

FTP1000 series

Programmable DC power supply



Summary

The FTP1000 series programmable DC power supply is a small volume, high performance, high power density DC power supply. The 1U/19" full width/half width design makes the single machine more portable and the cabinet integration more convenient. The maximum output power is 1800W, which can be used in different fields such as laboratory test, system integration, large-scale production line test.

CV、CC priority

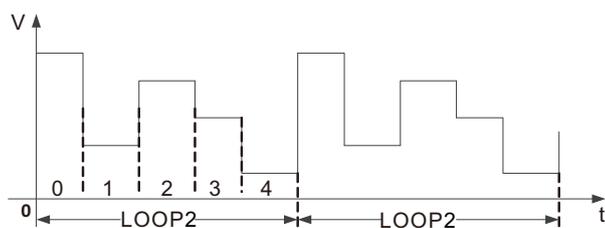
When the power output is connected to an inductive or capacitive load, it can cause a certain degree of overshoot in the output current or voltage. In mild cases it can trigger the protection of the tested equipment, and in severe cases it can directly cause damage to the tested equipment. The FTP1000 series have CV and CC output priority functions, it can suppress output overshoot effectively and its impact.

Features

- Output power: 600W/900W/1200W/1500W/1800W;
- Output voltage: 0~3000V;
- Output current: 0~120A;
- Small size, 1U/half 19 inch or full 19 inch;
- Input high power factor, low harmonic;
- Sequence and waveform editing function;
- Equipped with battery charging function;
- Comprehensive protection function for over voltage, over current, over power, over temperature;
- Support to set output time, can control and record output time;
- Support voltage compensation remotely;
- OLED display, wide viewing angle, high brightness;
- Standard configuration: RS232, LAN, RS485, optional EtherCAT;
- Support standard SCPI and Modbus-RTU communication protocol.

Sequence function

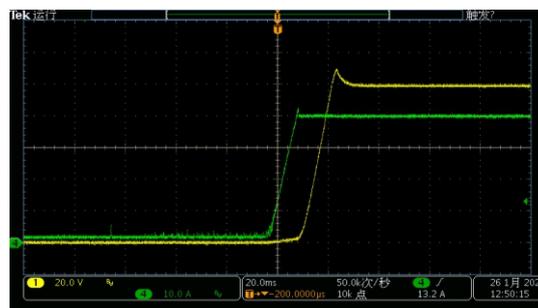
In the sequence output mode, complex output changes can be simulated based on user edited sequence parameters. Sequence output function, with menu option "SEQ", allow user to edit voltage and current waveform themselves.



(Output waveform for sequence testing)



CV priority
(high speed build voltage, current overshoot)



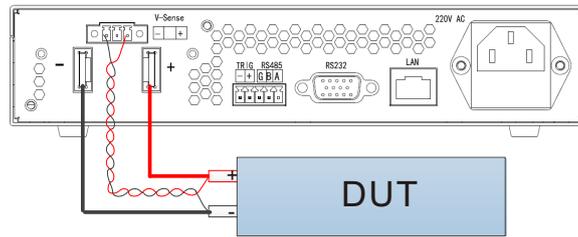
CC priority
(high speed build current, voltage overshoot)

FTP1000 series provide 10 sequence files, each supporting up to 100 running steps. It can be set the voltage setting, current setting and runtime in running step. Support "Cycle numbers" and "Link file", The cycle numbers can control sequence cycle running numbers, set 0 in infinite loop. The Link files can be used to run links between different files, set 0 to indicate no link.

Remote sensing function

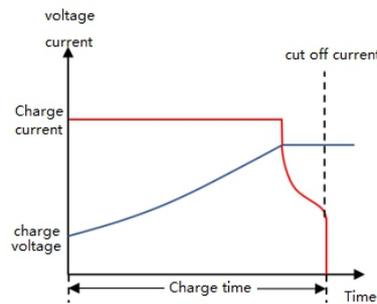
A voltage drop will be occurred on the connection line between the power supply and the load terminal when the load consumes high current, then remote sensing can automatically compensate for the voltage drop on the load line.the wiring diagram as below:

(Note: 1000V and above models do not have remote sensing function)



