



IPS-HS700-42  
Programmable DC power supply

Name: Programmable DC power supply

Model: IPS-HS700-42

Product Name	Programmable DC power supply		<b>IDEALPLUSING®</b>
Product Model	IPS-HS700-42	VER	A/0

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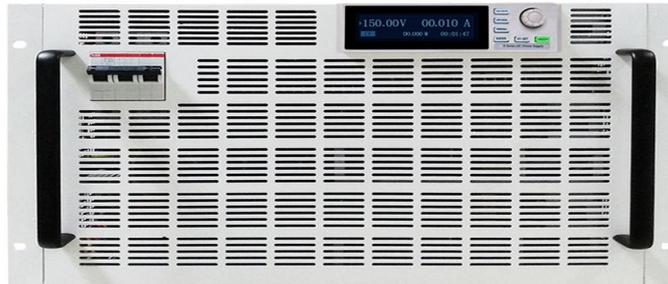
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## I. Product Overview

### 1.1 Product Image

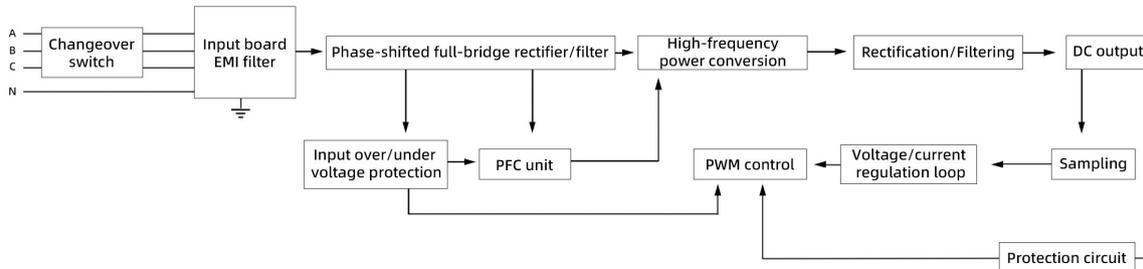
**IDEALPLUSING**



1.2 Product Introduction The HS series high-precision programmable DC power supply is a high-quality, high-power-density, multi-functional, and cost-effective product launched by our company to meet the needs of a wide range of customers. It is an ideal output for applications requiring wide-range output voltage or current regulation, and features both constant voltage and constant current operating modes. This series of power supplies can be used in applications requiring high-quality, stable DC power, such as automatic testing, process control, battery charging, and aging testing. This series features zero-voltage "soft switching," which reduces switching transient stress, resulting in very low output noise. Soft switching also improves efficiency and reduces heat generation, thus enhancing the power supply's stability.

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### 1.3 Working principle block diagram



### 1.4 Product Features

OLED screen displays voltage, current, power, and operating time.

High performance, high power density, compact and lightweight.

Power/current/voltage can be expanded via series and parallel connection.

Input with PFC power factor correction, power factor  $\geq 0.97$ .

Built-in analog monitoring interface.

Wide range adjustment of zero voltage and current.

Low ripple and low noise, comparable to pure linear power supplies.

Voltage and current preset functions.

Multi-function button and encoder combination operation, supports List dynamic programming output, and multiple data storage.

Standard 485 communication interface, supports Modbus standard communication protocol.

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## II. Technical Performance Indicators

Rated output value		IPS-HS700-42
Adjustable voltage range (*1)	V	700V(0 ~ 710V adjustable)
Adjustable current range (*2)	A	42A(Adjustable from 0 to 45A)
Rated power (OPP = 110% of rated value)	W	30KW
Input characteristics		
Voltage	--	Three-phase 380VAC±15%
frequency	--	47 ~ 63Hz
Power factor (@380Vac full load)	--	≥0.97
Efficiency (@380Vac full load)	%	≥90%
Constant voltage mode (CV)		
Source effect (*3)	--	0.05% + 10mV of rated output voltage
Load effect	--	0.2% +10mV of rated output voltage
Ripple and noise (p-p, 20MHz)	mV	950
Ripple frequency (r.m.s.) 5Hz~1 MHz	mV	350
Transient response time	mS	≤2mS (The time it takes for the output voltage to recover within 0.5% of its rated output when the load changes to 10-90% of the rated output current)
Startup delay	≤	6S (Time taken for the power switch to be turned on and the device to enter standby mode)

