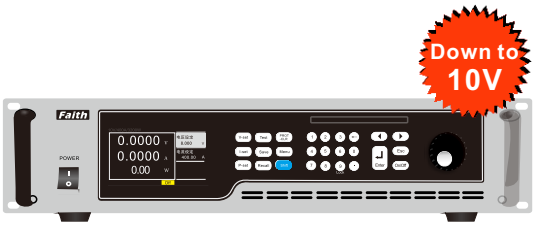
FTP series

Wide range programmable DC power supply



Characteristic

- Unit range:
  Voltage: 0 ~ 1500V,
  Current: 0 ~ 800A ,
  Power: 1.2kW, 1.6kW, 2kW, 3.2kW, 4kW,4.8kW, 6.5kW, 8kW;
- High precision voltage and current control and measurement;
- High stability: low linear adjustment rate, low load adjustment rate, low ripple, low noise;
- Fast response: transient response of 2ms typical value;
- Slope control: can quickly and accurately control the voltage (or current) rise and fall;
- PFC control: input power factor greater than 0.98;
- Cascade function: support master-slave parallel mode, like the operation of a single power supply to operate the entire cascade;
- Sequence function: Powerful and flexible sequence function, can simulate complex waveform output;
- Quick call: press the digital key to directly call the saved voltage and current parameters;
- Provide a composite signal port with powerful signal monitoring capabilities (optional) :
  - Analog programming: control output voltage and output current through analog quantity;
  - External control: open or close the output through the external digital signal, and the external output digital control number;
  - Monitoring output: the output waveform of voltage and current is output in the form of analog quantity, easy to monitor;
- Remote compensation: compensate the voltage difference caused by the current to ensure the measured value of the voltage at the load end;
- Power-off save: the configuration parameters of the power supply automatically restore to the state when the last shutdown;
- Standard feature rich "Faith power product demonstration platform" software, with basic solar photovoltaic cell simulation function;
- Optional feature-rich "Faithtech Solar PV Matrix Simulation Software" (optional);
- Communication port: standard RS232 and LAN communication port, optional GPIB, RS485, CAN;
- Communication protocol: Support SCPI, Modbus protocol;
- Display operation: TFT color display, support Chinese and English display, convenient and quick key operation;
- Protection function: OVP, OCP, OPP, OTP, LVP, SHUT, FAULT, ALTER and other comprehensive protection function.

Summary

FTP series wide range programmable DC power supply is a high performance DC power supply developed by Faith tech. It has the advantages of wide output range, high current, low ripple noise, fast transient response, high resolution, high precision, and the voltage current slope can be set.

FTP series product line is rich, including 48 different models, 5 power levels, voltage range from 10V to 1500V, it is the best choice for ATE system integration, laboratory testing, vehicle equipment testing, superconducting testing, motor testing, battery charging simulation, voltage and current sensor calibration, laser testing and power supply, electronic product life cycle testing and other applications.

Application fields

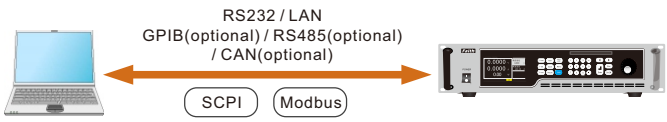
- Multi-specification flexible application of power electronics laboratory;
- Fuel cell, power battery, lead battery, super capacitor test;
- Simulation of power supply environment of vehicle, airborne and shipboard electronic equipment;
- DC charger, charging pile design and test system integration;
- Server power supply, UPS, inverter design and test;
- Solar energy, wind energy, energy storage design and testing;
- Uav, laser, sensor field power supply and design test.

High precision measurement function

FTP series built-in 16bits high precision A/D converter, voltage 0.05%F.S., current 0.1%+0.1%F.S. The measurement accuracy of FTP. The measurement values of voltage, current and power can be displayed on the display screen of the front panel of the power supply at the same time. In addition, FTP provides additional voltage and current monitoring output function, the user can monitor the output waveform of voltage and current through the oscilloscope by monitoring the output terminal.