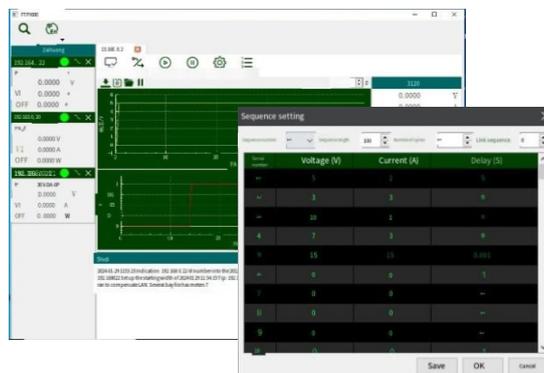
Battery charge function

FTP1000 series provide battery charge function,can define charge voltage、 charge current、 charge cut off voltage、 charge cut off current、 charge cut off capacity、 charge cut off time etc, fully simulate the charging process of the battery, which can effectively protect the battery.



Computer graphical operation software

FTP1000 series provides a host computer software platform with the function of virtual instrument, which can remotely and real-time set test data, read test data, generate images, export data, etc. At the same time, multiple machines can be connected for control respectively, and the functions can be synchronized for convenient test use.



Ordering information

Voltage	Model	Current	Power	Voltage	Model	Current	Power
15V	FTP1060-15-60	60A	600W	20V	FTP1060-20-50	50A	600W
	FTP1090-15-60	60A	900W		FTP1090-20-50	50A	900W
	FTP1150-15-120	120A	1500W		FTP1150-20-100	100A	1500W
	FTP1180-15-120	120A	1800W		FTP1180-20-100	100A	1800W
	FTP1060-15-60-WL	60A	600W		FTP1060-20-50-WL	50A	600W
FTP1120-15-120-WL	120A	1200W	FTP1120-20-100-WL	100A	1200W		
Voltage	Model	Current	Power	Voltage	型号	Current	Power
36V	FTP1060-36-30	30A	600W	36V	FTP1060-36-50	50A	600W
	FTP1090-36-30	30A	900W		FTP1090-36-50	50A	900W
	FTP1150-36-60	60A	1500W		FTP1150-36-100	100A	1500W
	FTP1180-36-60	60A	1800W		FTP1180-36-100	100A	1800W
	FTP1060-36-30-WL	30A	600W		FTP1060-36-50-WL	50A	600W
FTP1120-36-60-WL	60A	1200W	FTP1120-36-100-WL	100A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
60V	FTP1060-60-15	15A	600W	60V	FTP1060-60-30	30A	600W
	FTP1090-60-15	15A	900W		FTP1090-60-30	30A	900W
	FTP1150-60-30	30A	1500W		FTP1150-60-60	60A	1500W
	FTP1180-60-30	30A	1800W		FTP1180-60-60	60A	1800W
	FTP1060-60-15-WL	15A	600W		FTP1060-60-30-WL	30A	600W
FTP1120-60-30-WL	30A	1200W	FTP1120-60-60-WL	60A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
80V	FTP1060-80-12	12A	600W	80V	FTP1060-80-20	20A	600W
	FTP1090-80-12	12A	900W		FTP1090-80-20	20A	900W
	FTP1150-80-24	24A	1500W		FTP1150-80-40	40A	1500W
	FTP1180-80-24	24A	1800W		FTP1180-80-40	40A	1800W
	FTP1060-80-12-WL	12A	600W		FTP1060-80-20-WL	20A	600W
FTP1120-80-24-WL	24A	1200W	FTP1120-80-40-WL	40A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
100V	FTP1060-100-10	10A	600W	120V	FTP1060-120-08	8A	600W
	FTP1090-100-10	10A	900W		FTP1090-120-08	8A	900W
	FTP1150-100-20	20A	1500W		FTP1150-120-16	16A	1500W
	FTP1180-100-20	20A	1800W		FTP1180-120-16	16A	1800W
	FTP1060-100-10-WL	10A	600W		FTP1060-120-08-WL	8A	600W
FTP1120-100-20-WL	20A	1200W	FTP1120-120-16-WL	16A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
150V	FTP1060-150-06	6A	600W	150V	FTP1060-150-12	12A	600W
	FTP1090-150-06	6A	900W		FTP1090-150-12	12A	900W
	FTP1150-150-12	12A	1500W		FTP1150-150-24	24A	1500W
	FTP1180-150-12	12A	1800W		FTP1180-150-24	24A	1800W
	FTP1060-150-06-WL	6A	600W		FTP1060-150-12-WL	12A	600W
FTP1120-150-12-WL	12A	1200W	FTP1120-150-24-WL	24A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
300V	FTP1060-300-03	3A	600W	600V	FTP1060-600-015	1.5A	600W
	FTP1090-300-03	3A	900W		FTP1090-600-015	1.5A	900W
	FTP1150-300-06	6A	1500W		FTP1150-600-03	3A	1500W
	FTP1180-300-06	6A	1800W		FTP1180-600-03	3A	1800W
	FTP1060-300-03-WL	3A	600W		FTP1060-600-015-WL	1.5A	600W
FTP1120-300-06-WL	6A	1200W	FTP1120-600-03-WL	3A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
1000V	FTP1060-1000-009	0.9A	600W	2000V	FTP1060-2000-009	0.9A	600W
	FTP1090-1000-009	0.9A	900W		FTP1090-2000-009	0.9A	900W
	FTP1150-1000-018	1.8A	1500W		FTP1150-2000-018	1.8A	1500W
	FTP1180-1000-018	1.8A	1800W		FTP1180-2000-018	1.8A	1800W
	FTP1060-1000-009-WL	0.9A	600W		FTP1060-2000-009-WL	0.9A	600W
FTP1120-1000-018-WL	1.8A	1200W	FTP1120-2000-018-WL	1.8A	1200W		
Voltage	Model	Current	Power	Voltage	Model	Current	Power
3000V	FTP1060-3000-003	0.3A	600W	-	-	-	-
	FTP1090-3000-003	0.3A	900W		-	-	-
	FTP1150-3000-006	0.6A	1500W		-	-	-
	FTP1180-3000-006	0.6A	1800W		-	-	-
	FTP1060-3000-003-WL	0.3A	600W		-	-	-
FTP1120-3000-006-WL	0.6A	1200W	-	-	-		
Notes:	Suffix: /, AC input range: 180Vac to 260Vac; -WL, AC input range: 90Vac to 260Vac						

