

Technical Specification Scheme

First、 Device Name: KGF Series switching Mode Rectifier For Plating

Alias: Rectifier

Second、 Product Usage : suitable for metal plating, plastic plating, plating acid copper, alkaline copper, coke copper, nickel, tin, zinc, high-power electrolysis, hard anodized aluminum, polished stainless steel and other high-end products surface treatment processes.

Third 、 Product Features:

- 1, small size, light weight, high efficiency and high control precision
- 2, the introduction of international pulse width modulation technology, adopt internationally renowned company's IGBT power modules; main transformer using a high magnetic permeability core material, the reasonable structure design than the thyristor saving of about 20%;
- 3, the cathode current density can be increased ,to accelerate the plating rate of the plating reduce stress, to eliminate ammonia brittle. Crystalline coating is more delicate, good brightness;
- 4, with automatic voltage limiting, steady flow pressure limiting function, output voltage and current continuously adjustable.
 - a, voltage regulator current limit function: When the rectifier operating in this state, if the load changes, the exhibit voltage stability, and the change in current to the load change; when the current reaches or exceeds the rated current, automatic in limiting state that the maximum current does not exceed the rated current, voltage decreases.
 - b, steady flow pressure limiting function: rectifier operating in this state, if the load changes, is showing stable current, voltage varies with load changes; when the voltage reaches or exceeds the rated voltage, automatically limiting pressure in the state that the maximum voltage does not exceed the rated voltage, current decreases.
- 5, the enclosure using spray technology, control system sealed off, the internal structure of anti-acid, alkali design, product durability;

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6, anti-corrosion standard remote control box, make the plating tank and power isolation, improve product life;

7, a soft-start function to prevent large current impact, extended equipment life, ensuring the quality of the coating or oxide film.

8, using computer standardized design, reasonable structure, corrosion control circuit seal design, small size, light weight, easy handling, ease of installation and maintenance.

Fourth、 Technical Parameters:

输入电压 Input voltage	单相 220V, 380V 三相四线 50-60HZ 220V AC,380v AC(Three-phase four-wire)50-60HZ
输出直流电流 Output DC current	1A-20000A 任意选择 1A-20000A Arbitrary choice
输出直流电压 Output DC voltage	3V-500V 任意选择 3V-500V Arbitrary choice
稳压精度 Voltage stability	<1%
稳流精度 Current stability	<1%
输出纹波 Ripple factor	1%-2%
冷却方式 Cooling mode	风冷或水冷 air-cooled or water-cooled
整机效率 Efficiency	>90%
负荷运行 Workload	满负荷 24 小时运行 Full capacity operation,

Fifth, use and model meaning:

1, KG-BFR series, high-frequency switching power supply with international advanced bridge PWM converter technology and constant frequency pulse width modulation

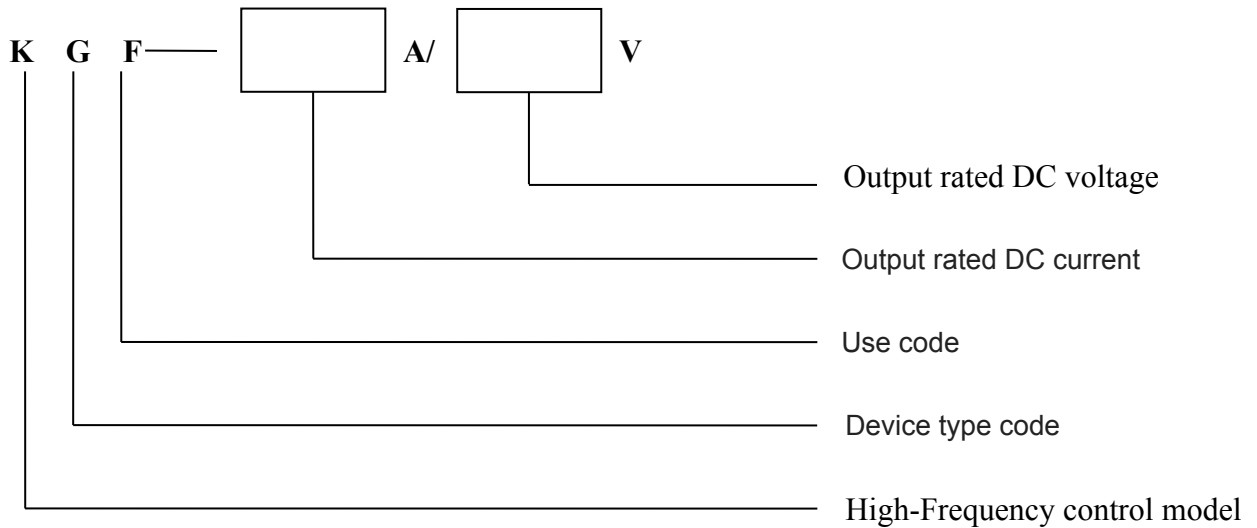
Technology, performance, widely used in electroplating, communications, electric power, battery charging, motor control and other needs

To high-quality DC power supply places, particularly suitable for precious metal electroplating, printed circuit board production.