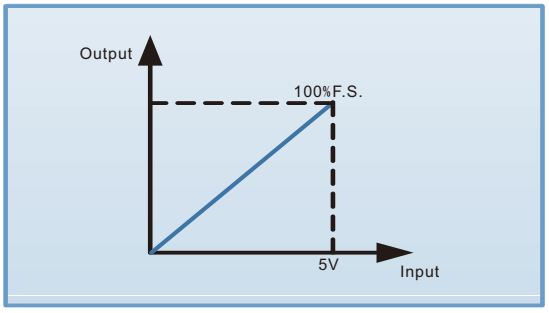
Multi-interface and multi-protocol

The FTP series is equipped with multiple communication interfaces, and supports SCPI and Modbus two communication protocols. The user can configure it in the menu according to the needs, which makes the system integration more flexible.



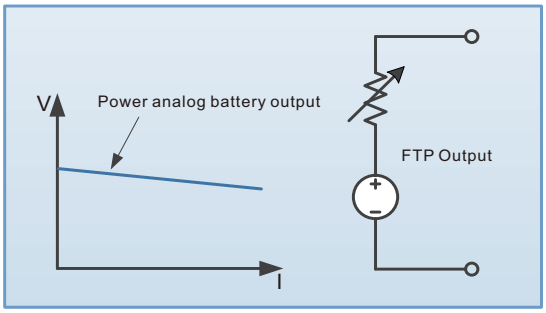
Analog programming capabilities

FTP series has two analog input ports, voltage programming and current programming, which can respectively control the output voltage and output current. The analog programming signal can choose 0～5V or 0～10V DC voltage signal. The programming signal corresponds to the output voltage and output current of 0 ~ 100%F.S.



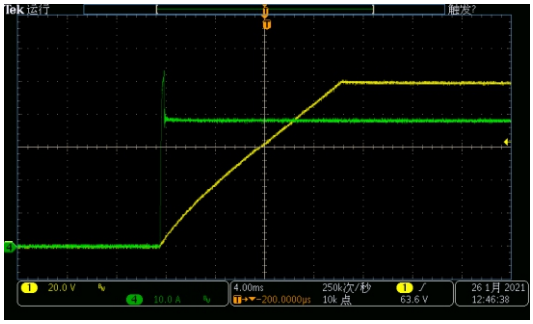
Battery internal resistance simulation function

FTP series power supply with battery internal resistance analog output function, when the output current of the power supply increases, the output voltage can be adjusted according to the user's preset internal resistance value.

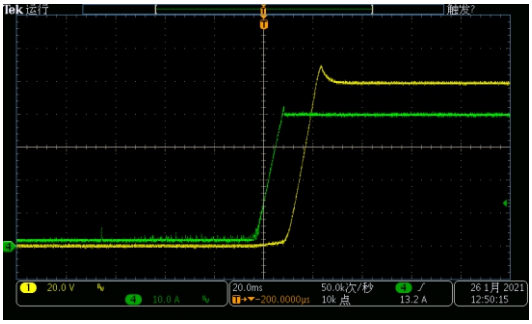


CV, CC is preferred

When the power output is connected to the inductive or capacitive load, the output current or voltage will overshoot to a certain extent, which will trigger the protection of the device under test, or even damage the device under test. FTP series with CV, CC output priority function to effectively inhibit the output overshoot and the impact.



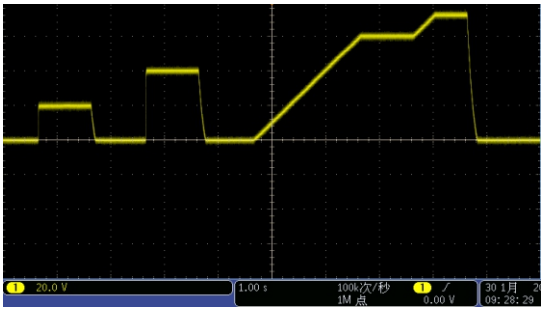
CV priority (high speed build voltage, current overshoot)



CC priority (high speed build current, voltage overshoot)

Serial function

The sequence function allows users to edit their own voltage and current waveforms. The FTP series offers 10 sequence files, each supporting up to 100 run steps. In the run steps, you can set the output voltage, output current, and delay. Sequence function support, support cycle, link and other attributes, to facilitate the realization of complex waveform output.