*Other voltage specifications can be customized upon request for bulk orders.

Optional accessories

Name	Model or spec	Description
19-inch rack mount kit	FT-H111	Single unit (1U/½19") rack mounting kit
19-inch rack mount kit	FT-H112	Two side-by-side rack mounting kits
19-inch rack mount kit	FT-H113	Single unit (1U/full 19") rack mounting kit
Stacking kit	FT-D104	Multi-layer stacking kit
FTP1000 high voltage test line	FT1001W	1.5m, suitable for models rated at 1000V and above
EtherCAT interface	FTP1002CAT	Installation before factory shipment

General specification table

General spec.	
Voltage temperature coefficient	50ppm/°C
Current temperature coefficient	100ppm/°C
Input characteristics	
AC input voltage	180VAC~260VAC, frequency 47Hz~63Hz or 90VAC~260VAC, frequency 47Hz~63Hz
Power factor	0.99@220Vac, rated output power
Max input current(full load)	600W: 3.5A, 900W: 5A, 1500W: 8.75A, 1800W: 10A @220Vac
Environmental condition	
Operation temperature	0°C~40°C(full load)
Storage temperature	-20°C~70°C
Operation humidity	30%~90% RH(non-condensing)
Storage humidity	10%~95% RH(non-condensing)
Operation altitude	<2000m
Structural characteristics	
Communication interface	RS232 , LAN, RS485
Cooling method	Forced air flow from front to rear, no ventilation holes on the upper cover and base, variable speed fan
Dimension(W*H*D)	210*44*462 mm(600W, 900W model)
	430*44*462 mm(above 900W model)
Weight	4.5kg(600W, 900W model)
	9kg(above 900W model)

