



IPS-HS700-21
Programmable DC power supply

Name: Programmable DC power supply

Model: IPS-HS700-21

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| Product Name | Programmable DC power supply | | IDEALPLUSING® |
| Product Model | IPS-HS700-21 | VER | A/0 |

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I. Product Overview

1.1 Product Image

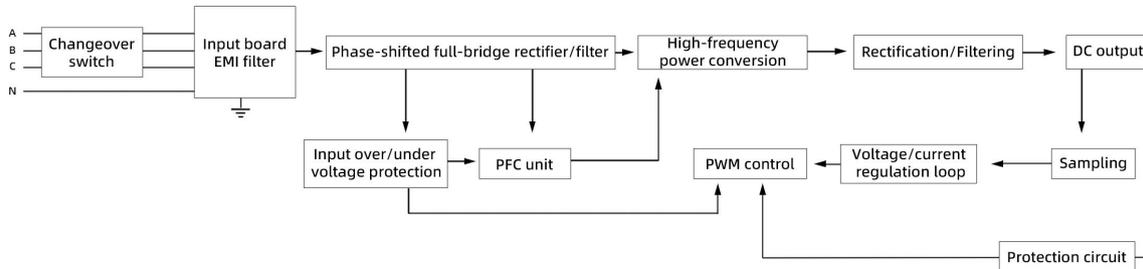
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1.2 Product Introduction The HS series high-precision programmable DC power supply is a high-quality, high-power-density, multi-functional, and cost-effective product launched by our company to meet the needs of a wide range of customers. It is an 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 adopts an N+1 master-slave parallel modular design. If any slave module fails, it can continue to be used with reduced derating, preventing the entire power supply system from shutting down. Compared to traditional low-cost modular designs, this offers advantages such as faster troubleshooting. 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 ≥ 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-HS700-21 |
|---|----|--|
| Adjustable voltage range (*1) | V | 700V(0 ~ 710V adjustable) |
| Adjustable current range (*2) | A | 21A(Adjustable from 0 to 23A) |
| Rated power (OPP = 110% of rated value) | W | 15KW |
| 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 | -- | 0.3% + 10mA of rated output current |
| Ripple frequency (r.m.s.) 5Hz~1MHz | mA | ≤50 |

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| Programmable | | |
|-----------------------------------|----|--|
| Analog output voltage control | -- | 0~5V or 0~10V (default) corresponds to 0~100% output voltage; accuracy: ±1% of rated output voltage. |
| Analog output current control | -- | 0~5V or 0~10V (default) corresponds to 0~100% output current; accuracy: ±1% of rated output current. |
| Analog output voltage feedback | -- | 0~5V or 0~10V (default) corresponds to 0~100% output voltage; accuracy: ±1% of rated output voltage. |
| Analog output current feedback | -- | 0~5V or 0~10V (default) corresponds to 0~100% output current; accuracy: ±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%+0.05% F.S. |
| Current Display Accuracy | -- | 0.2%+0.2% F.S. |
| Voltage Setpoint Accuracy | -- | 0.05%+0.05% F.S. |
| Current Setpoint Accuracy | -- | 0.2%+0.2% 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 / storage temperature | °C | 0°C ~ +40°C / -20°C ~ +70°C |

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|--|----|---|
| Operating humidity / Storage humidity | % | 20~90%RH (non-condensing) / 10~95%RH (non-condensing) |
| Heat dissipation method | -- | Forced air cooling (temperature-controlled speed fan, ensuring normal operation while minimizing fan noise and extending fan life). |
| Dimensions / Weight | -- | |
| Dimensions (excluding output copper busbars, etc.) | mm | Width 480 (430) mm, Height 176 mm, Depth 535 mm (Standard 4U size) |
| Weight | Kg | Approx. 41 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.

