90A
Resolution	0.2mA/2mA	0.05mA/0.5mA	0.3mA/3mA	0.1mA/1mA	0.4mA/4mA	1.5mA/15mA
Low Range Accuracy	0.1%+0.15%F.S.					
High Range Accuracy	0.1%+0.15%F.S.					
Constant Voltage (CV)						
Range	30V/150V	120V/600V	30V/150V	120V/600V	30V/150V	120V/600V
Resolution	0.5mV/2.5mV	2mV/10mV	0.5mV/2.5mV	2mV/10mV	0.5mV/2.5mV	2mV/10mV
Low Range Accuracy	0.05%+0.1%F.S.					
High Range Accuracy	0.05%+0.1%F.S.					
Constant Power (CP) *2						
Range	0~1200W	0~1200W	0~2000W	0~2000W	0~3000W	0~3000W
Resolution	20mW	20mW	40mW	40mW	60mW	60mW
Accuracy	0.5%+1%F.S.					
Constant Resistance (CR) *2*3						

FT6400A Series (1200 W, 2000 W, 3000 W)

Low Range	0.1~75Ω	1.5~1200Ω	0.08~50Ω	0.8~600Ω	0.05~35Ω	0.55~400Ω
High Range	0.48~375Ω	7.5~6000Ω	0.4~250Ω	4~3000Ω	0.24~180Ω	2.6~2000Ω
Resolution	16 bits					
Low Range Accuracy	0.35%+0.075S					
High Range Accuracy	0.1%+0.005S					
Slew Rate						
Low Range Slew Rate	0.003~0.24A/us	0.003~0.06A/us	0.003~0.36A/us	0.003~0.12A/us	0.003~0.54A/us	0.003~0.18A/us
High Range Slew Rate	0.24~4.8A/us	0.06~1.2A/us	0.36~6.4A/us	0.12~2.4A/us	0.54~9.6A/us	0.18~3.6A/us
Accuracy	(1±35%)* Set value					
Voltage Measurement						
Range	30V/150V	120V/600V	30V/150V	120V/600V	30V/150V	120V/600V
Resolution	0.5mV/2.5mV	2mV/10mV	0.5mV/2.5mV	2mV/10mV	0.5mV/2.5mV	2mV/10mV
Accuracy	0.05%+0.05%F.S.					
Current Measurement						
Range	12A/120A	3A/30A	16A/160A	6A/60A	24A/240A	9A/90A
Resolution	0.2mA/2mA	0.05mA/0.5mA	0.3mA/3mA	0.1mA/1mA	0.4mA/4mA	1.5mA/15mA
Accuracy	0.1%+0.1%F.S.					
Temperature						
Protection Temp	85℃					
Operation Temp	0~40℃					
Full Power Operation Temp	0~25℃					
Others						
Weight	20kg	20kg	24kg	24kg	28kg	28kg
Communication	RS232, LAN					
Display	TFT LCD Display					
Dimension（mm）	483（W）×133（H）×600（D）					

FT68200 Load (6 kW...60 kW)

High-power Programmable DC Electronic Load



FT68206E 6 kW/600V/420A (4U)

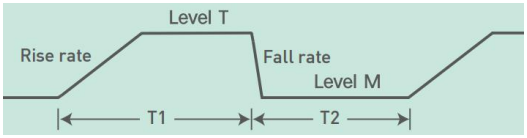
- Voltage range: 150 V, 600 V, 1200 V;
- Current range: 100A/kW (150V), 70A/kW (600V), 40A/kW (1200V), 2400A max. per unit, can be extended to 10000A;
- Rated power: 6kW, 8kW, 10kW, 12kW, 18kW, 24kW, 30kW, 36kW, 42kW, 48kW, 54kW, 60kW, max. 600kW (parallel);
- Voltage Accuracy (0.025%+0.025%F.S.), Current Accuracy (0.05%+0.05%F.S.);
- 500kHz sampling speed, 50kHz dynamic current, 30kHz dynamic SWEEP ;
- Readback V/I data transmission rate up to 1000Hz;
- Master-slave parallel operation, power expandable up to 600kW;
- Operation modes CC, CV, CR, CP, CCD, CV+CC, CR+CC, CP+CC;
- Short circuit simulation, instantaneous overpower loading capability;
- OCP, OPP, LED simulation, Load effect, Battery inner resistance & discharge test;
- Time measurement, (Vpk+/-) measurement;
- 20 sequence test files, each with 100 steps, sequence file can be linked
- 50 Auto test files, each with 20 steps, self-starting is allowed
- Voltage-on (Von) & voltage-off (Voff) operation;
- Store and recall up to 20 groups setups;
- Flexible triggering options via front panel, external input, or bus (used for transient test, automatic test);
- Galvanically isolated analog interface provides current programming and monitoring capability ;
- ±OVP, ±OCP, ±OPP, ±LVP, OTP;
- Standard RS232, RS485, LAN, USB (serial), optional GPIB or CAN interface;
- Support SCPI, ModBus and CANopen protocol;

General

FT68200 series high performance high-power DC electronic load provides three voltage ranges 150 V/600 V/1200 V, maximum current 2400 A per single unit, stand-alone power from 6 kW to 60 kW, expandable up to 600 kW, 10000 A by master-slave paralleling. Ultra-high power density, 6kW is with only 4U height. Wider operating region, faster dynamic frequency, as well as transient mode, OCP/OPP test, sequence test, automatic test and battery discharge test functions greatly enhances its test strength and expands application coverage. Furthermore, two times instantaneous overpower loading capability can effectively reduces user's test cost. Built-in standard RS232, RS485, LAN, USB (serial), optional GPIB and CAN interface, supports SCPI, ModBus RTU and CANopen protocol, which facilitates system integrators. FT68200 series has full protection functions, which can be applied to power battery discharge, DC charging station, charging piles, charging pile modules, vehicle On Board chargers (OBC), high-power switching power supplies, power electronics and other power electronics products.

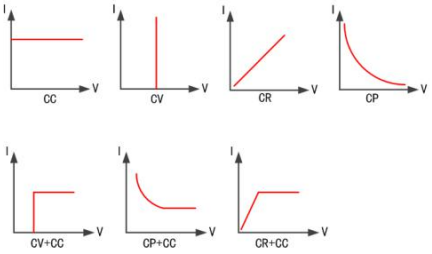
Transient test

Modern electronic devices operate at very high speeds and demand rapid transient response characteristics. To address these applications, the series offers high speed, programmable dynamic current loading (CCD). The figure shown below exhibits the programmable parameters such as current high/low level, T1/T2, rise/fall rate. The dynamic loading supports continuous, pulse, and toggle modes. When configured as pulse or toggle mode, the load accepts a trigger signal via front panel, external input, or bus, which allow the dynamic load behavior to be synchronized with other events. The dynamic change is up to 50kHz.



Static test

In addition to the basic test modes of CC, CV, CR, CP, the series load provides users with CV+CC, CP+CC and CR+CC complex modes to meet comprehensive test requirements (complex modes are unavailable for suffix "E" models such as FT68206E).

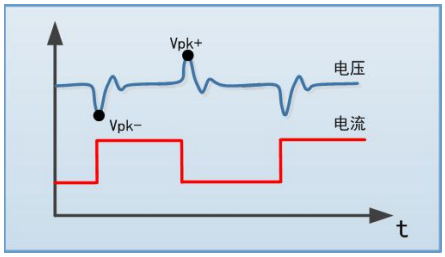


Programmable sequence test

All models provides a programmable sequence function to simulate various load input changes. The sequence feature allows users to program a list of steps to the electronic load's internal memory and execute them. Sequence operates in CCH mode, with max. current slew rate by default. A total of 100 steps can be allocated to each internal memory location, up to a maximum of 20 locations (sequences). The test sequence can be programmed locally through the keypad and knob. Each steps' settings include load value, duration time (100 us ~ 99999 s). Sequence files runs continuously, can be linked to specified sequences, or run for a specified cycles.

30kHz dynamic frequency sweep, $V_{peak\ (+/-)}$ capture

The FT68200 series load offers a unique dynamic frequency sweep function with variable frequencies up to 30kHz. This capability is ideal for determining worst case voltage peaks. Measurement of the $V_{peak\ (+/-)}$ can be achieved using this function with a sampling rate of 500kHz. It can effectively test the dynamic response of various power supplies at different frequencies. .



