

FTP1200 series

Programmable DC power supply



| Summarize

FTP1200 series programmable DC power supply is a small size, high performance, high power density DC power supply. 1U/19" full/half width design, standalone lighter, more convenient cabinet integration, FTP1200 series product line, including five power levels, voltage range from 15V to 3000V, maximum output power 1800W, can be applied to different areas of laboratory test, system integration, large-scale production line test.

| Characteristic

- Single power output range: 600W/900W/1500W/1200W/1800W;
- Maximum voltage output range: 0~3000V;
- Maximum current output range of single machine: 0~120A;
- Small size, 1U/½19-inch or full 19-inch;
- Input high power factor, low harmonics;
- High precision voltage and current control and measurement;
- Sequence and waveform editing function;
- Ramp control: allows fast and precise control of voltage (or current) rise and fall;
- Cascade function: support master-slave parallel mode, operate the whole cascade group like a single power supply (optional);
- Provision of composite signal ports with powerful signal monitoring capability (optional):
Analog programming: control output voltage and output current through analog;
External control: turning outputs on or off via external digital signals and external digital control signals;
Monitor output: output waveforms of voltage and current are output in analog form for easy monitoring;
- Over-voltage protection, over-current protection, over-power protection, over-temperature protection and other all-round protection functions;
- Support voltage remote compensation;
- OLED display, wide viewing angle, high brightness;
- Standard LAN, RS485;
- Support standard SCPI and Modbus-RTU communication protocol.

| Sequence function

The Sequence Output Function mode allows you to simulate complex output variations based on user-edited sequence parameters. The Sequence Output function, with the menu option "SEQ", allows the user to edit the voltage and current waveforms.



Sequence test output waveforms

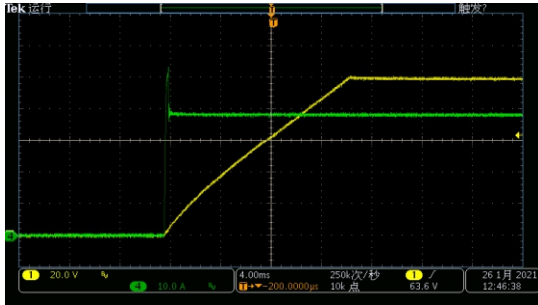
The FTP1200 series power supplies provide 10 sequence files, each supporting up to 100 run steps. Voltage setting, current setting, and run time can be set in the run steps. The "Cycle Count" and "Link File" attributes are supported. The "Cycle Count" controls the number of times the sequence will cycle, and setting it to 0 means infinite cycles. The "link file" can realize the link operation between different files. Setting it to 0 means no linking.

| High precision measurement function

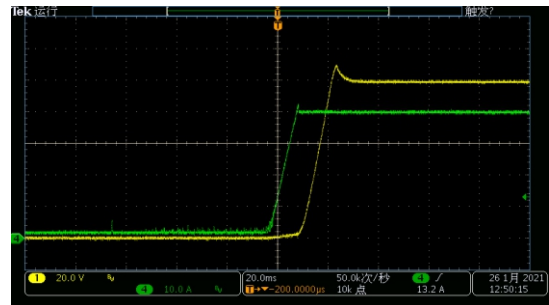
The FTP1200 series has a built-in 16bits high-precision A/D converter with 0.05%F.S. voltage and 0.05%+0.1%F.S. current measurement accuracy. The measured values of voltage, current, and power can be simultaneously displayed on the power supply's front panel display. In addition, the FTP1200 also provides voltage and current monitor output function, which allows users to monitor the voltage and current output waveforms through an oscilloscope via the monitor output terminals.

CV, CC preferred

When the power supply output is connected to an inductive or capacitive load, it will cause a certain degree of overshoot of the output current or voltage, which may trigger the protection of the device under test, and in serious cases, it will directly lead to the damage of the device under test. ftp1200 series are equipped with the CV and CC output priority function, which can effectively inhibit the overshoot of the output and the effects brought about by the output.