Specification table-1

Model	FTP1060-15-60	FTP1060-20-50	FTP1060-36-30	FTP1060-60-15	FTP1060-60-30
Rated voltage	0~15V	0~20V	0~36V	0~60V	0~60V
Rated current	0~60A	0~50A	0~30A	0~15A	0~30A
Rated power	600W				
Model	FTP1090-15-60	FTP1090-20-50	FTP1090-36-30	FTP1090-60-15	FTP1090-60-30
Voltage	0~15V	0~20V	0~36V	0~60V	0~60V
Current	0~60A	0~50A	0~30A	0~15A	0~30A
Power	900W				
Model	FTP1150-15-120	FTP1150-20-100	FTP1150-36-60	FTP1150-60-30	FTP1150-60-60
Voltage	0~15V	0~20V	0~36V	0~60V	0~60V
Current	0~120A	0~100A	0~60A	0~30A	0~60A
Power	1500W				
Model	FTP1180-15-120	FTP1180-20-100	FTP1180-36-60	FTP1180-60-30	FTP1180-60-60
Voltage	0~15V	0~20V	0~36V	0~60V	0~60V
Current	0~120A	0~100A	0~60A	0~30A	0~60A
Power	1800W				
Voltage programming*1					
Resolution	1mV	1mV	1mV	1mV	1mV
Accuracy	0.1%+0.1%F. S.				
Current programming*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.1%F. S.				
Line regulation					
Voltage	≤0.02%F. S.				
Current	≤0.05%F. S.				
Load regulation					
Voltage	≤0.02%F. S.				
Current	≤0.05%F. S. +2mA				
Voltage measurement*1					
Resolution	1mV	1mV	1mV	1mV	1mV
Accuracy	0.1%+0.1%F. S.				
Current measurement*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.1%F. S.				
Output noise and ripple					
Voltage ripple (Vp-p)	≤50mV	≤60mV	≤60mV	≤100mV	≤100mV
Voltage ripple (Vrms)	≤12mV	≤15mV	≤15mV	≤15mV	≤15mV
Current ripple (Arms)*3	≤900W	≤60mA	≤50mA	≤30mA	≤15mA
	>900W	≤120mA	≤100mA	≤60mA	≤30mA
Rise and fall time					
Rise time (no load) *4	50ms				
Rise time (full load) *5	50ms				
Fall time (no load) *6	2ms				
Fall time (full load) *7	100ms				
Transient response time	Output voltage deviation recovery to within 0.5% of rated voltage (50%-100% load) ≤2ms				
Efficiency*8	0.86	0.86	0.86	0.88	0.88

Specification table-2

Model	FTP1060-80-12	FTP1060-100-10	FTP1060-120-08	FTP1060-150-06	FTP1060-150-12
Rated voltage	0~80V	0~100V	0~120V	0~150V	0~150V
Rated current	0~12A	0~10A	0~8A	0~6A	0~12A
Rated power	600W				
Model	FTP1090-80-12	FTP1090-100-10	FTP1090-120-08	FTP1090-150-06	FTP1090-150-12
Voltage	0~80V	0~100V	0~120V	0~150V	0~150V
Current	0~12A	0~10A	0~8A	0~6A	0~12A
Power	900W				
Model	FTP1150-80-24	FTP1150-100-20	FTP1150-120-16	FTP1150-150-12	FTP1150-150-24
Rated voltage	0~80V	0~100V	0~120V	0~150V	0~150V
Rated current	0~24A	0~20A	0~16A	0~12A	0~24A
Rated power	1500W				
Model	FTP1180-80-24	FTP1180-100-20	FTP1180-120-16	FTP1180-150-12	FTP1180-150-24
Rated voltage	0~80V	0~100V	0~120V	0~150V	0~150V
Rated current	0~24A	0~20A	0~16A	0~12A	0~24A
Rated power	1800W				
Voltage programming*1					
Resolution	1mV	10mV	10mV	10mV	10mV
Accuracy	0.1%+0.1%F. S.				
Current programming*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.1%F. S.				
Line regulation					
Voltage	≤0.02%F. S.				
Current	≤0.05%F. S.				
Load regulation					
Voltage	≤0.02%F. S.				
Current	≤0.05%F. S. +2mA				
Voltage measurement*1					
Resolution	1mV	10mV	10mV	10mV	10mV
Accuracy	0.1%+0.1%F. S.				
Current measurement*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.1%F. S.				
Output noise and ripple					
Voltage ripple (Vp-p)	≤150mV	≤200mV	≤200mV	≤200mV	≤200mV
Voltage ripple (Vrms)	≤25mV	≤30mV	≤30mV	≤30mV	≤30mV
Current ripple (Arms)*3	≤900W	≤12mA	≤10mA	≤8mA	≤6mA
	>900W	≤24mA	≤20mA	≤16mA	≤12mA
Rise and fall time					
Rise time (no load)*4	50ms	100ms	100ms		
Rise time (full load)*5	50ms	100ms	100ms		
Fall time (no load)*6	2s	2.5s	2.5s		
Fall time (full load)*7	100ms	100ms	100ms		
Transient response time	Restore the output voltage deviation to within 0.5% of the rated voltage (50%-100% load)≤2ms				
Efficiency*8	0.88	0.88	0.88	0.88	0.88