1kHz data transmission rate

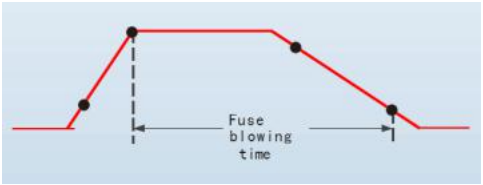
The series provides a data transmission rate of up to 1kHz, that is, 1000 voltage and current data points per second, which facilitates applications such as waveform drawing and dynamic data analysis. In system integration applications, the host computer can use this feature for acquiring test data, avoiding the use of oscilloscope and high-speed current acquisition hardware, thus saves costs.

Instantaneous overpower loading capability

All models has an instantaneous load capacity of 2 times the rated power (time range: 5s). This greatly saves costs for instantaneous high-power testing environment. This function is suitable for testing situations such as DC motor start, power supply instantaneous overload, power battery instantaneous high-rate discharge, instantaneous load capacity test of power electronic devices, etc..

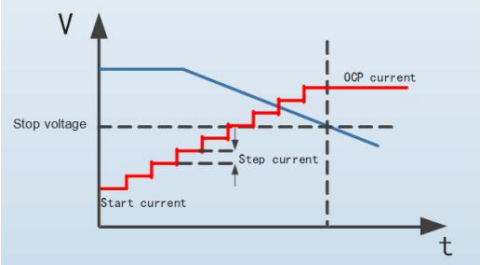
Time measurement

All models provide the measurement of rising and falling time of input voltage, current or external level signal. It can be applied to measure the turn on and off time, holding time, rising edge and falling edge time of power supplies. It can also measure the fuse blowing time and circuit breaker response time. The measurement time range is 0.1 ms ~ 20 h, and the resolution is 0.1 ms.



OCP/OPP test

All models provides OCP and OPP test feature, which enables the user to set current or power orders to test overcurrent or overpower protections, also to judge the test result as Pass or Fail on electronic load. The maximum current (I_{max}) or maximum power (P_{max}) during testing can be captured and showed on the display without using an oscilloscope to verify the correctness of designed overcurrent and overpower. It can save a lot of testing time for the user.



Automatic test

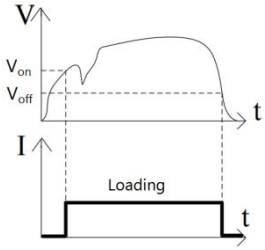
The principle of the automatic test function is: the load executes the test steps in programmed order according to the automatic test file. In each test step, the load is loaded in specified mode (CC , CV, CR, CP) for a period of time, in the mean time the voltage, current and power are checked to see if they are within the specified range. After running all the test steps, the final result PASS or FAIL is given. In addition, in automatic test the load can accept a trigger signal via front panel, external input, or bus, which allow the test behavior to be synchronized with other events also. FT68200 series load can store up to 50 automatic test files, and each file with up to 20 test steps.

Battery discharge test

The series uses the DC discharge method (DCR) to test the battery internal resistance and capacity. It provides three discharge modes: CC, CR and CP. Users can set the cut-off voltage/time/AH, discharge process shall terminate either condition is satisfied. The load will record the AH, WH and discharge time during the discharge process. This discharge test feature can also apply to super capacitor discharge test.

Voltage-on (Von) & voltage-off (Voff) operation

In static mode (CC, CV, CP and CP) operation, users are able to control the input turn on/off state for the DC electronic load by configuring the Von/Voff function.

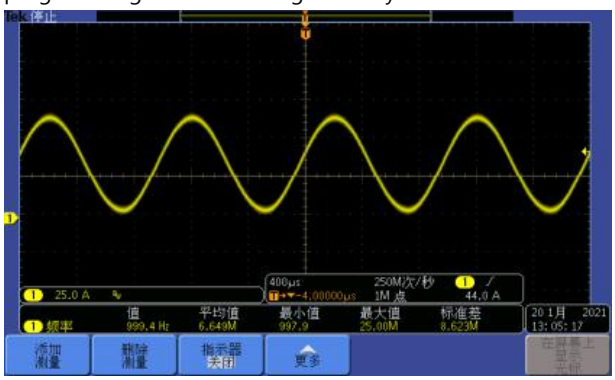


Protective features

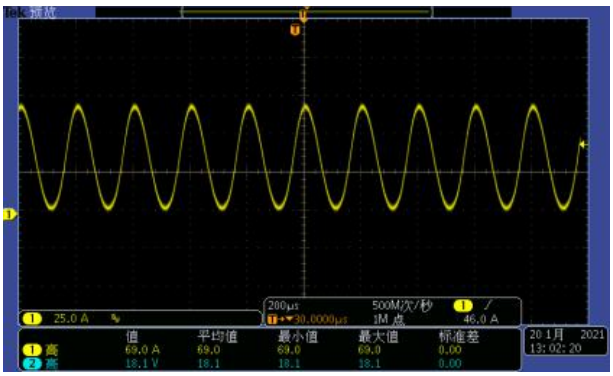
For protection of the equipment connected, the load provide programmable protection functions such as OVP, OCP, OPP and LVP. Moreover, there are built-in hardware protection functions OV, OC, OP and OTP. If a protection is triggered, the load will be shut off immediately and a status signal will be prompt on the display

External analog programming and monitoring

In addition to front panel and remote interface control, current values can also be programmed from 0...100% with an analog control signal of 0 V...10 V (available in CCH mode only). To monitor the input current, there are analog outputs with 0 V...10 V. The current programming and monitoring accuracy is 0.5%+0.5%F.S..



1kHz sine wave



5kHz sine wave

Digital interfaces

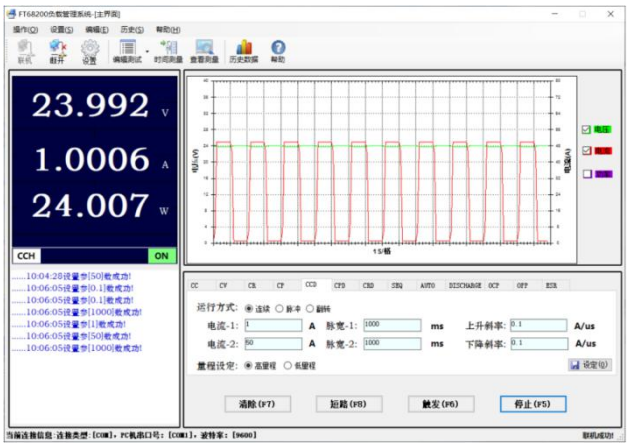
In addition to the local controls through full keypad rotary knob, there are standard remote control interfaces such as standard RS232, RS485, LAN, USB (serial), optional GPIB and CAN interfaces. USB, RS232 and LAN can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported, with CAN only CANopen supported.

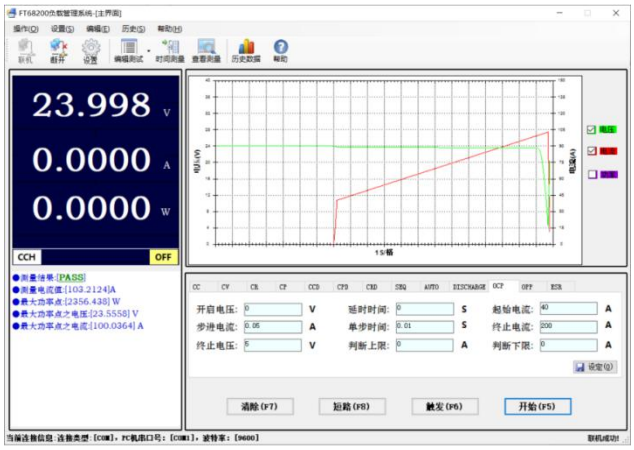
Master-slave parallel

All models provides the user with smart Master-Slave parallel controls, which enables the user to program the load currents of the Master unit and have them automatically calculated and distributed to the slave loads. For increased power and current, up to 10 identical loads can be run in parallel to achieve the desired power and load current. Using several loads in parallel to simulate a single load dramatically simplifies the operation.

Optional control software

The series provide a control software for Windows PCs, which can read test data, generate images, export reports, print reports, etc. in real time, it is convenient for customers to use.