III. Panel Function Description

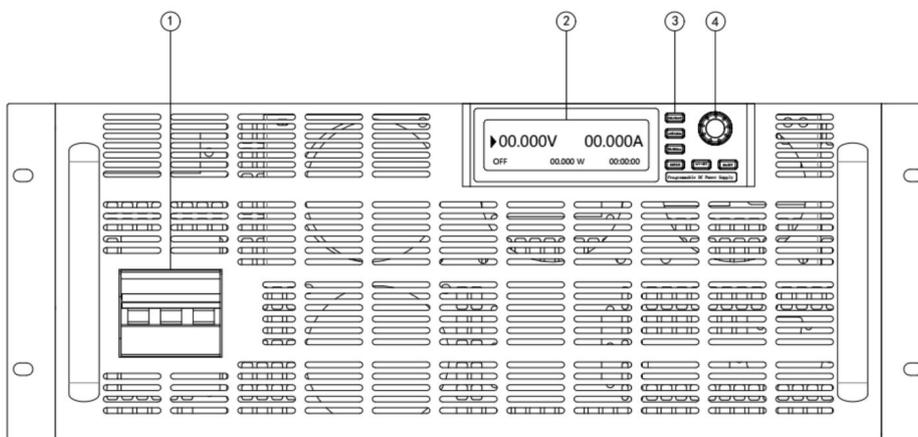


Figure 3.1.1 Front panel view of the power supply

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 |
|  | Button Lock (Press and hold the encoder knob for 5 seconds, then release to unlock) |

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|-----|---------------------|
| 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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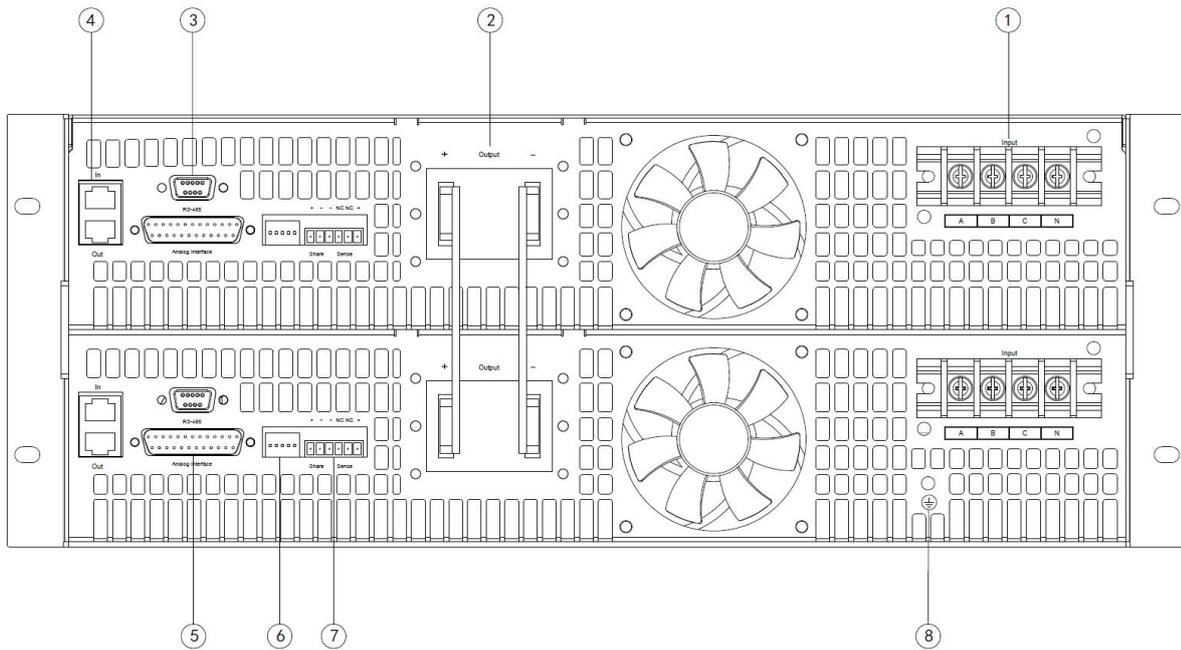
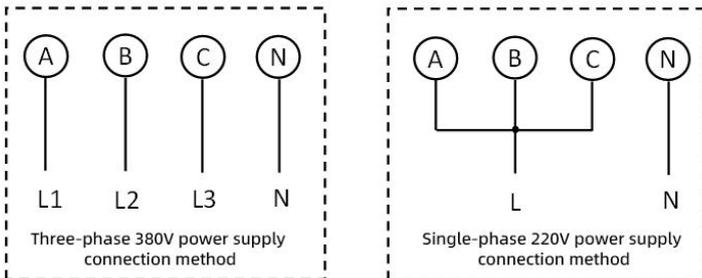


Figure 3.1.2 Power supply rear panel view



Note: When using single-phase input, please select the appropriate input conductor diameter according to the actual load size, and fully consider the current power distribution load of single-phase power supply in the current power environment.