Constant current mode (CC)		
Source effect (*3)	--	0.05% + 10mA of rated output current
Load effect	--	0.2% + 10mA of rated output current
Ripple frequency (r.m.s.) 5Hz~1MHz	mA	≤100

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Programmable		
Analog output voltage control	--	0~5V or 0~10V (default) corresponds to 0~100% output voltage; accuracy: $\pm 1\%$ of rated output voltage.
Analog output current control	--	0~5V or 0~10V (default) corresponds to 0~100% output current; accuracy: $\pm 1\%$ of rated output current.
Analog output voltage feedback	--	0~5V or 0~10V (default) corresponds to 0~100% output voltage; accuracy: $\pm 1\%$ of rated output voltage.
Analog output current feedback	--	0~5V or 0~10V (default) corresponds to 0~100% output current; accuracy: $\pm 1\%$ of rated output current.
Remote power on/off analog signal	--	Passive dry contact switching signal or high/low level signal controls power on/off (default low level for power on).
Digital control	--	Standard RS-485 communication interface; optional RS-232 and USB communication conversion module cables are available, supporting Modbus communication protocol.

Function		
Series/Parallel Operation	--	Supports series/parallel operation of models of the same specification to expand voltage, current, and power.
Voltage and Current Slope Control	--	Programmable output rise and fall slopes. Programming range: 0.01~100V/s or A/s.
Dynamic LIST Output	--	Can save 4 LIST program files, each file can be edited with up to 200 steps of data; three execution modes are available: cyclic, continuous, and single-step.
Timer Function	--	Minutes can be set from 0-9999 minutes.
Fast Data Storage/Recall	--	Can store 4 sets of commonly used voltage/current parameters.
Protection	--	Output overvoltage, overcurrent, overload, overtemperature, short circuit, input undervoltage, and overvoltage protection.
Panel monitoring		
Operation Method	--	Encoder knob + multi-function buttons
Display Method	--	5-digit OLED screen displays output voltage, current, power, and operating status information; supports Chinese and English dual-language menu switching.
Voltage Display Accuracy	--	0.05%+0.1% F.S.
Current Display Accuracy	--	0.1%+0.1% F.S.
Voltage Setpoint Accuracy	--	0.05%+0.1% F.S.
Current Setpoint Accuracy	--	0.1%+0.1% F.S.
Setpoint Resolution	--	5-digit OLED, display format: 99999, fixed resolution without incrementing digits, maximum resolution: 0.001
Display Resolution	--	5-digit OLED, display format: 99999, current value decreases by one digit, decimal point automatically increases by one digit, maximum resolution: 0.001
Environmental adaptability		
Operating ambient temperature /	°C	0°C ~ +40°C / -20°C ~ +70°C

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storage temperature		
Operating humidity / Storage humidity	%	20~90%RH (non-condensing) / 10~95%RH (non-condensing)
Heat dissipation method	--	Temperature-controlled speed fan, ensuring the normal operation of the power supply while balancing fan noise and operating temperature.
Dimensions / Weight	--	
Dimensions (excluding output copper busbars, etc.)	mm	480(430)W × 264H × 535D mm (Standard 6U size)
Weight	Kg	Approx.60 kg

**Notes:**

\*1: Minimum voltage is within 0.2% of the rated output voltage.

\*2: Minimum current is within 0.3% of the rated output current.

\*3: Measurements must be taken under constant load conditions.

\*4: Measurements must be taken with the input voltage kept constant, from no load to full load, at the voltage compensation sampling terminal.