Options

FT68201A/E graphical visualization control software FaithLoad;
AC load rectifier accessories;
Optional digital interfaces such as GPIB, CAN;
Parallel cable (1 Meter)

Optional accessories table 1

Item	Type name	Notes
Host PC software	FT68201A/E FaithLoad	FT68200A/E host PC software
AC load rectifier accessory	MD220-50	80～260Vac/50A, single phase input
AC load rectifier accessory	MD220-100	80～260Vac/100A, single phase input
AC load rectifier accessory	MD380-100	190～450Vac/100A, 3 phase input
AC load rectifier accessory	MD220-200	190～450Vac/200A, 3 phase input
GPIB interface	FT68201B	
CAN interface	FT68201C	
Parallel cable（1M）	PC010-682	

FT68200 Series (6 kW...60 kW)

Model options

Model Series	Power	150V	600V	1200V	Height*
A series	6KW	FT68206A-150-600	FT68206A-600-420	FT68206A-1200-240	4U
	8KW	FT68208A-150-800	FT68208A-600-560	FT68208A-1200-320	7U
	10KW	FT68210A-150-1000	FT68210A-600-700	FT68210A-1200-400	7U
	12KW	FT68212A-150-1200	FT68212A-600-840	FT68212A-1200-480	7U
	18KW	FT68218A-150-1800	FT68218A-600-1260	FT68218A-1200-720	11U
	24KW	FT68224A-150-2400	FT68224A-600-1680	FT68224A-1200-960	14U
	30KW	FT68230A-150-2400	FT68230A-600-2100	FT68230A-1200-1200	20U
	36KW	FT68236A-150-2400	FT68236A-600-2400	FT68236A-1200-1440	20U
	42KW	FT68242A-150-2400	FT68242A-600-2400	FT68242A-1200-1680	26U
	48KW	FT68248A-150-2400	FT68248A-600-2400	FT68248A-1200-1920	26U
	54KW	FT68254A-150-2400	FT68254A-600-2400	FT68254A-1200-2160	32U
	60KW	FT68260A-150-2400	FT68260A-600-2400	FT68260A-1200-2400	32U
E series	6KW	FT68206E-150-600	FT68206E-600-420	FT68206E-1200-240	4U
	8KW	FT68208E-150-800	FT68208E-600-560	FT68208E-1200-320	7U
	10KW	FT68210E-150-1000	FT68210E-600-700	FT68210E-1200-400	7U
	12KW	FT68212E-150-1200	FT68212E-600-840	FT68212E-1200-480	7U
	18KW	FT68218E-150-1800	FT68218E-600-1260	FT68218E-1200-720	11U
	24KW	FT68224E-150-2400	FT68224E-600-1680	FT68224E-1200-960	14U
	30KW	FT68230E-150-2400	FT68230E-600-2100	FT68230E-1200-1200	20U
	36KW	FT68236E-150-2400	FT68236E-600-2400	FT68236E-1200-1440	20U
	42KW	FT68242E-150-2400	FT68242E-600-2400	FT68242E-1200-1680	26U
	48KW	FT68248E-150-2400	FT68248E-600-2400	FT68248E-1200-1920	26U
	54KW	FT68254E-150-2400	FT68254E-600-2400	FT68254E-1200-2160	32U
	60KW	FT68260E-150-2400	FT68260E-600-2400	FT68260E-1200-2400	32U

* Height excludes casters. All specifications are subject to changes without notice.

Optional accessories table 2: High current test cable matching table

Specification	DC2-2P15M	DC16-2P20M	DC25-2P25M	DC50-2P20M	DC50-2P40M	DC120-2P20M	DC150-2P20M
Max voltage	750V						
Max current	10A	60A	100A	200A	200A	300A	400A
Terminal	M8/Alligator	M8/M8	M8/M8	M8/M8	M8/M8	M8/M8	M10/M10
Cross-sectional area	4.0mm²	16mm²	25mm²	50mm²	50mm²	120mm²	150mm²
Length	~1.5m	~2m	~2m	~2m	~4m	~2m	~2m
Shape							

FT68200 Series (6 kW...60 kW)

Specification table -1						
Model	FT68206E-150-600		FT68206E-600-420		FT68206E-1200-240	
Voltage	150V		600V		1200V	
Current	600A		420A		240A	
Power	6,000W		6,000W		6,000W	
U_{Min} for I_{Max}	1.5V/600A		14V/420A		20V/240A	
Constant current						
Range	0-60A	0-600A	0-42A	0-420A	0-24A	0-240A
Resolution	1mA	10mA	0.7mA	7mA	0.4mA	4mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Constant voltage						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Constant power						
Range	0-6,000W		0-6,000W		0-6,000W	
Resolution	100mW		100mW		100mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
Constant resistance						
Range	0.009～50Ω	0.09～250Ω	0.053～286Ω	0.53～1429Ω	0.186～1000Ω	1.86～5000Ω
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	
Dynamic						
T1&T2	10us～60S		10us～60S		10us～60S	
Resolution	2us		2us		2us	
Accuracy	1us+20PPM		1us+20PPM		1us+20PPM	
Current slew rate	0.001~0.6A/us	0.01~6A/us	0.0001~0.4A/us	0.001~4A/us	0.0001~0.24A/us	0.001~2.4A/us
Current measurement						
Range	0-60A	0-600A	0-42A	0-420A	0-24A	0-240A
Resolution	1mA	10mA	0.7mA	7mA	0.4mA	4mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Other specs						
AC input	220VAC ±10%, 50～60Hz, 360VA					
Operation temp	0～40℃					
Max power operation	0～25℃					
Weight	40Kg					
Size	482.6mm(W)*177mm(H)*662.2mm(D)					

FT68200 Series (6 kW...60 kW)

Specification table -2						
Model	FT68212E-150-1200		FT68212E-600-840		FT68212E-1200-480	
Voltage	150V		600V		1200V	
Current	1200A		840A		480A	
Power	12,000W		12,000W		12,000W	
U_{Min} for I_{Max}	1.5V/1200A		14V/840A		20V/480A	
Constant current						
Range	0-120A	0-1200A	0-84A	0-840A	0-48A	0-480A
Resolution	2mA	20mA	1.4mA	14mA	0.8mA	8mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Constant voltage						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Constant power						
Range	0-12,000W		0-12,000W		0-12,000W	
Resolution	200mW		200mW		200mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
Constant resistance						
Range	0.005～25Ω	0.05～125Ω	0.027～143Ω	0.27～714Ω	0.093～500Ω	0.93～2500Ω
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.	
Dynamic						
T1&T2	10us～60s		10us～60s		10us～60s	
Resolution	2us		2us		2us	
Accuracy	1us+20PPM		1us+20PPM		1us+20PPM	
Current slew rate	0.001~1.2A/us	0.01~12A/us	0.0001~0.8A/us	0.001~8A/us	0.0001~0.48A/us	0.001~4.8A/us
Current measurement						
Range	0-120A	0-1200A	0-84A	0-840A	0-48A	0-480A
Resolution	2mA	20mA	1.4mA	14mA	0.8mA	8mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Other specs						
AC input	220VAC ±10%, 50～60Hz, 720VA					
Operation temp	0～40℃					
Max power operation	0～25℃					
Weight	72Kg					
Size	482.6mm(W)*310mm(H)*712.2mm(D)					

FT68200 Series (6 kW...60 kW)