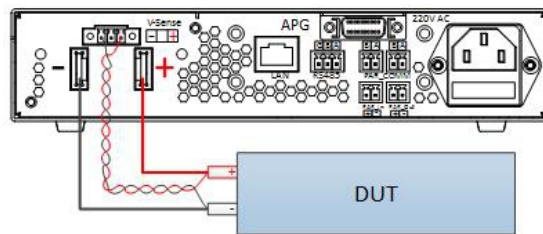
CV priority (high-speed voltage build-up, current overshoot)



CC priority (high-speed current build-up, voltage overshoot)

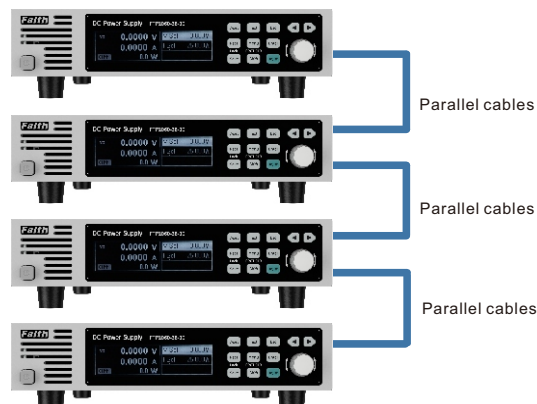
Remote sensing function

When the load consumes high current, it will generate a voltage drop on the connection line from the power supply to the load terminals, and the remote sensing can automatically compensate for the voltage drop on the load line (1000V and above models do not have the remote sensing function). The wiring diagram for power measurement with remote sensing function is as follows:



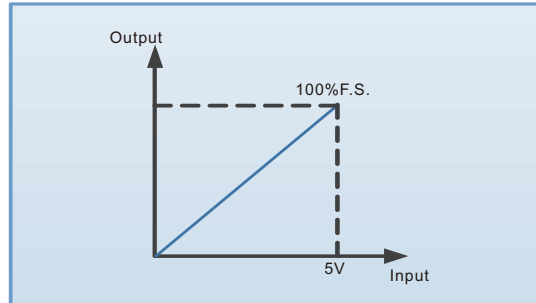
Multi-machine parallel connection function

The FTP1200 power supply supports master-slave parallel use of up to five power supplies, greatly expanding the power supply's application output range. The parallel function not only makes the power supply automatically equalize the load between them to keep the output value consistent, but also ensures the consistency of the output slope curve or waveform. In the parallel state of the host, the power supply screen displays the total voltage, current and power values. Each slave autonomously equalizes the current and automatically sums up.



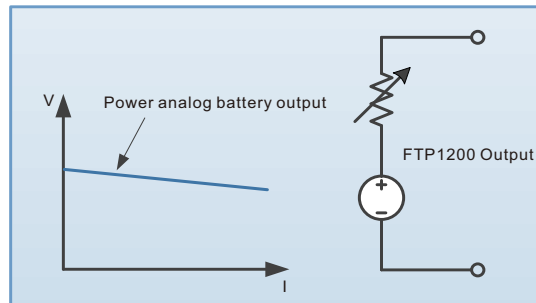
Analog programming function

The FTP1200 series has two analog input ports for voltage programming and current programming, which can control the output voltage and output current respectively. The analog programming signal can be selected from 0 to 5V DC voltage signal. The programmed signal corresponds to 0 to 100% F.S. output voltage and output current.