Specification table-3

Model	FTP1060-300-03	FTP1060-600-015	FTP1060-1000-009	FTP1060-2000-009	FTP1060-3000-003
Rated voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Rated current	0~3A	0~1.5A	0~0.9A	0~0.9A	0~300mA
Rated power	600W				
Model	FTP1090-300-03	FTP1090-600-015	FTP1090-1000-009	FTP1090-2000-009	FTP1090-3000-003
Rated voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Rated current	0~3A	0~1.5A	0~0.9A	0~0.9A	0~300mA
Rated power	900W				
Model	FTP1150-300-06	FTP1150-600-03	FTP1150-1000-018	FTP1150-2000-018	FTP1150-3000-006
Rated voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Rated current	0~6A	0~3A	0~1.8A	0~1.8A	0~600mA
Rated power	1500W				
Model	FTP1180-300-06	FTP1180-600-03	FTP1180-1000-018	FTP1180-2000-018	FTP1180-3000-006
Rated voltage	0~300V	0~600V	0~1000V	0~2000V	0~3000V
Rated current	0~6A	0~3A	0~1.8A	0~1.8A	0~600mA
Rated power	1800W				
Voltage programming*1					
Resolution	10mV	10mV	100mV	100mV	100mV
Accuracy	0.1%+0.1%F.S.				
Current programming*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.2%F.S.				0.1%+1mA
Line regulation					
Voltage	≤0.02%F.S.				
Current	≤0.05%F.S.				
Load regulation					
Voltage	≤0.02%F.S.				
Current	≤0.05%F.S. +2mA				
Voltage measurement*1					
Resolution	10mV	10mV	100mV	100mV	100mV
Accuracy	0.1%+0.1%F.S.				
Current measurement*2					
Resolution	1mA	1mA	1mA	1mA	1mA
Accuracy	0.1%+0.2%F.S.				0.1%+1mA
Output noise and ripple					
Voltage ripple (Vp-p)	≤300mV	≤600mV	≤1000mV	≤3000mV	≤3500mV
Voltage ripple (Vrms)	≤75mV	≤125mV	≤200mV	≤400mV	≤600mV
Current ripple (Arms)*3	≤900W	≤3mA	≤3mA	≤1mA	≤1mA
	>900W	≤6mA	≤6mA	≤2mA	≤1mA
Rise and fall time					
Rise time (no load)*4	200ms	250ms	≤250ms	≤400ms	≤400ms
Rise time (full load)*5	200ms	250ms	≤250ms	≤400ms	≤400ms
Fall time (no load)*6	3s	3.5s	≤8s	≤12s	≤15s
Fall time (full load)*7	120ms	150ms	≤250ms	≤400ms	≤400ms
Transient response time	Restore the output voltage deviation to within 0.5% of the rated voltage (50%-100% load)				
Efficiency*8	0.88	0.88	0.88	0.88	0.88

Remarks:

*All specifications are subject to change without notice;

*1. The minimum voltage shall be ≥ 0.2% F.S;

*2. The minimum current value must be ≥ 0.2% F.S;

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

*4. Change time of rated voltage from 10% to 90% under no-load condition;

*5. Change time of rated voltage from 10% to 90% under full load (resistive load);

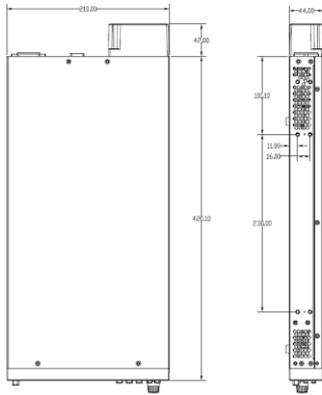
*6. Change time of rated voltage from 90% to 10% under no-load condition;

*7. Change time of rated voltage from 90% to 10% under full load (resistive load);