Specification table -3						
Model	FT68224E-150-2400		FT68224E-600-1680		FT68224E-1200-960	
Voltage	150V		600V		1200V	
Current	2400A		1680A		960A	
Power	24,000W		24,000W		24,000W	
U_{Min} for I_{Max}	1.5V/2400A		14V/1680A		20V/960A	
Constant current						
Range	0-240A	0-2400A	0-168A	0-1680A	0-96A	0-960A
Resolution	4mA	40mA	2.8mA	28mA	1.6mA	16mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Constant voltage						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Constant power						
Range	0-24,000W		0-24,000W		0-24,000W	
Resolution	400mW		400mW		400mW	
Accuracy	0.2%+0.2% F.S.		0.2%+0.2% F.S.		0.2%+0.2% F.S.	
Constant resistance						
Range	0.002～13Ω	0.02～63Ω	0.013～71Ω	0.13～357Ω	0.046～250Ω	0.46～1250Ω
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	
Dynamic						
T1&T2	10us～60s		10us～60s		10us～60s	
Resolution	2us		2us		2us	
Accuracy	1us+20PPM		1us+20PPM		1us+20PPM	
Current slew rate	0.001~2.4A/us	0.01~24A/us	0.001~1.6A/us	0.01~16A/us	0.001~0.96A/us	0.01~9.6A/us
Current measurement						
Range	0-240A	0-2400A	0-168A	0-1680A	0-96A	0-960A
Resolution	4mA	40mA	2.8mA	28mA	1.6mA	16mA
Accuracy	0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage measurement						
Range	0-30V	0-150V	0-120V	0-600V	0-240V	0-1200V
Resolution	0.5mV	2.5mV	2mV	10mV	4mV	20mV
Accuracy	0.025%+0.025%F.S.		0.025%+0.025%F.S.		0.025%+0.025%F.S.	
Other specs						
AC input	220VAC ±10%, 50～60Hz, 1420VA					
Operation temp	Ambient temperature 0～40℃					
Max power operation	Ambient temperature 0～25℃					
Weight	156Kg					
Size	482.6mm(W)*621mm(H)*712.2mm(D)					

* All specifications are subject to changes without notice.

1. Meet the rated specifications in ambient temperature range of 25±5°C.

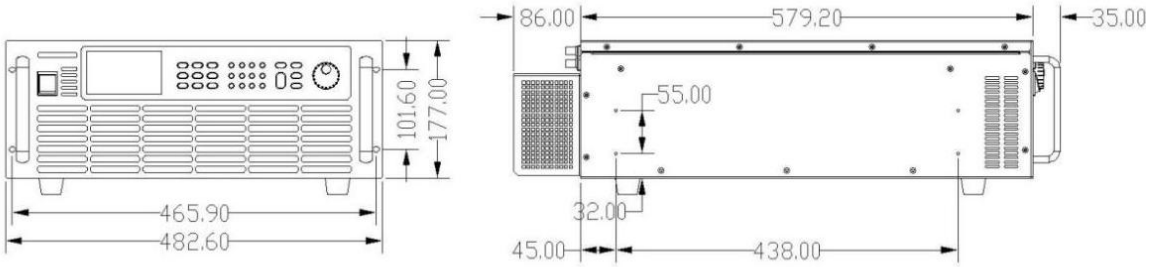
2. If the working voltage exceeds 1.05 times of the rated voltage, it may cause permanent damage to the device.

A/E type model differences

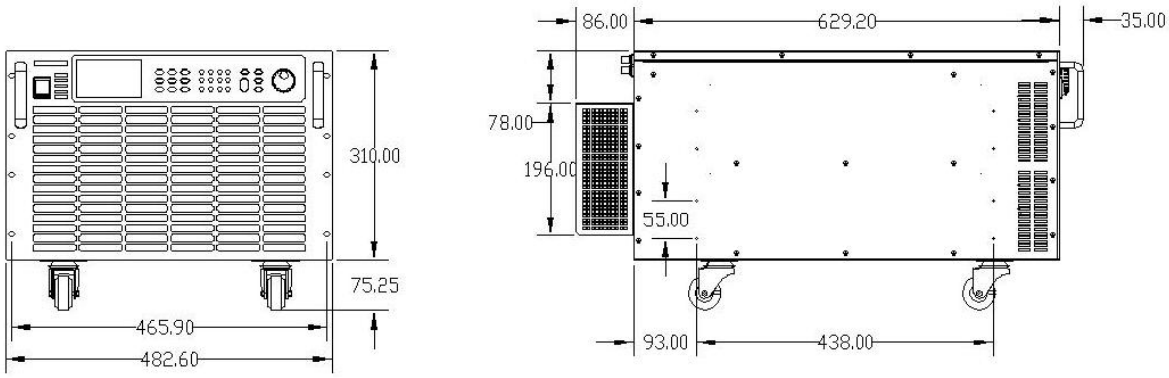
Function list	Model type A	Model type E
Constant current（CCH/CCL）	√	√
Constant voltage（CVH/CVL）	√	√
Constant resistance（CR）	√	√
Constant power（CP）	√	√
Dynamic current（CCDH/CCDL）	√	√
Dynamic resistance（CRD）	√	
Dynamic power（CPD）	√	
Sequence（SEQ）	√	√
Auto test（Auto）	√	√
Over current protection（OCP）	√	√
Over power protection（OPP）	√	√
Discharge test（DISCHARGE）	√	√
Load effect test（LOEF）	√	√
Internal resistance test（ESR）	√	√
LED simulation（LED）	√	
Dynamic frequency sweep	√	√
CV+CC	√	
CR+CC	√	
CP+CC	√	
Memory	√	√
Quick Recall	√	√
Remote sense compensation	√	√
Constant current speed	√	√
Analog programming	√	√
External control	√	√
Short circuit simulation	√	√
Timed loading	√	√
VON/VOFF	√	√
Limit setting	√	√
Hardware limit	√	√
Protection settable	√	√
Time measurement	√	√
Vpk+/-	√	√
Data transmission	1kHz/s	1kHz/s
Parallel	√	√
Communication ports	RS232/RS485/LAN/USB (GPIB, CAN optional)	RS232/RS485/LAN/USB (GPIB, CAN optional)
Protocol	SCPI, ModBus	SCPI, ModBus

Dimension

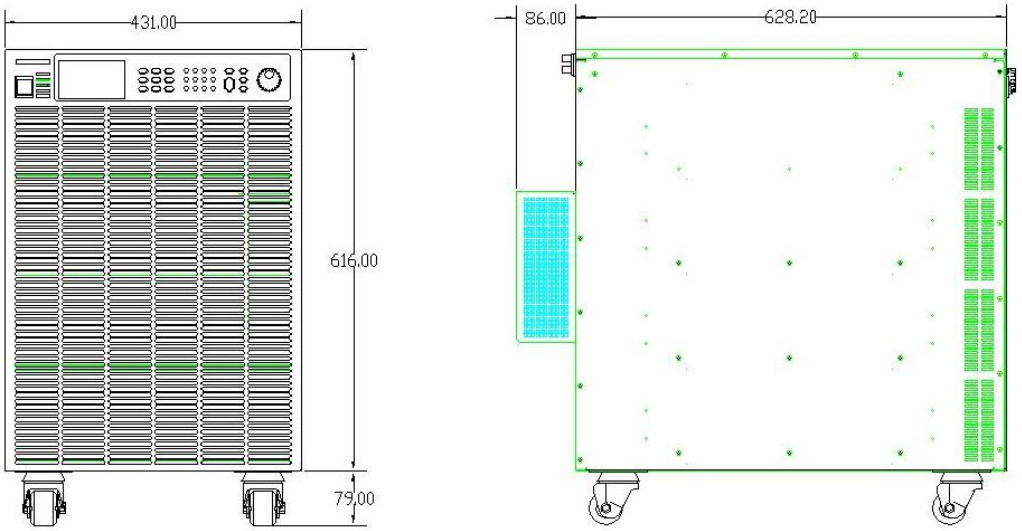
4U height model (6kW)



7U height model（8kW～12kW）dimension



14U height model（20kW～24kW）dimension



FT6100 E-load (45W * 12CH, 150W * 12CH, 300W * 6CH)

Multi Channel Programmable DC Electronic Load

FT6100 (3U)

- Voltage range: 60V, 500V;
- Current range: 3A ~ 40A;
- Rated power: 45W*12CH/150W*12CH/300W*6CH/600W*3CH
- Compact, cost effective, occupies little space;
- Modular design, 3U/12CH/150W, only 1/4 of conventional load size;
- Electric isolated channels, individual control or parallel;
- CC, CV, CR, CP test modes;
- Dynamic test, programmable sequence test;
- OVP, OCP, OPP, OTP;
- With RS485、LAN ports, support standard MODBUS protocol;
- Complete DLLs, facilitates secondary development;
- Standard PC software;
- High reliability, long mean time between failures;
- LCD displays each channel's voltage, current, power and status;
- 19-inch rack-mounted 3U chassis, facilitates system integration.