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2、 Model Implication:



Use Code: Y---electroplating H---electrochemistry D---electrophoretic paint
 C---charging storage battery T--- Communications DL---Electric Power
 S---Motor speed regulation

The device type code: G--- high power switch pipe IGBT M---MOS pipe

Sixth、 working principle:

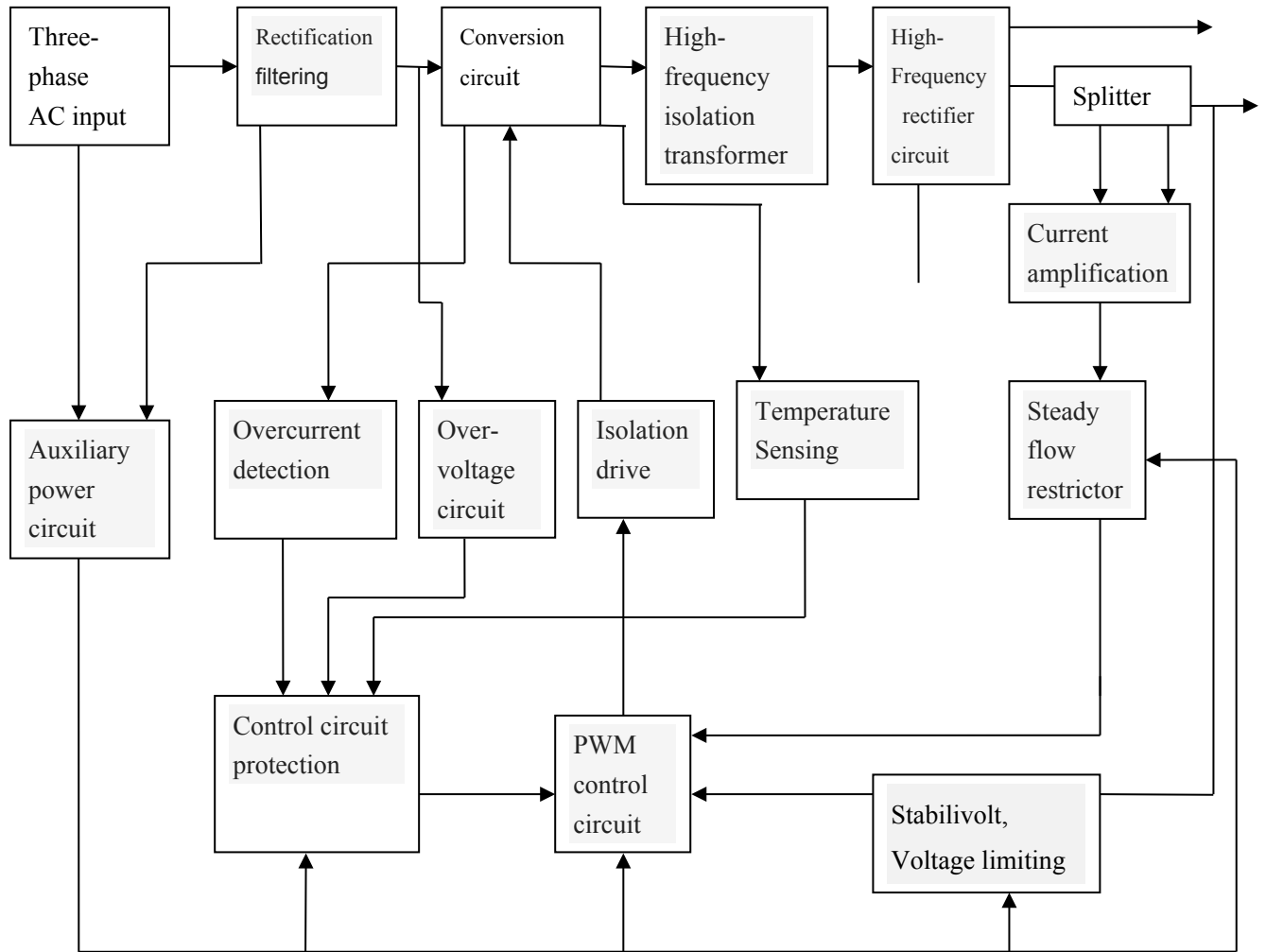
1, the main components of the power supply:

Power mainly by the rectifier filter circuit, full bridge circuit, PWM control circuit, a voltage regulator, steady flow, voltage limiting,current limiting, control and protection circuit, and an auxiliary power supply circuit.