### III. Panel Function Description

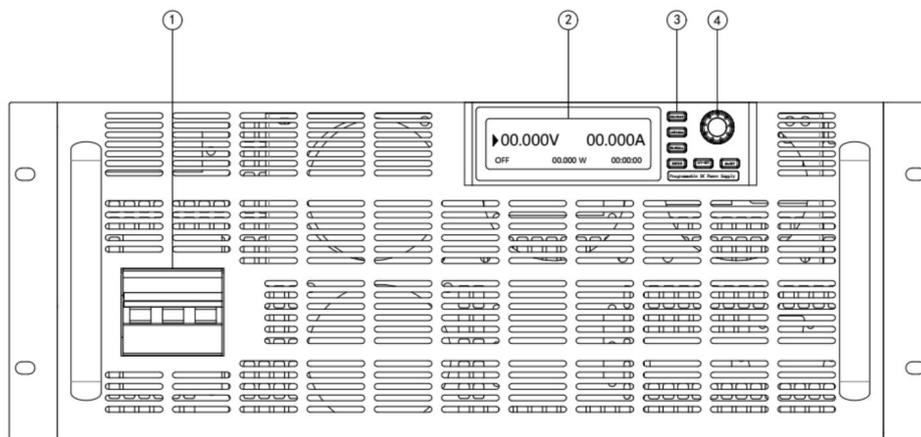


Figure 3.1.1 Front panel view of the power supply

Power switch

OLED display: Displays voltage, current, power, time, and signal status information.

show	Description
CC	Constant Current Mode
CV	Constant Voltage Mode
OVP	Overvoltage Protection
OCP	Overcurrent Protection
OPP	Overpower Protection

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	Button Lock (Press and hold the encoder knob for 5 seconds, then release to unlock)
REM	Remote control mode

**③ The multi-function buttons are described below:**

**ESC/SAVE**      **Exit/Save Key: A short press exits the program from any state; a long press saves the current power supply settings to a specified location.**

**LIST/LOCAL**      Sequential Operation/Local Operation Key: A short press executes the previously executed List file; when the power supply is operating in remote control mode, a long press switches to local operation mode.

**TRI/RECALL**      Trigger/Callback Key: Used to trigger in List and Auto Test modes; in normal operation mode, press this key to retrieve power supply settings from a specified memory location.

**ENTER**      Confirm Key

**V/I-SET**      Sets the power supply output voltage/current value

**ON/OFF**      Controls the power supply output on/off state

**④ Encoder Knob: Function descriptions are as follows:**

1. Press and hold the knob inwards (approximately 5 seconds) to activate the Menu function.
2. Used to adjust numerical values: When adjusting voltage/current values, rotating clockwise increases the value sequentially from 0-9 in increments of 1. For example, when the units digit increases by one cycle from 0-9, the tens digit increases by one digit; after two cycles, it increases by two digits, and so on. When the tens digit increases by one cycle, the hundreds digit increases by one digit, and so on. Rotating counter-clockwise decreases the value sequentially from 9-0, following the same principle as increasing.
3. To improve adjustment efficiency, the target digit can be moved using the encoder button. Each press moves the target digit by one. When the current digit value flashes, the value can be adjusted using the knob: clockwise increases, counter-clockwise decreases.

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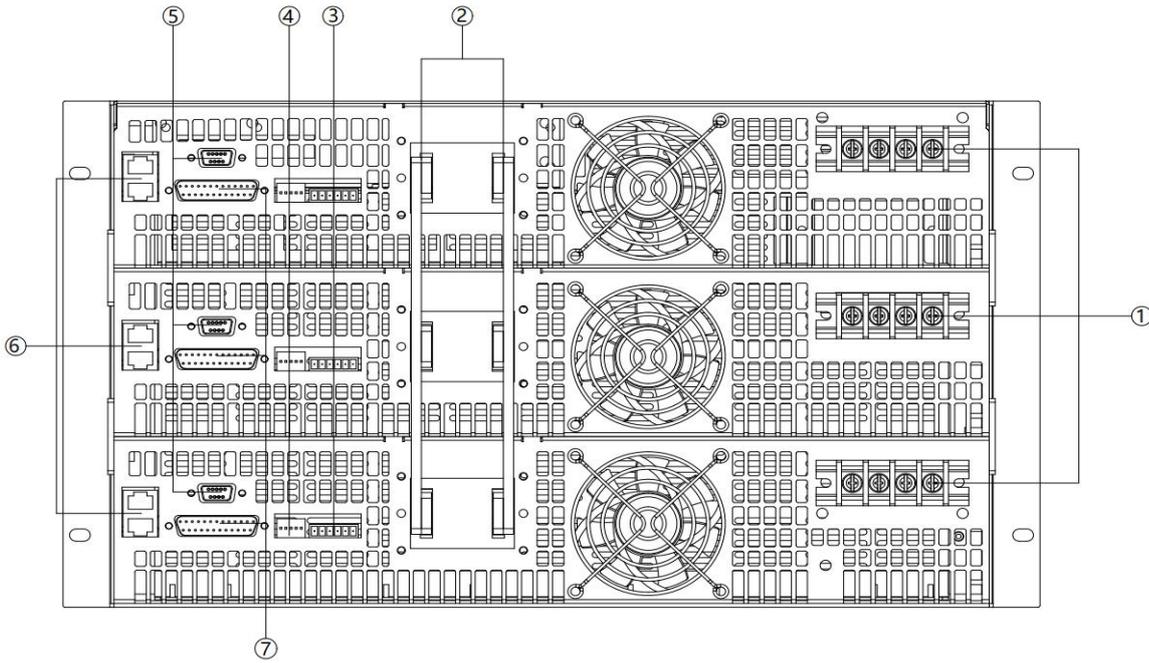