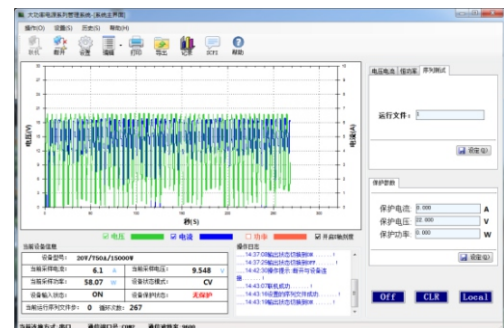
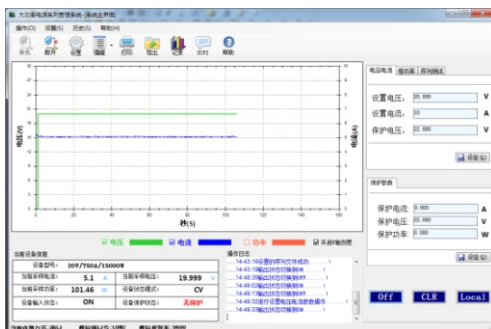
Battery internal resistance simulation function

FTP1200 series power supply is equipped with battery internal resistance analog output function, when the power supply output current increases the output voltage can be adjusted according to the user's pre-set internal resistance value.



Computer graphical operating software

FTP1000 series provide a virtual instrument with the function of the upper computer software platform, you can set up real-time test data remotely through the computer, read test data, generate images, export data, etc., and at the same time can be connected to more than one machine were controlled, the function of the synchronization of the available, convenient for the test use!



Ordering information

*If other voltage specifications are required in bulk, customization can be negotiated.

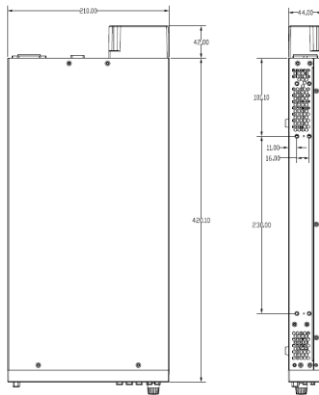
Voltage	Model	Current	Power	Voltage	Model	Current	Power
15V	FTP1206-15-60	60A	600W	36V	FTP1206-36-50	50A	600W
	FTP1209-15-60	60A	900W		FTP1209-36-50	50A	900W
	FTP1215-15-120	120A	1500W		FTP1215-36-100	100A	1500W
	FTP1218-15-120	120A	1800W		FTP1218-36-100	100A	1800W
	FTP1206-15-60-WL	60A	600W		FTP1206-36-50-WL	50A	600W
	FTP1212-15-120-WL	120A	1200W		FTP1212-36-100-WL	100A	1200W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
60V	FTP1206-60-30	30A	600W	80V	FTP1206-80-20	20A	600W
	FTP1209-60-30	30A	900W		FTP1209-80-20	20A	900W
	FTP1215-60-60	60A	1500W		FTP1215-80-40	40A	1500W
	FTP1218-60-60	60A	1800W		FTP1218-80-40	40A	1800W
	FTP1206-60-30-WL	30A	600W		FTP1206-80-20-WL	20A	600W
	FTP1212-60-60-WL	60A	1200W		FTP1212-80-40-WL	40A	1200W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
150V	FTP1206-150-12	12A	600W	300V	FTP1206-300-03	3A	600W
	FTP1209-150-12	12A	900W		FTP1209-300-03	3A	900W
	FTP1215-150-24	24A	1500W		FTP1215-300-06	6A	1500W
	FTP1218-150-24	24A	1800W		FTP1218-300-06	6A	1800W
	FTP1206-150-12-WL	12A	600W		FTP1206-300-03-WL	3A	600W
	FTP1212-150-24-WL	24A	1200W		FTP1212-300-06-WL	6A	1200W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
600V	FTP1206-600-015	1. 5A	600W	1000V	FTP1206-1000-01	1A	600W
	FTP1209-600-015	1. 5A	900W		FTP1209-1000-01	1A	900W
	FTP1215-600-03	3A	1500W		FTP1215-1000-02	2A	1500W
	FTP1218-600-03	3A	1800W		FTP1218-1000-02	2A	1800W
	FTP1206-600-015-WL	1. 5A	600W		FTP1206-1000-01-WL	1A	600W
	FTP1212-600-03-WL	3A	1200W		FTP1212-1000-02-WL	2A	1200W
Voltage	Model	Current	Power	Voltage	Model	Current	Power
2000V	FTP1206-2000-01	1A	600W	3000V	FTP1206-3000-003	0. 3A	600W
	FTP1209-2000-01	1A	900W		FTP1209-3000-003	0. 3A	900W
	FTP1215-2000-02	2A	1500W		FTP1215-3000-006	0. 6A	1500W
	FTP1218-2000-02	2A	1800W		FTP1218-3000-006	0. 6A	1800W
	FTP1206-2000-01-WL	1A	600W		FTP1206-3000-003-WL	0. 3A	600W
	FTP1212-2000-02-WL	2A	1200W		FTP1212-3000-006-WL	0. 6A	1200W
Note:	Suffix:						
	/, AC input range: 180Vac~260Vac;						
	-WL, AC input range: 90Vac~260Vac						