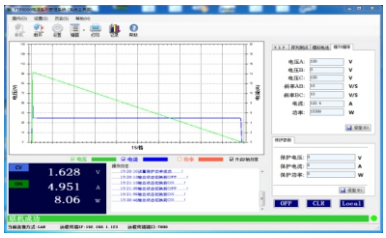


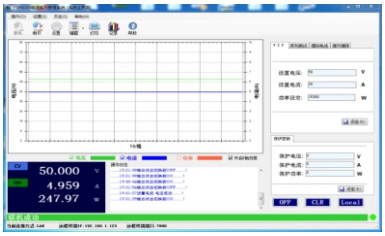
Photovoltaic battery array simulation function

The FTP series comes standard with a feature-rich "Faith Power Demo Platform" with basic PV function for testing PV inverters. With the host computer demonstration platform can achieve more test functions, such as dynamic MPPT, typical weather data, custom light/temperature curve and so on. If you need more complex photovoltaic test functions, you can choose "Faithtech Solar Photovoltaic Matrix Simulation software".

Computer graphical operation software

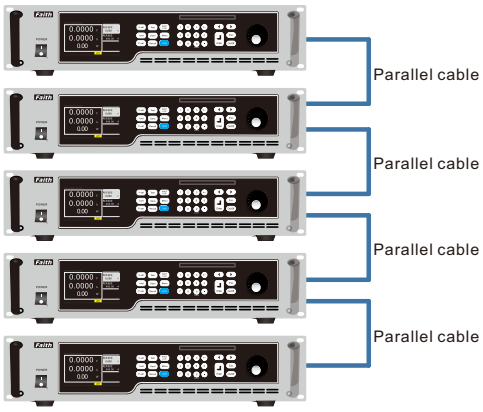
FTP series provides a host computer software with virtual instrument function, which can read test data in real time, generate images, export reports, print reports, etc., which is convenient for customers to use.





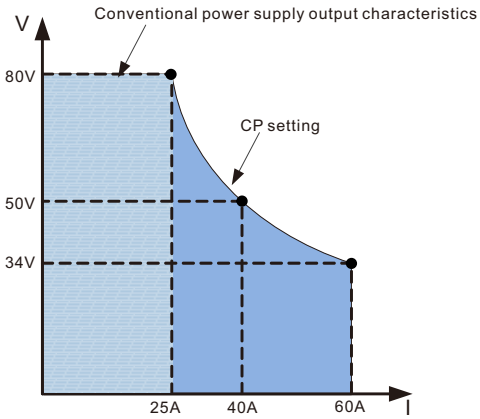
Multi-machine parallel function

The FTP power supply supports up to 10 power supplies in parallel, which greatly expands the application output range of the power supply. Parallel function in addition to the automatic load between the power supply, to maintain the output value is consistent, but also to ensure the output slope curve or waveform is consistent. In the parallel state of the host, the power supply screen displays the total voltage, current and power values. Each slave automatically equalizes current and sums automatically.



Constant power, wide range output

The FTP series has an output range of over 2.4 times wide range. It can automatically adjust the output voltage and current within the set range to achieve constant power output. CP function for solar photovoltaic simulation test, load stability test and protection safety test to provide help.

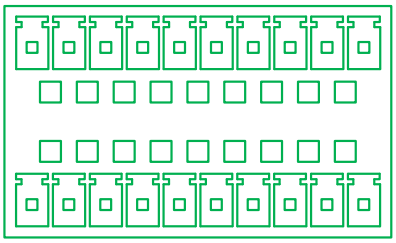


FTP series provides wider operation in constant power range

Composite signal port (optional)

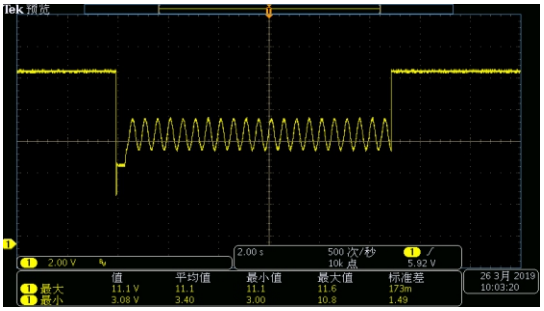
FTP series optional composite signal port, which has the following functions:

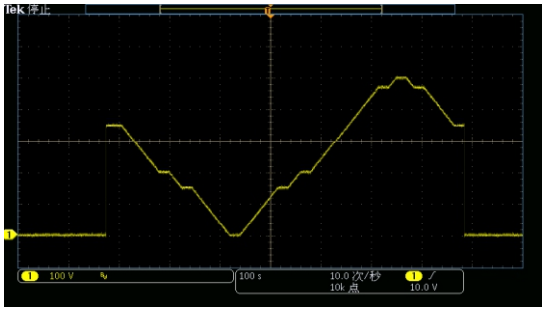
- Voltage, current output monitoring;
- Voltage, current programming control;
- Working mode indication;
- Scram control input;
- READY power supply working status indication;
- DC_ON output voltage monitoring, etc.



Automotive power supply waveform simulation (optional)

Due to the complex electrical environment of the automobile power supply system, the power supply voltage often fluctuates greatly, for example, the motor, solenoid valve and other components start and close. The automotive electronic waveform test function of FTP-C series power supply can realize the simulation function of ISO16750-2 (environmental conditions and tests of electrical and electronic equipment of road vehicles Part 2: Electrical load) and Volkswagen VW80000 electrical and electronic equipment test waveform.





Faithtech solar PV matrix simulation software (optional)

Faithtech Solar PV Matrix simulation software is a photovoltaic test software supporting Faithtech power supply series. It adopts simple and intuitive graphical interface to present users with intuitive and friendly man-machine interface. Users can easily use the software to output, measure and display the maximum power tracking status and numerical records of photovoltaic inverters in real time. The software built-in EN50530, Sandia and other 5 kinds of regulatory test procedures, can simulate the solar panel under different parameters of the series parallel test, as well as cloud cover and other tests; It is convenient for users to test the static and dynamic MPPT efficiency of photovoltaic inverters.

Ordering information

Voltage	Model	Current	Power	Voltage	Model	Current	Power
10V	FTP016-10-200	200A	1.6kW	20V	FTP020-20-250	250A	2kW
	FTP032-10-400	400A	3.2kW		FTP032-20-250	250A	3.2kW
	FTP048-10-600	600A	4.8kW		FTP048-20-375	375A	4.8kW
	FTP065-10-800	800A	6.5kW		FTP065-20-500	500A	6.5kW
Voltage	Model	Current	Power	电压	Model	Current	Power
30V	FTP016-30-85	85A	1.6kW	40V	FTP020-40-120	120A	2kW
	FTP032-30-170	170A	3.2kW		FTP032-40-120	120A	3.2kW
	FTP048-30-255	255A	4.8kW		FTP065-40-240	240A	6.5kW
	FTP065-30-340	340A	6.5kW		-	-	-
Voltage	Model	Current	Power	Voltage	Model	Current	Power
50V	FTP020-50-110	110A	2kW	80V	FTP012-80-60	60A	1.2kW
	FTP032-50-110	110A	3.2kW		FTP020-80-60	60A	2kW
	FTP065-50-220	220A	6.5kW		FTP032-80-60	60A	3.2kW
	-	-	-		FTP032-80-120	120A	3.2kW
	-	-	-		FTP048-80-180	180A	4.8kW
	-	-	-		FTP048-80-180	180A	4.8kW
	-	-	-		FTP065-80-120	120A	6.5kW
					FTP065-80-240	240A	6.5kW
					FTP080-80-240	240A	8kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
120V	FTP020-120-40	40A	2kW	160V	FTP020-160-30	30A	2kW
	FTP032-120-40	40A	3.2kW		FTP032-160-30	30A	3.2kW
	FTP065-120-80	80A	6.5kW		FTP065-160-60	60A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
200V	FTP020-200-30	30A	2kW	300V	FTP020-300-16	16A	2kW
	FTP032-200-60	60A	3.2kW		FTP032-300-16	16A	3.2kW
	FTP040-200-60	60A	4kW		FTP065-300-32	32A	6.5kW
	FTP048-200-90	90A	4.8kW		-	-	-
	FTP065-200-120	120A	6.5kW		-	-	-
	FTP080-200-120	120A	8kW		-	-	-
Voltage	Model	Current	Power	Voltage	Model	Current	Power
400V	FTP020-400-12	12A	2kW	500V	FTP020-500-10	10A	2kW
	FTP032-400-12	12A	3.2kW		FTP032-500-20	20A	3.2kW
	-	-	-		FTP040-500-20	20A	4kW
	-	-	-		FTP048-500-30	30A	4.8kW
	FTP065-400-24	24A	6.5kW		FTP065-500-40	40A	6.5kW
	-	-	-		FTP080-500-40	40A	8kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
600V	FTP020-600-8	8A	2kW	800V	FTP020-800-8	8A	2kW
	FTP032-600-8	8A	3.2kW		FTP032-800-8	8A	3.2kW
	FTP065-600-16	16A	6.5kW		FTP065-800-16	16A	6.5kW
Voltage	Model	Current	Power	Voltage	Model	Current	Power
1000V	FTP020-1000-5	5A	2kW	1200V	FTP020-1200-5	5A	2kW
	FTP032-1000-5	5A	3.2kW		FTP032-1200-5	5A	3.2kW
	FTP032-1000-10	10A	3.2kW		FTP065-1200-10	10A	6.5kW
	FTP040-1000-10	10A	4kW	1500V	FTP020-1500-3.5	3.5A	2kW
	FTP048-1000-15	15A	4.8kW		FTP032-1500-3.5	3.5A	3.2kW
	FTP065-1000-10	10A	6.5kW		FTP065-1500-7	7A	6.5kW
	FTP065-1000-20	20A	6.5kW		-	-	-