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 |

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| | | |
|-------|-------|---------------------------------------|
| 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 |
| 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) |

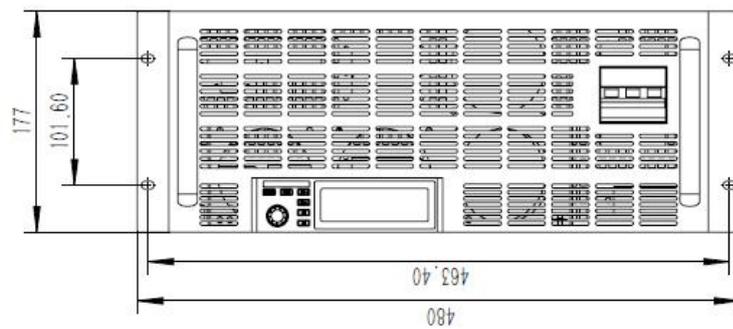
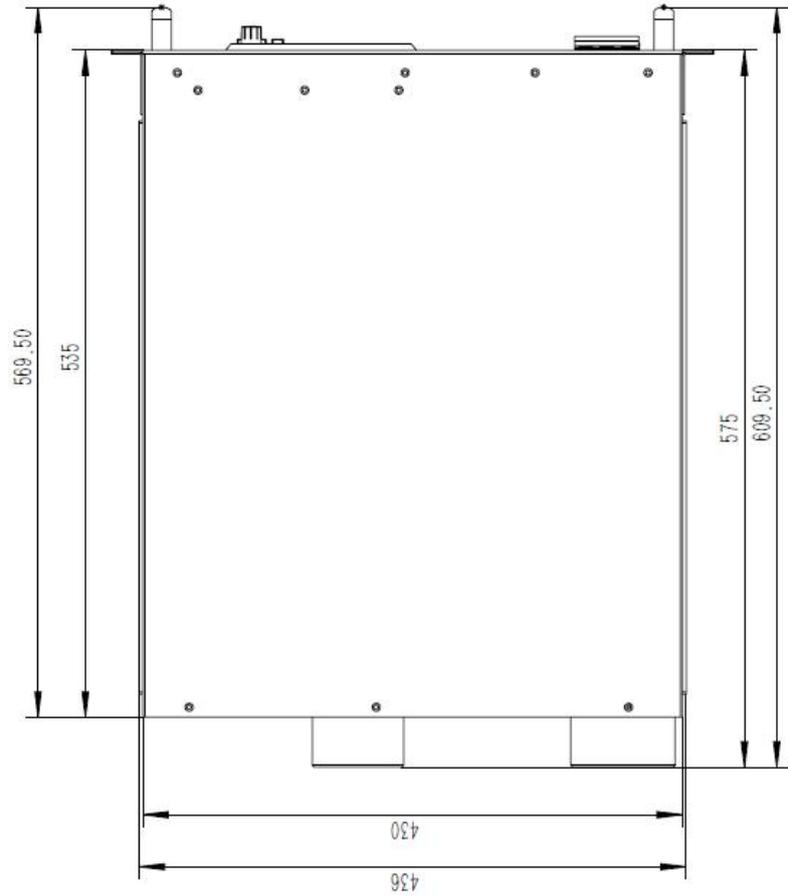
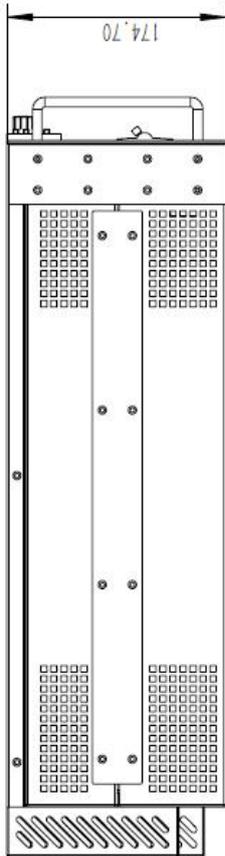
Multi-functional terminal

| 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+ |

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⌀ chassis ground terminal

IV. External Dimensions Drawing



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