Optional information

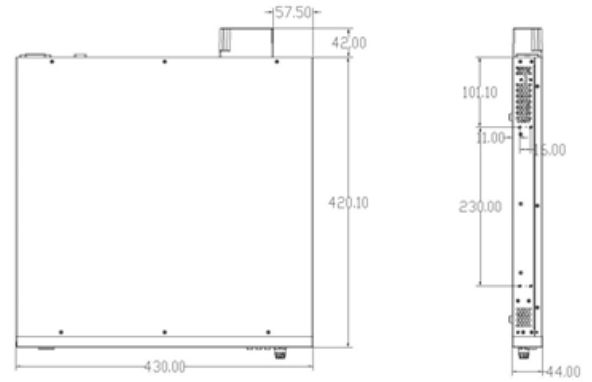
Name	Model or specification	Instruction
Composite Signal Port	FTP1201F	Factory pre-shipment installation
19-inch Upper Rack Kit	FT-H111	Single (1U/½ 19-inch) racking kit
19-inch Upper Rack Kit	FT-H112	Two side-by-side mounting racking kits
19-inch Upper Rack Kit	FT-H113	Single (1U/full 19-inch) racking Kit
Stacking Kit	FT-D104	Multi-layer stacking kit
FTP1000 High Voltage Test Line	FT1001W	1.5m, for FTP1000, FT1200 series 1000V and above models

Dimension

600W, 900W model sizes:



1200W, 1500W, 1800W model sizes:



General specification table

Voltage temperature coefficient	50ppm/°C
Current temperature coefficient	100ppm/°C
External analog programming and monitoring (optional)	
Vout voltage programming	0~5V corresponds to 0~100%F.S., accuracy: 0.3%F.S.
Iout current programming	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.
Vmon voltage output monitoring	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.
Imon current output monitoring	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.
Input properties	
AC input voltage	180VAC~260VAC, frequency 47Hz~63Hz (900W, 1500W, 1800W models) or 90VAC to 260VAC, frequency 47Hz to 63Hz (600W, 1200W suffix-WL models)
Power factor	0.99@220Vac (typical), rated output power
Maximum input current at full load	600W: 3.5A, 900W: 5A, 1500W: 8.75A, 1800W: 10A @220V ac
Environmental characteristics	
Operating temperature	0°C to 40°C (full load)
Storage temperature	-20°C~70°C
Operating humidity	30% to 90% RH (no condensation)
Storage humidity	10% to 95% RH (no condensation)
Operating altitude	<2000m
Structural properties	
Communication Interface	LAN, RS485
Cooling method	Forced air-cooling, forward airflow and rear airflow, no ventilation holes on top cover and base, speed control fan
Dimension (W*H*D)	210*44*462 mm (600W, 900W model); 430*44*462 mm(900W or above)
Weights	4.5kg (600W, 900W model); 9kg (900W or above)