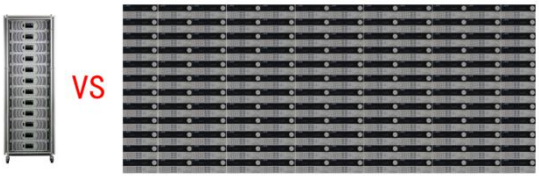
General

The FT6100 series is a multi-channel programmable DC electronic load product developed with high reliability and integration. The products are tailored for integrated applications and are extremely cost-effective. It can replace low-power single electronic loads in most integrated applications, which can save a lot of space for system construction and greatly save costs. FT6100 is specially designed for embedded integrated application development, standard 19-inch chassis size, equipped with RS485, LAN communication interface, and adopts Modbus-RTU. It supports the secondary development of most software platforms such as Visual C++, C#, Delphi, Visual Basic, Labview, etc. Users can customize the application software according to their needs.

FT6100 E-load (45W * 12CH, 150W * 12CH, 300W * 6CH, 600W * 3CH)

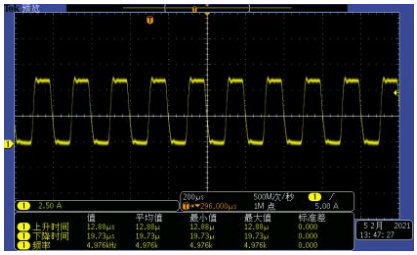
3U/12CH/150W ultra-high integration

FT6100 series multi-channel programmable electronic load adopts ultra-high integration design, 12 channels in a single 3U height unit, size only 1/4 of conventional electronic load. All channels are independent and electrically isolated, can be controlled individually.



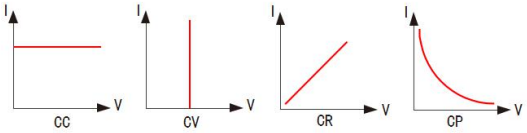
Transient test

The FT6100 series electronic loads provide programmable dynamic test function. The dynamic mode is used to simulate various load mutations and abnormal situations, and is suitable for testing the dynamic characteristics of the power supply. The dynamic pulse width: 50us～60000ms



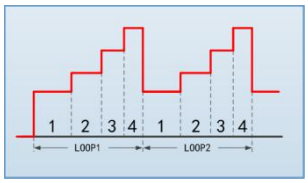
Static test

The FT6100 series multi-channel electronic loads operate in constant current constant voltage, constant resistance and constant power modes to satisfy a wide range of test requirements.



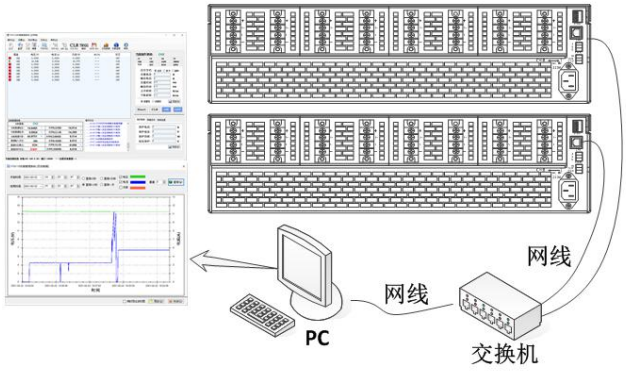
Programmable sequence test

FT6100 series electronic loads provide sequence test function. Users can edit a load test sequence to simulate various load input changes.



Integration and programming

The FT6100 series electronic loads have LAN, RS485 interfaces for system integration of multiple units. FT6100 supports Modbus protocol, and provides programming manuals and DLL development package. It supports C#, C++, Delphi, Labview development languages, facilitates user's secondary development. The product comes with a demo software, which can perform all functions of the load system, as well as waveform display and data storage.

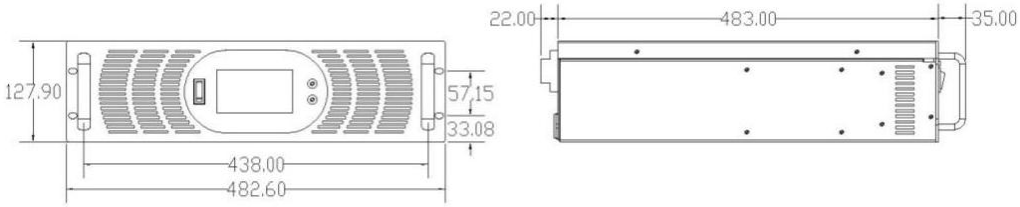


Model options

Model	Specification	Model	Specification
FT6100	FT6100 module cabinet	FT6100S *	FT6100 module cabinet
FT611	Module 60V/20A/150W	FT611S	Module 60V/20A/150W
FT612	Module 500V/3A/150W	FT612S	Module 500V/3A/150W
FT614	Module 60V/20A/300W	FT614S	Module 60V/20A/300W
FT615	Module 500V/6A/300W	FT615S	Module 500V/6A/300W
FT616	Module 60V/40A/600W	FT616S	Module 60V/40A/600W
FT613	Module 60V/5A/45W*12CH	FT613S	Module 60V/5A/45W*12CH
* Notes: Suffix “s” indicates the model has sense terminal.			

Dimension

FT6100/FT6100S Cabinet dimension



FT6100 E-load (45W * 12CH, 150W * 12CH, 300W * 6CH, 600W * 3CH)

Specifications						
Model	FT611/FT611S	FT612/FT612S	FT613/FT613S	FT614/FT614S	FT615/FT615S	FT616/FT616S
Current	20A	3A	5A	20A	6A	40A
Voltage	60V	500V	60V	60V	500V	60V
Power	150W	150W	45W	300W	300W	600W
Min Operate Voltage	1V@20A	5V@3A	0.5V@5A	1V@20A	5V@6A	1V@40A
Max Channels	12	12	12	6	6	3
Constant Current (CC)						
Range	0～20A	0～3A	0～5A	0～20A	0～6A	0～40A
Resolution	5mA	0.75mA	1.25mA	5mA	1.5mA	10mA
Accuracy	0.15%+0.15%F.S.					
Constant Voltage						
Range	0～60V	0～500V	0～60V	0～60V	0～500V	0～60V
Resolution	15mV	125mV	15mV	15mV	125mV	15mV
Accuracy	0.1%+0.15%F.S.					
Constant Resistance						
Range	0.05～500Ω	1.67～5000Ω	0.1～1000Ω	0.05～500Ω	0.84～5000Ω	0.025～500Ω
Resolution	12bits	12bits	12bits	12bits	12bits	12bits
Accuracy	0.35%+0.05S	0.35%+0.005S	0.35%+0.05S	0.35%+0.05S	0.35%+0.005S	0.35%+0.005S
Constant Power						
Range	0～150W	0～150W	0～45W	0～300W	0～300W	0～600W
Resolution	12bits	12bits	12bits	12bits	12bits	12bits
Accuracy	0.5%+1%F.S.					
Current Measurement						
Range	0～20A	0～3A	0～5A	0～20A	0～6A	0～40A
Resolution	5mA	0.75mA	1.25mA	5mA	1.5mA	10mA
Accuracy	0.15%+0.15%F.S.					
Voltage Measurement						
Range	0～60V	0～500V	0～60V	0～60V	0～500V	0～60V
Resolution	15mV	125mV	15mV	15mV	125mV	15mV
Accuracy	0.1%+0.15%F.S.					
Dynamic Current						
Range	0～20A	0～3A	0～5A	0～20A	0～6A	0～40A
Pulse Width	1～60000ms	1～60000ms	1～60000ms	1～60000ms	1～60000ms	1～60000ms
Resolution	1ms	1ms	1ms	1ms	1ms	1ms
Accuracy	1ms+100ppm	1ms+100ppm	1ms+100ppm	1ms+100ppm	1ms+100ppm	1ms+100ppm
Others						
AC Input	220VAC±10%					
Temperature Coefficient	40ppm/℃					

FT6110 E-load (150W * 8CH, 300W * 4CH)

Multi Channel Programmable DC Electronic Load

FT6112R 150V/30A/300W * 4CH (3U)