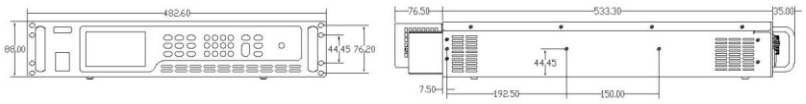
Optional information

Name	Model or Specification	Note
CAN interface	FTP001C	Installation before factory shipment
RS485 interface	FTP001S	Installation before factory shipment
GPIB interface	FTP001B	Installation before factory shipment
Composite signal port	FTP001F	Installation before factory shipment
Battery load prevention backfilling device	Suffix D	40V～800V some models
Automotive waveform testing options	Suffix C	Only 40V, 80V models
Faithtech solar PV matrix simulation software V1.0	FT-SAS	

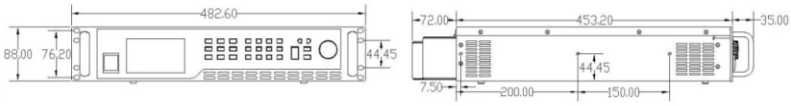
*Test cable and other optional parts are available. The relevant specifications and models are detailed in the "Optional Accessories" section of this manual.

Dimensions drawing

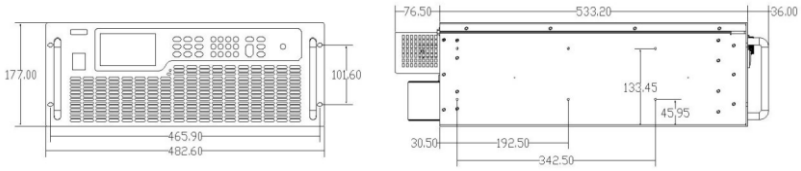
1.2kW, 1.6kW, 2kW, 3.2kW model dimensions:
Applicable models: 10V, 20V, 30V, 200V, 500V models and FTP012-80-60, FTP032-80-120



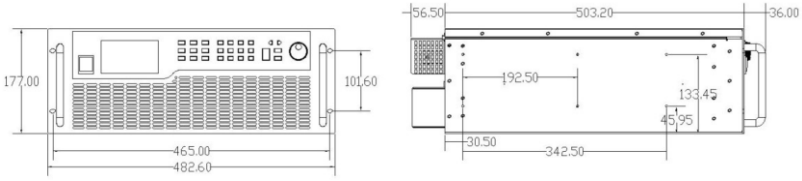
2kW, 3.2kW model dimensions:
Applicable models: 40V, 50V, 80V (partial), 120V, 160V, 300V, 400V, 600V, 800V, 1000V, 1200V, 1500V models



4.8kW, 6.5kW model dimensions:
Applicable models: 10V, 20V, 30V, 200V, 500V, 1000V models and FTP065-80-240