Specification table-1

Model	FTP1206-15-60		FTP1206-36-50		FTP1206-60-30		FTP1206-80-20		FTP1206-150-12	
Voltage	0~15V		0~36V		0~60V		0~80V		0~150V	
Current	0~60A		0~50A		0~30A		0~20A		0~12A	
Power	600W									
Model	FTP1209-15-60		FTP1209-36-50		FTP1209-60-30		FTP1209-80-20		FTP1209-150-12	
Voltage	0~15V		0~36V		0~60V		0~80V		0~150V	
Current	0~60A		0~50A		0~30A		0~20A		0~12A	
Power	900W									
Model	FTP1215-15-120		FTP1215-36-100		FTP1215-60-60		FTP1215-80-40		FTP1215-150-24	
Voltage	0~15V		0~36V		0~60V		0~80V		0~150V	
Current	0~120A		0~100A		0~60A		0~40A		0~24A	
Power	1500W									
Model	FTP1218-15-120		FTP1218-36-100		FTP1218-60-60		FTP1218-80-40		FTP1218-150-24	
Voltage	0~15V		0~36V		0~60V		0~80V		0~150V	
Current	0~120A		0~100A		0~60A		0~40A		0~24A	
Power	1800W									
Voltage programming*1										
Resolution	1mV		1mV		1mV		1mV		10mV	
Precision	0.05%F.S.									
Current programming*2										
Resolution	1mA		1mA		1mA		1mA		1mA	
Precision	0.1%+0.1%F.S.									
Linear adjustment rate										
Voltage	≤0.02%F.S.									
Current	≤0.05%F.S.									
Load adjustment rate										
Voltage	≤0.02%F.S.									
Current	≤0.05%F.S. +2mA									
Voltage measurement*1										
Resolution	1mV		1mV		1mV		1mV		10mV	
Precision	0.05%F.S.									
Current measurement*2										
Resolution	1mA		1mA		1mA		1mA		1mA	
Precision	0.1%+0.1%F.S.									
Output noise & ripple										
Voltage ripple (Vp-p)		≤50mV	≤60mV	≤100mV	≤150mV	≤200mV				
Voltage ripple (Vrms)		≤12mV	≤15mV	≤15mV	≤25mV	≤30mV				
Current ripple (Arms) *3	≤900W	≤60mA	≤50mA	≤30mA	≤12mA	≤24mA				
	>900W	≤120mA	≤100mA	≤60mA	≤24mA	≤48mA				
External analog programming and monitoring (optional)										
Vout voltage programming		0~5V corresponds to 0~100%F.S., accuracy: 0.2%F.S.								
Iout current programming		0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.								
Vmon voltage output monitoring		0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.								
Imon current output monitoring		0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.								
Slope										
Voltage slope		1V/ms	2V/ms	3V/ms	3V/ms	4V/ms				
Current slope	≤900W	6A/ms	5A/ms	3A/ms	2A/ms	1.2A/ms				
	>900W	12A/ms	10A/ms	6A/ms	4A/ms	2.4A/ms				
Rising time										
Rise time (unloaded)*4		35ms	35ms	35ms	35ms	50ms				
Rise time (full load)*5		35ms	35ms	35ms	35ms	50ms				
Descent time (unloaded)*6		600ms	800ms	800ms	800ms	1100ms				
Descent time (full load)*7		80ms	80ms	80ms	80ms	100ms				
Transient response time		Output voltage deviation recovery to within 0.75% of rated voltage (50%-100% load) ≤ 2ms								
Efficiency*8		0.86	0.86	0.88	0.88	0.88				
Remote compensation voltage		0.75V	1.8V	3V	4V	7.5V				