Figure 3.1.2 Power supply rear panel view

1. Power input ports (A, B, C, N, three-phase four-wire system; if single-phase input is required, the three-phase terminals A, B, and C can be shorted together and connected to a single live wire).
2. DC output terminals.
3. DB9 RS-485 communication port (pin 1 transmit, pin 2 receive).
4. Parallel signal interface/RJ45 RS-485 communication port (pin 1 transmit, pin 2 receive).
5. DB25 analog signal monitoring terminal.

1	AGND	Isolation ground, used when multiple machines are connected in parallel, as a connection between the slave and master local ground ports.
2	AGND	Isolation ground, used when multiple machines are connected in parallel, as a connection between the slave and master local ground ports.
3	+15-B	DC15V 0.1A output
4-5	IPGM+	Programmable voltage control port
6-7	VPGM+	Voltage programmable control port
8	N/C	No connection
9	IMON+	Current monitoring port
10	VMON+	Voltage monitoring port No connection
11-12	N/C	No connection
13	S/D+	Remote power on/off port +
14、15	N/C	No connection

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16-20	SGND	Local ground port
21	N/C	No connection
22-23	SGND	Local ground port
24	N/C	No connection
25	S/D-	Remote power on/off port -

### DIP switch

1	Electrical flow control switch (analog programmable control)
2	Voltage control switch (analog programmable control)
3	Main unit current negative bias switch when multiple units are connected in parallel
4	N/C
5	Parallel signal switch (master/slave and machine settings when multiple machines are connected in parallel)