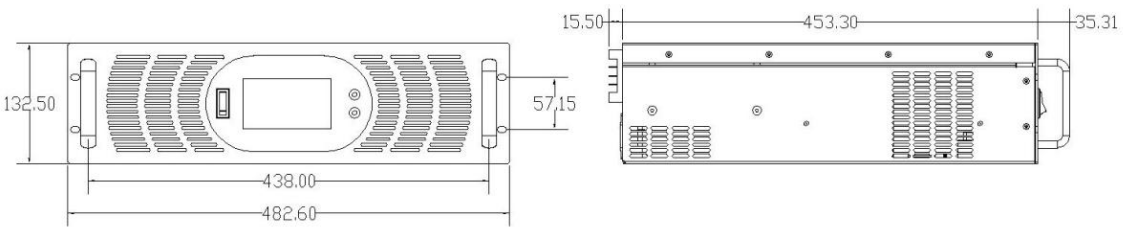
- Voltage range: 0...150 V, 0...500 V;
- Current range: 0...30 A, 0...15 A;
- Rated power: 150W * 8CH/300W * 4CH;
- Compact size, economical and affordable;
- Channels isolated, can be controlled individually or in parallel;
- Dynamic test up to 50kHz, adjustable rise/fall slew rate;
- 500kHz voltage/current sampling rate;
- Support voltage local/remote sense;
- Battery discharge test, Load effect test, Voltage/current ripple test;
- Dynamic frequency sweep;
- Sequence function, simulate complex load waveforms;
- Automatic test, display the test result in PASS/FAIL;
- OCP test, Time measurement;
- OVP, OCP, OPP, RVP, OTP;
- With LAN, RS485, facilitates multi units integration;
- Support MODBUS protocol, provide DLLs and manuals, host PC software;
- 19-inch rack-mounted 3U chassis, facilitates system integration.

General

The FT6110 series is a high-performance, cost-effective product mainly used in power supply ATE test systems. FT6110 has built-in functions such as voltage and current ripple test, dynamic frequency sweep, load effect test, LED drive test, OCP test, slew rate setting, etc., and provides a complete DLL development package. It supports C#, C++, Delphi, Labview development languages, facilitates user's secondary development.

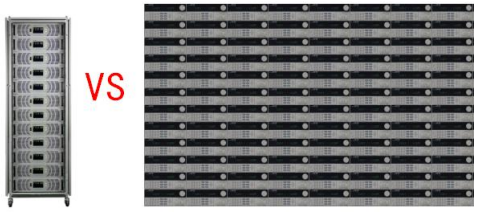
Dimension

FT6110A/R cabinet dimension



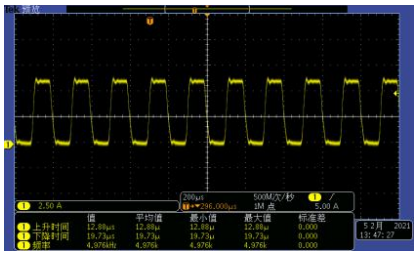
FT6110 E-load (150W * 8CH, 300W * 4CH)

3U/8CH/150W ultra-high integration



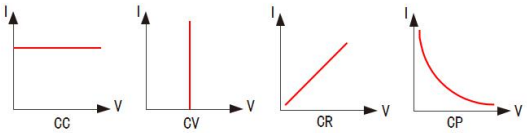
The FT6110 series multi-channel programmable DC electronic load adopts ultra-high integration design, 8 channels in a single 3U height unit, size only 1/3 of conventional electronic load. All channels are independent and electrically isolated, can be controlled individually.

Transient test



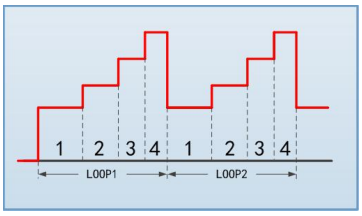
The FT6110 series electronic loads provide programmable dynamic test function. The dynamic mode is used to simulate various load mutations and abnormal situations, and is suitable for testing the dynamic characteristics of the power supply. The dynamic test frequency can reach 50kHz, supports continuous, pulse, flip, adjustable rising/falling slew rate, and range switching.

Static test



The FT6110 series multi-channel electronic loads operate in constant current, constant voltage, constant resistance and constant power modes to satisfy a wide range of test requirements.

Programmable sequence test



FT6110 series electronic loads provide sequence test function. FT6110 series support 10 sequence test files, files are linkable and editable, can be run repeatedly. A single sequence file allows for 20 test steps, users can set the load mode, load value, step time in each step. Step time ranges from 0.001s to 86400s.

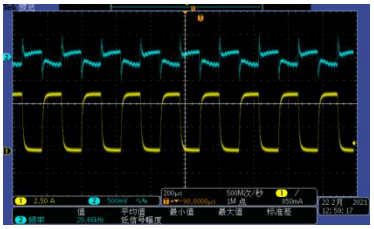
Load effect test

The load effect test function provides users with multiple sets of load parameters and stable time settings. After the test is completed, the results of load regulation, voltage change rate and power supply DC internal resistance will be provided directly.

Ripple test

FT6110 series supports voltage ripple (Vpp) and current ripple (Ipp) measurement, with a bandwidth of 10Hz ～ 250kHz. Within the measurement bandwidth, the ripple measurement has high accuracy and fine repeatability. Ripple generally includes two different frequency ranges: power frequency ripple and switching ripple. The ripple result is a composite result of the superposition of the two ripples.

50kHz dynamic frequency sweep

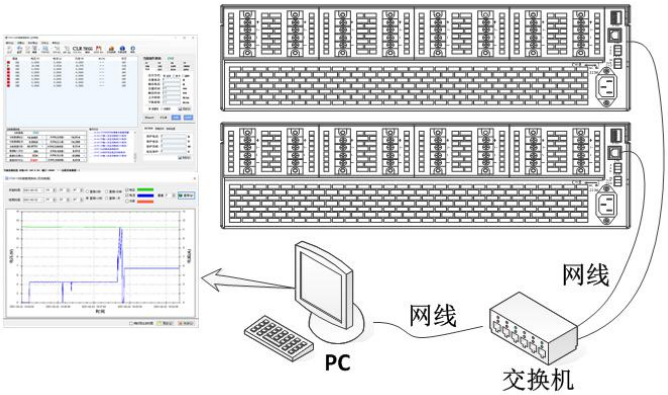


With dynamic frequency sweep, users can manually or automatically continuous adjust the load frequency, the highest frequency can reach 50kHz. This test function can capture the maximum (Vp+ and minimum (Vp-) voltage peaks of the tested power supply under the worst conditions.

Automatic test

FT6110 series multi-channel electronic loads allow for automatic testing. A single test file allows for 100 test steps, and users can set the load mode, load value, test item, upper/lower limit of the test item, and running time for each step. The running time ranges from 0.1s to 86400s. Users simply plug and unplug the product, the load will automatically test and judge, final test result will be displayed in the form of PASS or FAIL.

Integration and programming



The FT6110 series electronic loads have LAN, RS485 interfaces for system integration of multiple units. FT6110 supports Modbus protocol, and provides programming manuals and DLL development package. It supports C#, C++, Delphi, Labview development languages, facilitates user's secondary development. The product comes with a demo software, which can perform all functions of the load system, as well as waveform display and data storage.