Specification table-2

Model	FTP1206-300-03	FTP1206-600-015	FTP1206-1000-01	FTP1206-2000-01	FTP1206-3000-003
Voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Current	0~3A	0~1. 5A	0~1A	0~1A	0~300mA
Power	600W				
Model	FTP1209-300-03	FTP1209-600-015	FTP1209-1000-01	FTP1209-2000-01	FTP1209-3000-003
Voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Current	0~3A	0~1. 5A	0~1A	0~1A	0~300mA
Power	900W				
Model	FTP1215-300-06	FTP1215-600-03	FTP1215-1000-02	FTP1215-2000-02	FTP1215-3000-006
Voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Current	0~6A	0~3A	0~2A	0~2A	0~600mA
Power	1500W				
Model	FTP1218-300-06	FTP1218-600-03	FTP1218-1000-02	FTP1218-2000-02	FTP1218-3000-006
Voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Current	0~6A	0~3A	0~2A	0~2A	0~600mA
Power	1800W				
Voltage programming*1					
Resolution	10mV	10mV	100mV	100mV	100mV
Precision	0. 05%F. S.				
Current programming*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Precision	0. 1%+0. 1%F. S.	0. 1%+0. 2%F. S.			0. 1%+1. 5mA
Linear adjustment rate					
Voltage	≤0. 02%F. S.				
Current	≤0. 05%F. S.				
Load adjustment rate					
Voltage	≤0. 02%F. S.				
Current	≤0. 05%F. S. +2mA				
Voltage measurement*1					
Resolution	10mV	10mV	100mV	100mV	100mV
Precision	0. 05%F. S.				
Current measurement*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Precision	0. 1%+0. 1%F. S.	0. 1%+0. 2%F. S.			0. 1%+1. 5mA
Output noise & ripple					
Voltage ripple (Vp-p)	≤300mV	≤600mV	≤1000mV	≤3000mV	≤3500mV
Voltage ripple (Vrms)	≤75mV	≤125mV	≤200mV	≤400mV	≤600mV
Current ripple	≤900W	≤3mA	≤3mA	≤1mA	≤1mA
(Arms) *3	>900W	≤6mA	≤6mA	≤2mA	≤2mA
External analog programming and monitoring (optional)					
Vout voltage programming	0~5V corresponds to 0~100%F.S., accuracy: 0.2%F.S.				
Iout current programming	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.				
Vmon voltage output monitoring	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.				
Imon current output monitoring	0~5V corresponds to 0~100%F.S., accuracy: 0.5%F.S.				
Slope					
Voltage slope	4V/ms	4V/ms	5V/ms	8V/ms	9V/ms
Current slope	≤900W	0. 3A/ms	0. 15A/ms	0. 1A/ms	0. 1A/ms
	>900W	0. 6A/ms	0. 3A/ms	0. 2A/ms	0. 2A/ms
Rising time					
Rise time (unloaded)*4	150ms	250ms	≤250ms	≤400ms	≤400ms
Rise time (full load)*5	150ms	250ms	≤250ms	≤400ms	≤400ms
Descent time (unloaded)*6	2. 5s	3. 5s	≤8s	≤12s	≤15s
Descent time (full load)*7	120ms	150ms	≤250ms	≤400ms	≤400ms
Transient response time	Output voltage deviation recovery to within 0.75% of rated voltage (50%-100% load) ≤ 2ms				
Efficiency*8	0. 88	0. 88	0. 88	0. 88	0. 88
Remote compensation voltage	15V	15V	-	-	-

Notes:

*All specifications are subject to change without notice;

*1. Minimum voltage value needs to be ≥0.5%F.S.;

*2. Minimum current value needs to be ≥0.5%F.S.;

*3. Ripple measurement condition is 10%~100% of rated voltage and rated current;

*4. No-load condition, rated voltage change time from 10% to 90%;

*5. Time for rated voltage to change from 10% to 90% under full load (resistive load);

*6. Under no-load condition, the rated voltage changes from 90% to 10% of the time;

*7. Rated voltage change time from 90% to 10% under full load (resistive load) condition;

*8. 220Vac/50Hz input, rated voltage and maximum power at the output measured;c

*9. 1000V and above models 0V no-load output, floating voltage about ±7V.