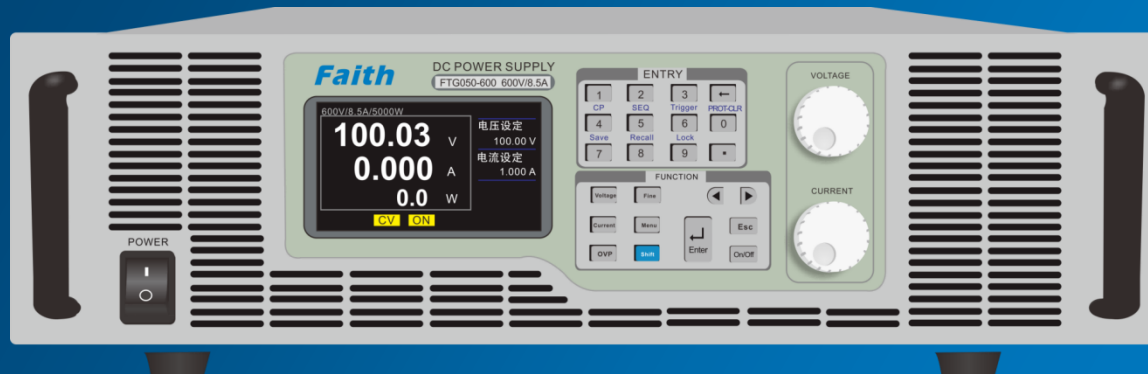


## High-power Programmable DC Power Supply



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;
- $\pm$ OVP,  $\pm$ OCP,  $\pm$ OPP, OTP,  $\pm$ 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%.

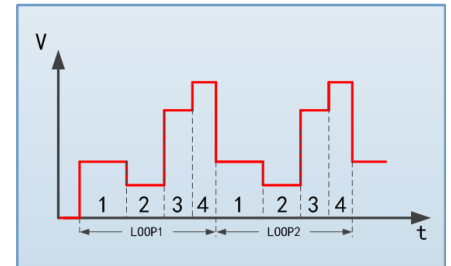
### 15kW/3U high power density

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.

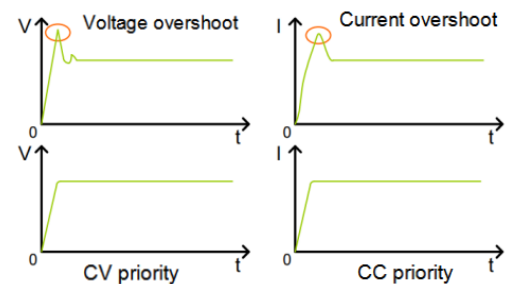


### Internal resistance simulating

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

**FTG Series (4 kW...600 kW)**

**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	4.0mm <sup>2</sup>	16mm <sup>2</sup>	25mm <sup>2</sup>	50mm <sup>2</sup>	50mm <sup>2</sup>	120mm <sup>2</sup>	150mm <sup>2</sup>
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/°C
Current Temperature Coefficient	40ppm/°C
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°C~40°C
Storage Temperature	-20°C~70°C
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.								



**FTG Series (4 kW...600 kW)**

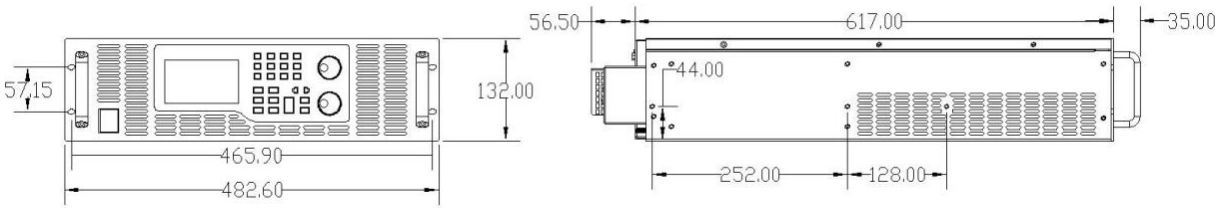
	300	400	500	600	800	1000	1200	1500
Voltage	0~300V	0~400V	0~500V	0~600V	0~800V	0~1000V	0~1200V	0~1500V
Current	0~400A	0~300A	0~240A	0~200A	0~150A	0~120A	0~100A	0~80A
Power	120kW							
Model	FTG2100-300	FTG2100-400	FTG2100-500	FTG2100-600	FTG2100-800	FTG2100-1000	FTG2100-1200	FTG2100-1500
Voltage	0~300V	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 <b>XXX</b> 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.							



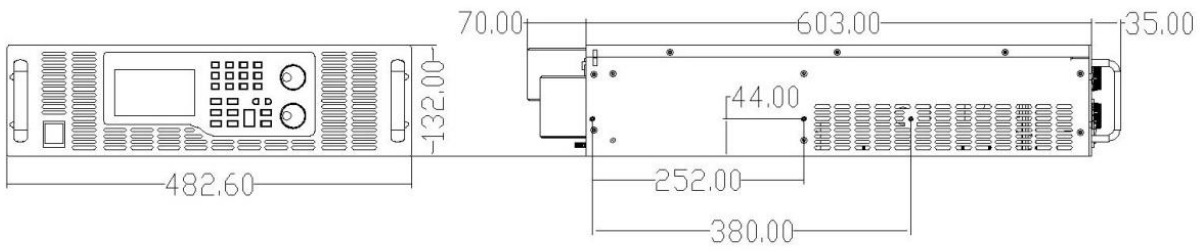
**FTG Series (4 kW...600 kW)**

**Dimension**

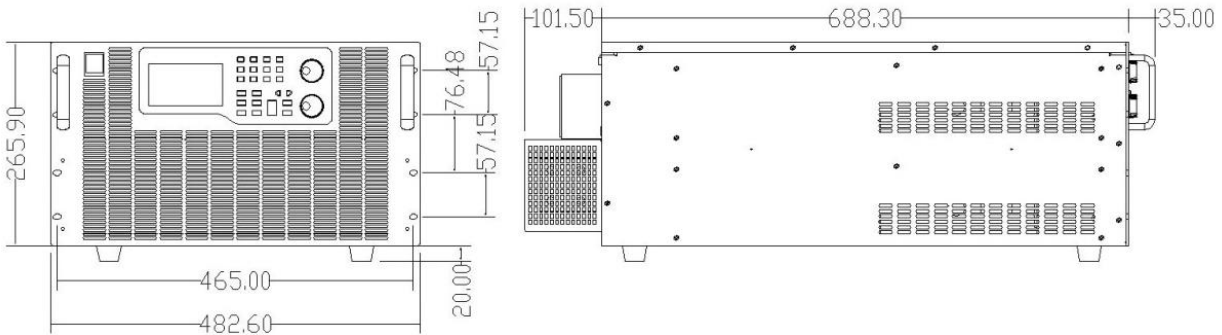
5kW~15kW model dimension (models of 40V or below)



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)