FT6110 E-load (150W * 8CH, 300W * 4CH)

Model options

Model	Specification	Notes
FT6110	FT6110 module cabinet	A/R series modules are not to be mixed
FT6111A	150V/30A/150W electronic load module	A series
FT6112A	150V/30A/300W electronic load module	A series
FT6113A	500V/15A/300W electronic load module	A series
FT6114A	600V/15A/300W electronic load module	A series
FT6116A	150V/30A/600W electronic load module	A series
FT6111R	150V/30A/150W electronic load module	R series
FT6112R	150V/30A/300W electronic load module	R series
FT6113R	500V/15A/300W electronic load module	R series
FT6114R	600V/15A/300W electronic load module	R series
FT6116R	150V/30A/600W electronic load module	R series

Model A/E type difference		
Features	FT6110A	FT6110R
Max channels	8	8
Test modes	CC,CV,CR,CP	CC,CV,CR,CP
Sampling rate	250kHz	500kHz
Sampling resolution	12Bits	16Bits
Sampling accuracy	Voltage: 0.1%+0.1%F.S.	Voltage: 0.025%+0.025%F.S.
	Current: 0.1%+0.1%F.S.	Current: 0.05%+0.05%F.S.
Programming resolution	12Bits	16Bits
Programming accuracy	Voltage: 0.1%+0.1%F.S.	Voltage: 0.025%+0.025%F.S.
	Current: 0.1%+0.1%F.S.	Current: 0.05%+0.05%F.S.
CC transient mode	50kHz	50kHz
Slew rate	Adjustable	Adjustable
Short circuit simulation	√	√
Von	√	√
Voltage compensate	√	√
Battery discharge test	√	√
Load effect test		√
Ripple test		√
Dynamic frequency sweep		√
OCP test	√	√
Time measurement		√
Automatic test	√	√
Sequence test	√	√
Protection	OCP,OVP,OPP,OTP,RV,LVP	OCP,OVP,OTP,OPP,RV,LVP
Communication port	LAN，RS485	LAN，RS485
Communication protocol	MODBUS	MODBUS
External IO input/output	√	√
DLL development package	√	√
PC software	√	√

FT6110 E-load (150W * 8CH, 300W * 4CH)

Specification table												
Model	FT6111A		FT6112A		FT6113A		FT6111R		FT6112R		FT6113R	
Channels	4,6,8		2,3,4		2,3,4		4,6,8		2,3,4		2,3,4	
Voltage	150V		150V		500V		150V		150V		500V	
Current	30A		30A		15A		30A		30A		15A	
Power	150W		300W		300W		150W		300W		300W	
Min Voltage	1.6V@30A		1V@30A		5V@15A		1.6V@30A		1V@30A		5V@15A	
Constant Current (CC)												
Range	3A	30A	3A	30A	3A	15A	3A	30A	3A	30A	3A	15A
Resolution	0.75mA	7.5mA	0.75mA	7.5mA	0.75mA	7.5mA	0.05mA	0.5mA	0.05mA	0.5mA	0.025mA	0.25mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Constant Voltage (CV)												
Range	30V	150V	30V	150V	100V	500V	30V	150V	30V	150V	100V	500V
Resolution	7.5mV	37.5mV	7.5mV	37.5mV	25mV	125mV	0.5mV	2.5mV	0.5mV	2.5mV	2mV	8.5mV
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.025%+0.025%F.S		0.025%+0.025%F.S		0.025%+0.025%F.S	
Constant Resistance (CR)												
Range					0.35Ω～15kΩ		0.05Ω～5kΩ		0.05Ω～5kΩ		0.35Ω～15kΩ	
Accuracy	0.5%+0.002R		0.5%+0.002R		0.5%+0.02R		0.5%+0.002R		0.5%+0.002R		0.5%+0.02R	
Constant Power (CP)												
Range	150W		300W		300W		150W		300W		300W	
Accuracy	0.1%+0.15%		0.1%+0.15%		0.1%+0.15%		0.1%+0.15%		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Dynamic												
T1&T2	10us～60s		10us～60s		10us～60s		10us～60s		10us～60s		10us～60s	
Resolution	2us		2us		2us		2us		2us		2us	
Accuracy	1us+20ppm		1us+20ppm		1us+20ppm		1us+20ppm		1us+20ppm		1us+20ppm	
Slew Rate	0.6A/ms～1A/us		0.6A/ms～2A/us		0.6A/ms～0.8A/us		0.6A/ms～1A/us		0.6A/ms～2A/us		0.6A/ms～0.8A/us	
Current Measurement												
Range	3A	30A	3A	30A	3A	15A	3A	30A	3A	30A	3A	15A
Resolution	0.75mA	7.5mA	0.75mA	7.5mA	0.75mA	7.5mA	0.05mA	0.5mA	0.05mA	0.5mA	0.025mA	0.25mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.		0.05%+0.05%F.S.	
Voltage Measurement												
Range	30V	150V	30V	150V	100V	500V	30V	150V	30V	150V	100V	500V
Resolution	7.5mV	37.5mV	7.5mV	37.5mV	25mV	125mV	0.5mV	2.5mV	0.5mV	2.5mV	2mV	8.5mV
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.025%+0.025%F.S		0.025%+0.025%F.S		0.025%+0.025%F.S	
Ripple Measurement												
Range	*	*	*	*	*	*	30V	150V	30V	150V	100V	500V
Bandwidth	*	*	*	*	*	*	10Hz～250kHz		10Hz～250kHz		10Hz～250kHz	
Accuracy	*	*	*	*	*	*	0.03%+2 mV	0.03%+1 0mV	0.03%+2 mV	0.03%+1 0mV	0.03%+6 mV	0.03%+3 0mV

FT66100 Multi Channel Load (Max 1800W)

Multi Channel Programmable DC Electronic Load

300W * 6CH

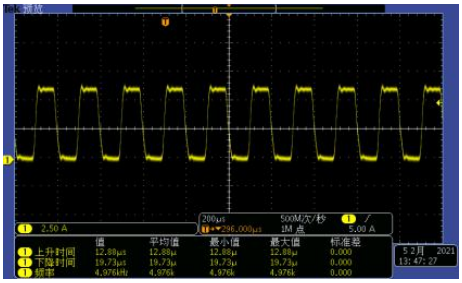
- Module voltage range: 80 V, 500 V;
- Module current range: 10 A, 20 A, 60 A, 120 A;
- Up to six channels in one mainframe, power range 300 W or 600 W per channel;
- Parallel load modules up to 1800W for high current and power applications;
- Synchronization (SYNC) with multiple loads, or control individually;
- CC, CV, CR, CP and LED test modes;
- 16-bit precision voltage and current measurement with dual-range;
- 5-digit data display, 20kHz dynamic frequency;
- Fast response of 0.32mA/μs ~ 5A/μs current slew rate;
- User programmable 10 programs, each contains 10 sequence steps;
- High/Low limits (SPEC) of testing parameters to test GO/NG;
- Program automatic test (PROG) and prompts results in the form of PASS/FAILURE;
- Over current protection (OCP) testing function, prompts the test result in the form of PASS/FAILURE;
- Digital I/O control ports, GO/NG output ports;
- Remote sensing capability;
- Short circuit test, Voltage-on (Von) function;
- Simulate capacitive & inductive load in CV Rise, CC Rise mode (APPLY);
- 8-inch self-adaptive LCD display;
- Self-test at power-on;
- OVP, OCP, OPP, OTP, polarity reverse connection protection;
- RS232, GPIB (optional), LAN (optional) ports, support standard SCPI.

General

FT66100 series multi channel DC electronic load has 16-bit precision voltage and current measurement with dual-range, 20 kHz transient response. The FT66100A electronic load mainframe accepts the user-installable FT66100 series load modules, and can be mounted into a 19" instrument rack, built-in RS232 and optional GPIP/LAN support SCPI commands, which facilitates system integration. The FT66100A load mainframe holds up to six FT66103A or FT66105A load modules, which will result in an 6-channel 300W/channel load with standard front-panel inputs. Also the main frame can control all modules synchronously or individually, this makes it ideal for testing multiple output switching power supplies and multiple output DC-DC converters. There are also 600W modules that can be mixed for an even more versatile system. The FT66100 series provides program automatic test, OCP test, etc.. Additionally, the GO/NG output port is useful for UUT's pass/fail testing on an automated production line or ATE system.

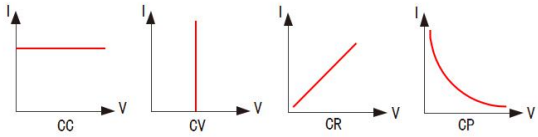
Transient test

The FT66100 series provides programmable dynamic test functions. The dynamic mode is used to simulate various load mutations and abnormal situations, and is suitable for testing the dynamic characteristics of the power supply. The highest frequency can reach 20kHz, and it supports parameter setting of rising slope, falling slope and range switching.



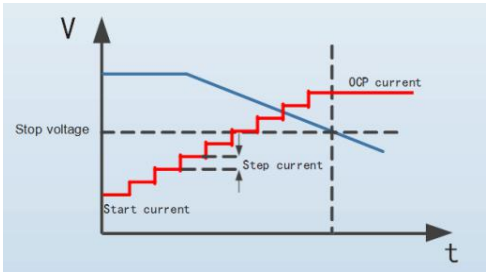
Static test

The FT66100 series multi-channel DC electronic loads operate in constant current, constant voltage, constant resistance and constant power modes to satisfy a wide range of test requirements.