6.5kW model dimensions:
Applicable models: 40V, 50V, 80V (partial), 120V, 160V, 300V, 400V, 600V, 800V, 1000V, 1200V, 1500V models



General specification table

Name	Parameters
Input	190VAC ～ 265VAC, frequency: 47Hz ～ 63Hz, PF: 0.98(typical)
Efficiency	0.9(typical)
Transient response	Typical 2ms, 50% change in load, time required for voltage to return to 0.75% of set value
Cascade	Supports power expansion in master/slave mode
Communication interface	RS232 and LAN, optional: GPIB, RS485, CAN
Operating temperature	0℃～40℃
Storage temperature	-20℃～70℃
Use altitude	＜2000m

Specification table-1

Model	FTP016-10-200	FTP020-20-250	FTP016-30-85
Voltage	0～10V	0～20V	0～30V
Current	0～200A	0～250A	0～85A
Power	1600W	2000W	1600W
Model	FTP032-10-400	FTP032-20-250	FTP032-30-170
Voltage	0～10V	0～20V	0～30V
Current	0～400A	0～250A	0～170A
Power	3200W		
Model	FTP048-10-600	FTP048-20-375	FTP048-30-255
Voltage	0～10V	0～20V	0～30V
Current	0～600A	0～375A	0～255A
Power	4800W		
Model	FTP065-10-800	FTP065-20-500	FTP065-30-340
Voltage	0～10V	0～20V	0～30V
Current	0～800A	0～500A	0～340A
Power	6500W		
Voltage programming			
Resolution	16Bits		
Accuracy	0. 05%F. S.		
Current programming			
Resolution	16Bits		
Accuracy	0. 1%+0. 1%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 outputs			
Output voltage	0～100%F.S corresponds to 0～10V.		
Voltage accuracy	0. 5%F. S.		
Current accuracy	0. 5%F. S.		
Linear adjustment rate			
Voltage	0. 01%+0. 01%F. S.		
Current	0. 02%+0. 01%F. S.		
Loads adjustment rate			
Voltage	0. 01%+0. 05%F. S.		
Current	0. 02%+0. 1%F. S.		
Voltage measurement			
Resolution	16Bits		
Accuracy	0. 05%F. S.		
Current measurement			
Resolution	16Bits		
Accuracy	0. 1%+0. 1%F. S.		
Output noise & ripple			
Voltage ripple (p-p)	60mV	60mV	60mV
Voltage ripple (rms)	10mV	20mV	20mV
Rising slope*1			
Voltage	5V/ms (max)		
Current	2A/ms (max)		
OVP setting			
Range	0～110%F. S.		
Accuracy	1%F. S.		
Dimension	430 (W) ×88 (H) ×606. 5 (D) mm （1. 6kW&2kW&3. 2kW ）;		
	430 (W) ×177 (H) ×606. 5 (D) mm （4. 8kW&6. 5kW ）		
Weight	20kg (2kW&3. 2kW Models); 35kg (6. 5kW Models)		

Specification table-2

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. 05%F.S.					
Current programming						
Resolution	16Bits					
Accuracy	0. 1%+0. 1% 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 outputs						
Output voltage	0～100%F.S corresponds to 0～10V					
Voltage accuracy	0. 5%F. S.					
Current accuracy	0. 5%F. S.					
Linear adjustment rate						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.01%F.S.					
Load adjustment rate						
Voltage	0.01%+0.05%F.S.		0.01%+0.01%F.S.			
Current	0. 02%+0. 1%F. S.					
Voltage measurement						
Resolution	16Bits					
Accuracy	0.05%F.S.					
Current measurement						
Resolution	16Bits					
Accuracy	0. 1%+0. 1%F. S.					
Output noise & ripple						
Voltage ripple (p-p)	60mV	70mV	80mV	80mV	100mV	100mV
Voltage ripple (rms)	20mV	20mV	20mV	20mV	40mV	40mV
Rising slope*1						
Voltage	5V/ms(max)					
Current	2A/ms(max)					
OVP setting						
Range	0～110%F.S.					
Accuracy	1%F. S.					
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-3