2. Functional block diagram:

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3, protective circuit:

<1> temperature protection: the rectifier internal temperature is too high, which leads to protection.

<2> overcurrent: instant circuit caused by the output circuit is too large.

<3> Phase protection: Phase phenomena caused by the grid or line.

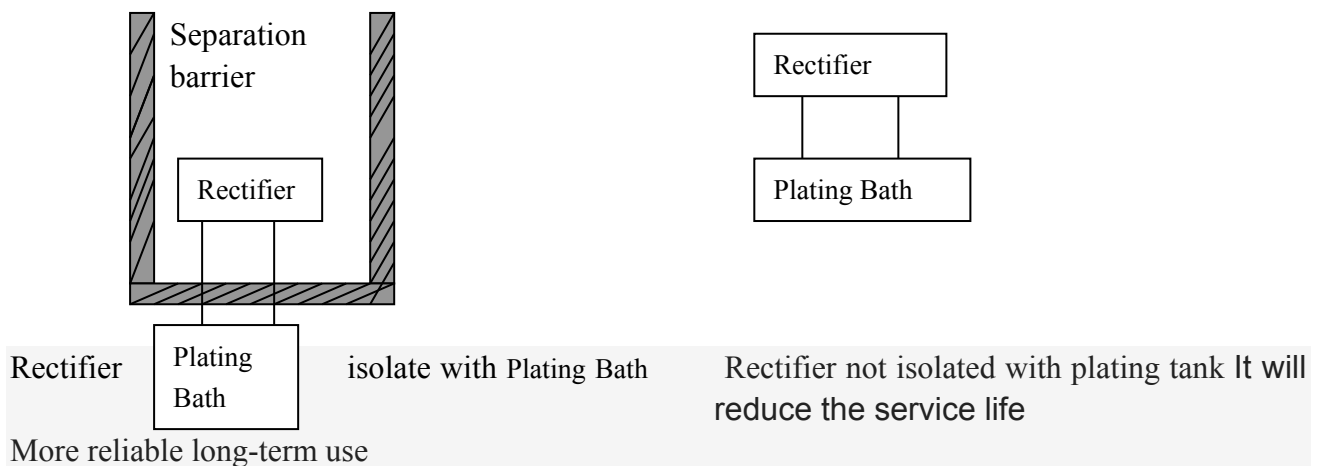
<4> Short circuit protection: the inverter output short circuit, overcurrent inevitably lead within 10 microseconds to protect the power inverter via the stop

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Seventh、 Conditions of useage:

- 1、 no more than 1000 meters above sea level, over 1000 meters must derating capacity;
- 2、 Operating ambient temperature:
 - a、 air cooling: -10°C — 40°C
 - b、 water cooling: 5°C — 40°C
- 3、 relative humidity: 5%—90% 【No frost, ice, in the equivalent of air $20 \pm 5^{\circ}\text{C}$ 】;
- 4、 Operating site should be no conductive or explosive dust, corrosive gases, protected from direct sunlight, which will not produce condensation for the temperature variation, with good ventilation conditions, equipment isolated with plating tank



5, the device should be placed horizontally, not diagonal, or upside down, surrounded by cooling space is not less than 0.5 meters, and should be placed on the material structure can resist high temperatures.

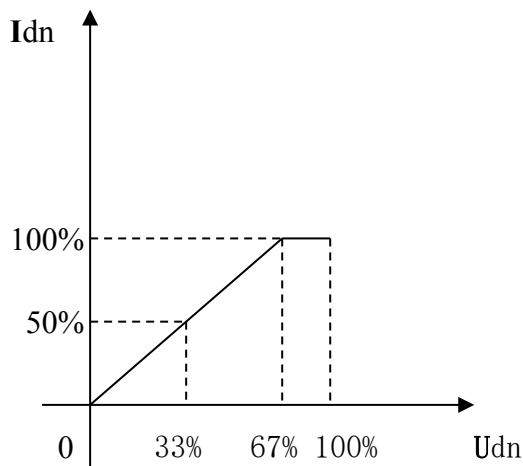
6, the installation site permitted vibration conditions: frequency of vibration severity grade is 10-150HZ, the vibration acceleration is not greater than 5 meters / second squared.