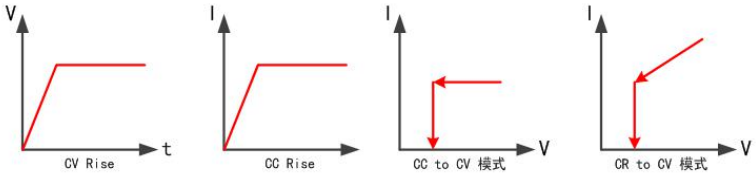
OCP test

All models provides OCP test feature, which enables the user to set current orders to test overcurrent protections, also to judge the test result as Pass or Fail on electronic load. The maximum current (I_{max}) during testing can be captured and showed on the display without using an oscilloscope to verify the correctness of designed overcurrent It can save a lot of testing time for the user.



Application (APPLY) mode

The FT66100 series electronic load provides a variety of application modes to adapt to the test under special circumstances, such as: inductive load simulation (CC Rise), capacitive load simulation (CV Rise), constant current to constant voltage (CC To CV) and constant resistance to constant voltage mode (CR To CV). The constant voltage soft-start (CV Rise) mode is equivalent to a capacitive load, and the size of its analog capacitance is proportional to the rise time of the soft-start. The constant current soft start (CC Rise) mode is equivalent to an inductive load, and the size of the simulated inductance is proportional to the rise time of the soft start. CC TO CV mode and CR TO CV mode are mainly used for battery or capacitor product testing, which discharges more thoroughly.



Program (PROG) mode

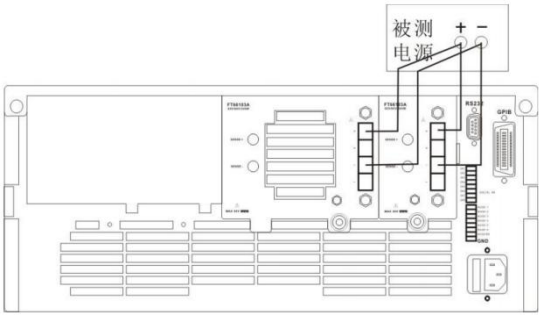
With program mode, the load performs multiple tests on the DUTs according to the program files, compare the test parameters with corresponding upper and lower limits (SPEC), and display the test results in the form of PASS/FAILURE. The advantages of the program test mode are especially obvious in product inspection, which can significantly improve the efficiency of product inspection. The load can store up to 10 programs, each program contains 10 sequence steps. If a single program is not enough to test the DUT, just chain the programs to obtain more sequences steps. Sequence steps can be run in auto mode or manual mode, also it can be controlled by a trigger signal via external input or Bus.

Digital interfaces

In addition to the local controls through full keypad rotary knob, there are standard remote control interfaces such as standard RS232, optional GPIB and LAN interfaces. RS232 and LAN can be used to control and monitor the devices either with SCPI language commands or ModBus RTU protocol, while with GPIB only SCPI is supported.

Parallel

The FT66100 series provides parallel control, which enables high power and high current testing when a single module cannot meet the requirements of applications. Two or more load modules can be paralleled together to achieve the desired load. The FT66100 series comes with standard RS232 for remote control and automated testing applications. LAN and GPIB interfaces are available as options.



Options

Optional digital interfaces such as GPIB, LAN;

Model options

Model	Specification	Notes
FT66100A	FT66100 electronic load cabinet	Max 1800W, 6 installing positions
FT66103A	Electronic load module 80V/60A/300W	Occupies 1 installing position
FT66105A	Electronic load module 500V/10A/300W	Occupies 1 installing position
FT66106A	Electronic load module 80V/120A/600W	Occupies 2 installing position
FT66108A	Electronic load module 500V/20A/600W	Occupies 2 installing position

All specifications are subject to changes without notice.

Optional accessories table 1

Item	Type Name	Notes
GPIB Interface	FT661000A	
LAN Interface	FT661001A	

Specification								
Model	FT66103A		FT66105A		FT66106A		FT66108A	
Power	300W		300W		600W		600W	
Current	60A		10A		120A		20A	
Voltage *1	80V		500V		80V		500V	
$\mathbf{U}_{Min}$ for $\mathbf{I}_{Max}$	1.5V@60A		4.5V@10A		2V@120A		5V@20A	
Constant Current (CC)								
Range	0~6A	0~60A	0~1A	0~10A	0~12A	0~120A	0~2A	0~20A
Resolution	0.1mA	1mA	0.02mA	0.2mA	0.2mA	2mA	0.04mA	0.4mA
Accuracy	0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.		0.1%+0.1%F.S.	
Constant Voltage (CV)								
Range	0~16V	0~80V	0~50V	0~500V	0~16V	0~80V	0~50V	0~500V
Resolution	0.3mV	2mV	1mV	10mV	0.3mV	2mV	1mV	10mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Constant Power (CP) *2								
Range	0~300W		0~300W		0~600W		0~600W	
Resolution	5mW		5mW		10mW		10mW	
Accuracy	0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.	
Constant Resistance (CR) *2*3*4								
Range	0.025Ω~100Ω(16V)		0.5Ω~1875Ω(50V)		12.5mΩ~50Ω(16V)		0.25~937.5Ω(50V)	
	0.625Ω~2500Ω(80V)		25Ω~93600Ω(500V)		0.3125~1250Ω(80V)		12.5~46.8KΩ(500V)	
Resolution	16bit		16bit		16bit		16bit	
Accuracy	0.35%+0.05S(100Ω)		0.35%+0.0025S(1875Ω)		0.35%+0.104S(50Ω)		0.35%+0.0052S(937.5Ω)	
	0.35%+0.002S(2500Ω)		0.35%+53uS(93600Ω)		0.35%+0.004S(1250Ω)		0.35%+110uS(46800Ω)	
Dynamic								
T1 & T2	0.025~50ms/Res:5us		0.025~50ms/Res:5us		0.025~50ms/Res:5us		0.025~50ms/Res:5us	
	0.1~500ms/Res:25us		0.1~500ms/Res:25us		0.1~500ms/Res:25us		0.1~500ms/Res:25us	

FT66100 Series (300W * 6CH, 600W * 3CH)

	10~50s/Res:2.5ms		10~50s/Res:2.5ms		10~50s/Res:2.5ms		10~50s/Res:2.5ms	
Accuracy	1us/1ms+100ppm		1us/1ms+100ppm		1us/1ms+100ppm		1us/1ms+100ppm	
Slew Rate								
Current Range	0~6A	0~60A	0~1A	0~10A	0~12A	0~120A	0~2A	0~20A
Slew Rate *5	1～25mA/us	0.01～2.5A/us	0.16～40mA/us	1.6～400mA/us	2～50mA/us	0.02～5A/us	0.32～80mA/us	3.2～800mA/us
	0.001A/us	0.01A/us	0.16mA/us	1.6mA/us	0.002A/us	0.02A/us	0.32mA/us	3.2mA/us
Accuracy	(1±35%)× set value							
Measurement								
Voltage Measurement								
Range	0～16V	0～80V	0～50V	0～500V	0～16V	0～80V	0～50V	0～500V
Resolution	0.3mV	2mV	1mV	10mV	0.3mV	2mV	1mV	10mV
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Current Measurement								
Range	0～6A	0～60A	0～1A	0～10A	0～12A	0～120A	0～2A	0～20A
Resolution	0.1mA	1mA	0.02mA	0. 2mA	0.2mA	2mA	0.04mA	0. 4mA
Accuracy	0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.		0.05%+0.1%F.S.	
Power Measurement								
Range	0～300W		0～300W		0～600W		0～600W	
Resolution	5mW		5mW		10mW		10mW	
Accuracy	0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.		0.5%+1%F.S.	
Short Circuit Characteristic								
Current (CC)	≒6A	≒60A	≒1A	≒10A	≒12A	≒120A	≒2A	≒20A
Voltage (CV)	0V		0V		0V		0V	
Others								
Temp Coefficient	100ppm/℃ (Typical)		100ppm/℃ (Typical)		100ppm/℃ (Typical)		100ppm/℃ (Typical)	
Weight	2.7kg		2.7kg		5.5kg		5.5kg	
Occupy Module Positions	1		1		2		2	