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	0.05%F.S.					
Current programming						
Resolution	16Bits					
Accuracy	0. 1%+0. 1% 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 outputs						
Output voltage	0～100%F.S corresponds to 0～10V.					
Voltage accuracy	0. 5%F. S.					
Current accuracy	0. 5%F. S.					
Linear adjustment rate						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.01%F.S.					
Load adjustment rate						
Voltage	0.01%+0.01%F.S.					
Current	0.02%+0.1%F.S.					
Voltage measurement						
Resolution	16Bits					
Accuracy	0.05%F.S.					
Current measurement						
Resolution	16Bits					
Accuracy	0. 1%+0. 1%F. S.					
Output noise & ripple						
Voltage ripple (p-p)	300mV	300mV	500mV	450mV	500mV	700mV
Voltage ripple (rms)	60mV	60mV	80mV	80mV	120mV	150mV
Rising slope*1						
Voltage	5V/ms(max)					
Current	2A/ms(max)					
OVP setting						
Range	0～110%F.S.					
Accuracy	1%F. S.					
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-4

Model	FTP012-80-60	FTP020-200-30	FTP020-500-10	-
Voltage	0～80V	0～200V	0～500V	-
Current	0～60A	0～30A	0～10A	-
Power	1200W	2000W		
Model	FTP032-80-120	FTP032-200-60	FTP032-500-20	FTP032-1000-10
Voltage	0～80V	0～200V	0～500V	0～1000V
Current	0～120A	0～60A	0～20A	0～10A
Power	3200W			
Model	FTP040-80-120	FTP040-200-60	FTP040-500-20	FTP040-1000-10
Voltage	0～80V	0～200V	0～500V	0～1000V
Current	0～120A	0～60A	0～20A	0～10A
Power	4000W			
Model	FTP048-80-180	FTP048-200-90	FTP048-500-30	FTP048-1000-15
Voltage	0～80V	0～200V	0～500V	0～1000V
Current	0～180A	0～90A	0～30A	0～15A
Power	4800W			
Model	FTP065-80-240	FTP065-200-120	FTP065-500-40	FTP065-1000-20
Voltage	0～80V	0～200V	0～500V	0～1000V
Current	0～240A	0～120A	0～40A	0～20A
Power	6500W			
Model	FTP080-80-240	FTP080-200-120	FTP080-500-40	FTP080-1000-20
Voltage	0～80V	0～200V	0～500V	0～1000V
Current	0～240A	0～120A	0～40A	0～20A
Power	8000W			
Voltage programming				
Resolution	16Bits			
Precision	0. 05%F. S.			
Current programming*2				
Resolution	16Bits			
Precision	0. 1%+0. 1% F. S.			
External analog programming				
Control voltage	0～5V corresponds 0～100%F.S.			
Voltage accuracy	0. 2%F. S.			
Current accuracy	0. 5%F. S.			
Analog output				
Control voltage	0～100%F.S corresponds 0～5V.			
Voltage accuracy	0. 5%F. S.			
Current accuracy	0. 5%F. S.			
Linear adjustment rate				
Voltage	0. 01%+0. 01%F. S.			
Current	0. 02%+0. 01%F. S.			
Load adjustment rate				
Voltage	0. 01%+0. 01%F. S.			
Current	0. 02%+0. 1%F. S.			
Voltage measurement				
Resolution	16Bits			
Precision	0. 05%F. S.			
Current measurement *2				
Resolution	16Bits			
Precision	0. 1%+0. 1% F. S.			
Output noise & ripple				
Ripple voltage(p-p)	320mV	300mV	500mV	
Ripple voltage(rms)	30mV	75mV	120mV	
Rising slope*1				
Voltage	5V/ms (max)		4V/ms (max)	
Current	2A/ms (max)			
OVP setting				
Range	0～110%F. S.			
Precision	1%F. S.			
Dimension	430(W) × 88(H) × 606.5(D) mm (1.2 kW/2 kW/3.2 kW & 4 kW);			
	430(W) × 177(H) × 606.5(D) mm (4.8 kW/6.5 kW/8 kW)			
Weight	20kg(2kW/3.2kW/4kW models); 35kg(6.5kW/8kW models)			

*All specifications are subject to change without notice:
*1. Time for rated voltage to change from 10% to 90% under no-load and half-load (resistive load) condition;
*2. Minimum test voltage value needs to be ≥2%F.S..