7, continued fluctuation range of the AC mains voltage amplitude does not exceed the rating of $\pm 10\%$;

8, equipment and ensure that 67% of rated voltage or more consecutive run as I level load, equipment operating at 67% of rated voltage, the load capacity is diminishing following figure.

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Eighth , Installation Notes:

- 1, the device should be checked before installing the device for shipping damage or loose by the earthquake there.
2. Should the equipment wet, drying infrared light bulb.
- 3, the device housing should take a good ground.
- 4, after the completion of the work, can be connected to the power supply.
- 5, the device output polarity marked '+' '-' No, not when you pick the wrong bus.

Note: Check the fan is working properly, without abnormal noise. Check the tank shell is grounded, the power ventilation installation site should be considered, not the air immediately adjacent to the barrier, as well as the cooling effect is poor, reduce the life of the power supply.

Ninth、 Instructions:

1. Check the input power should be preceded by commissioning and electrical connections are correct.
 - a, single-phase input: single-phase 220VAC \pm 10%
 - b, three-phase input: Three-phase 380VAC \pm 10%
- 2, no-load test: do not take the load, the output adjustment knob counterclockwise to tune in the end, the steady flow / regulation switch placed regulator blocked. On the air switch, the indicator stops flashing on the keypad, set the "Start / Stop" opened on "Start" block, as has been previously placed in the "Start" block, you do not need to restart, Panel lights stop flashing, adjust the output potentiometer, the output voltage should be continuously adjustable

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If without a prior potentiometer to adjust the output, to the minimum "0" bit, and start switch to start the block, close air switch after the indicator flashes, then the output voltage will automatically output to the pre-set voltage.

3. Test under normal load: access load [such as plating], it is powered, select the desired good working condition [steady flow / regulation choice], power to regulate the "Output adjustment" knob, the output current or voltage shall be continuously adjustable.

Warning: When you work, you should avoid direct the output of the positive and negative short-circuit test, resulting in low pressure, high flow phenomenon, once the working status of the main components of the power supply damage.

Work hours: If you find digital meter shows zero suddenly, lights flashing, Now that produce over current, short circuit, lack of equal protection, please immediately cut off the power, after troubleshooting, restart the power supply.

Note: before the time relay supply power work, should set the time parameters in advance.

When the workpiece into the work groove generates a current, automatic timing relay, time to shut down or alarm. When the piece out, the time relay automatically resets. On the operation panel "control on / off" is used to control the time relay or not

Tenth □ Common faults:

1, in operation, the indicator flashes suddenly stop, probably because produce undervoltage, output short circuit protection and other phenomena, power dump, after clear the faults then restart to work properly.

2, after a period of normal working lights suddenly went out, the power to stop working, you can check the fan is working properly, after troubleshooting generated due to temperature, reboot to work properly;

3, Indicator light keeping flash, please check the power cord because of access caused by falling phase status, or measuring the input voltage is normal, troubleshooting problems that arise due to the input power after reboot can work ;

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4. when operating the power supply without proper functions, such as digital table is not accurate, no display, the switch does not work and so on, please check the control circuit is bad or off;

5, such as the air switch can't close regular, check whether there is a line fault of rectification section;

6,after turned on, indicating normal light, you turn the potentiometer, the light starts flashing, check the output section if there is a short circuit.

Eleventh、 Warranty scope:

1.the product warranty is for one year, failure in the case of normal use during the warranty period, you can present this warranty card and enjoy factory' free services;

2.The damage caused by man-made or caused by force majeure, failure to install and use the machine working conditions, failure to manual operation of the machine, not a regular maintenance in line with one of the above conditions and cause damage not covered under warranty. See details by warranty card.

3.For warranty matters:

a,During warranty period whatever is not dismantled bad indeed belongs to manufactured goods produced by our failure or damage is responsible for free repair or replacement of damaged parts, improper use and for failure or damage caused by man, which not into maintenance range ;

b.During warranty period due to improper use, or due to damage caused by force majeure, the factory can provide maintenance services to users, and charge the appropriate fee and travel expenses;

c. Exceed the warranty period occur equipment failure, the factory provides after-sales service, and charge the appropriate fee and travel expenses;

d. please indicate the device model, manufacturing number, symptoms, etc. When the user needs us provide services

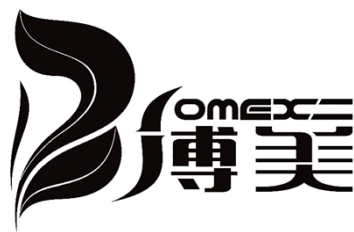
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high-frequency switching power supply

Instruction Manual



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