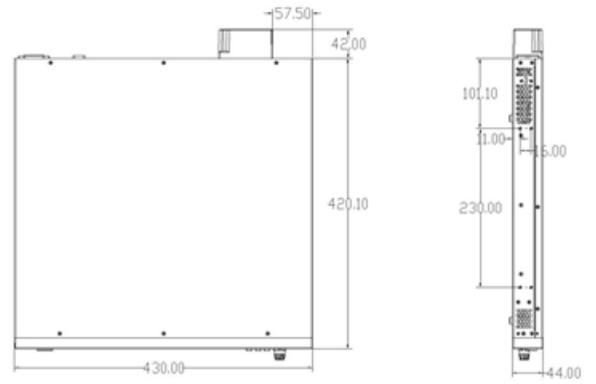
*8. The value is measured at 220Vac/50Hz input, rated voltage and maximum power output.

Dimension drawing

600W, 900W model dimensions:



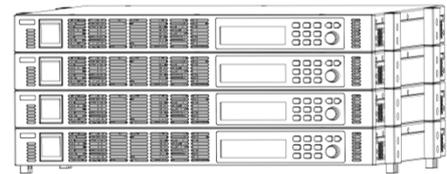
1200W, 1500W, and 1800W model dimensions:



FT-D104 stacking kit diagram:

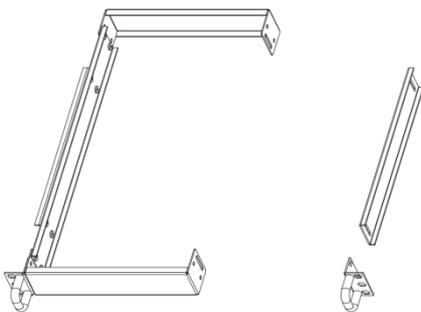


FT-D104 (stacking option)

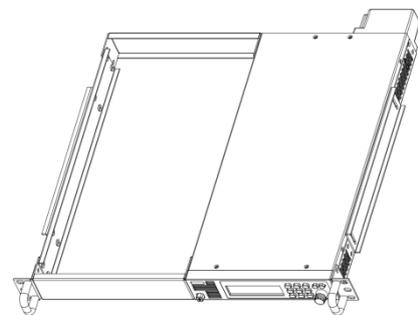


FT-D104 stacking effect diagram

FT-H111 rack mount kit diagram:

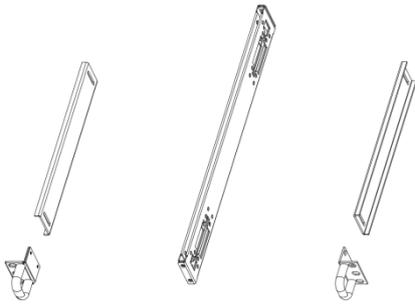


FT-H111 (upper cabinet option)

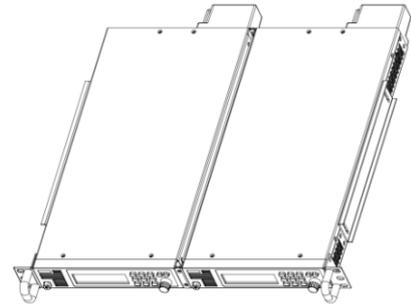


FT-H111 installation effect diagram (without tray installation)

FT-H112 rack mount kit diagram:

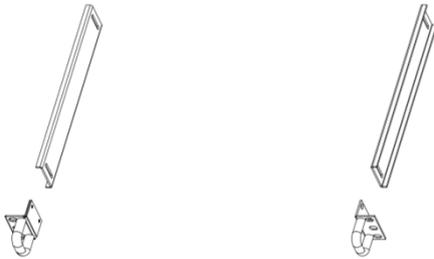


FT-H112 (upper cabinet optional)

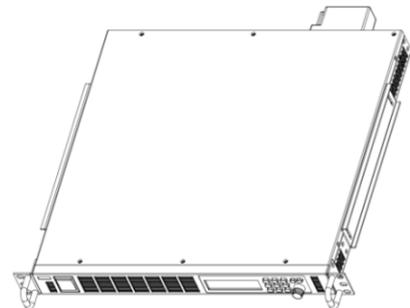


FT-H112 installation effect diagram (without tray installation)

FT-H113 rack mount kit diagram:



FT-H113 (upper cabinet optional)



FT-H113 installation effect diagram (without tray installation)