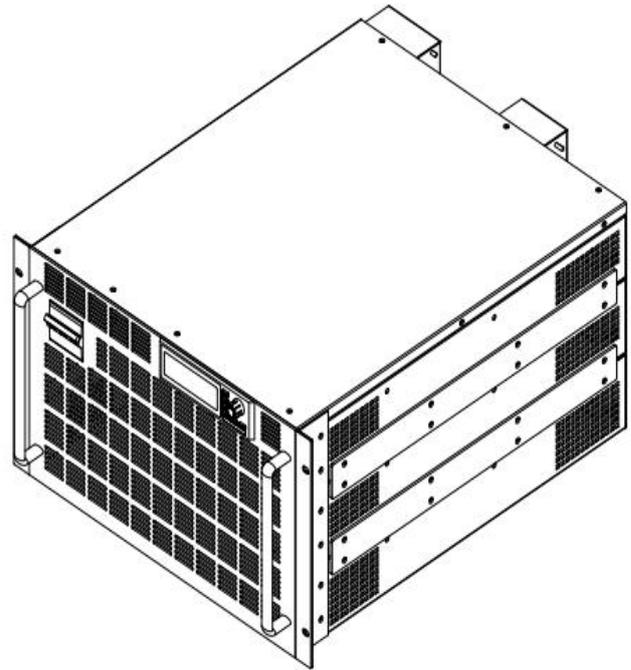
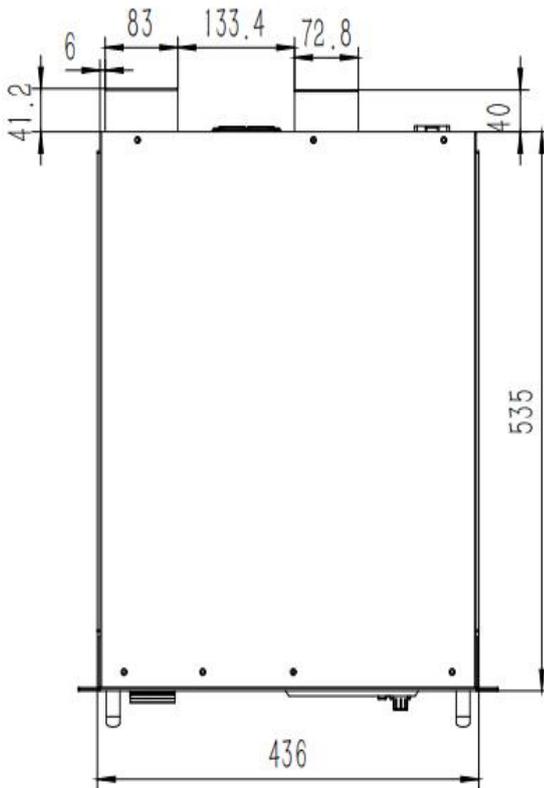
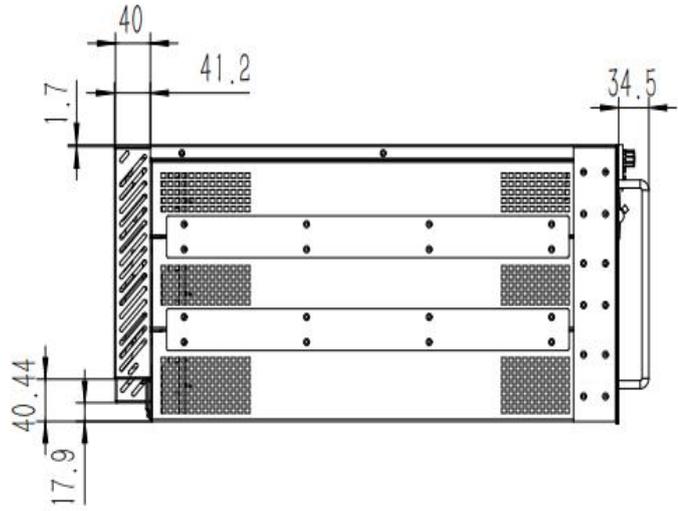
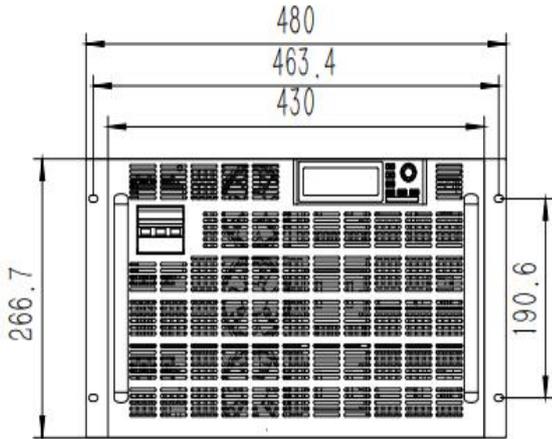
### Multi-functional terminal

character			Function Description
Share	1	+	Multi-machine parallel connection port, used for parallel signal connection between master and slave machines. Master pin 1 connects to slave pin 1, master pin 2 connects to slave pin 2, one-to-one correspondence.
	2	-	
Sense	3	-	Voltage compensation remote compensation port -
	4	N/C	No pin
	5	N/C	No pin
	6	+	Voltage compensation remote compensation port+

⊗ chassis ground terminal

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## IV. External Dimensions Drawing



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GUANGZHOU IDEALPLUSING INFORMATION TECHNOLOGY CO., LTD

Website: [www.idealplusing.com](http://www.idealplusing.com) [www.idealpowersupply.com](http://www.idealpowersupply.com)

Office ADD: NO.38 Gaopu Road, Tianhe, Guangzhou, Guangdong Province, China. 510520.

Factory #1 ADD: 7/F, Block A, Cabo Tec. park, North of HuaFa Road, Gongming, Guangming new Dis. ,SZ,China.

Factory #2 ADD: 3/F, Building C, HengTongFa Industrial Area, TangTou Industrial Park, ShiYan , Baoan , SZ, China.

Tel: +86-20-89282095 Mobile & Whatsapp: +86-18928830209 EMAIL: [info@idealplusing.com](mailto:info@idealplusing.com)