

50A 120V 6000W Variable DC Power Supply Specs

The ATO-JK-K series variable DC power supplies utilize advanced PWM control technology and feature a wide input voltage range. By employing state-of-the-art switching power supply control technology and high-quality components, these units achieve high efficiency and a lightweight design while being energy-efficient and environmentally friendly. They feature automatic switching between Constant Voltage (CV) and Constant Current (CC) modes, allowing them to function as either a regulated voltage source or a regulated current source. To ensure reliability, the units are equipped with input undervoltage protection, output overvoltage protection, and over-temperature protection circuits. For ease of use, the power supplies allow users to view set values for constant voltage, constant current, and overvoltage protection. Optional features include remote control for current, voltage, and power on/off. To meet the specific needs of capacitor manufacturers—such as for capacitor aging processes—capacitor discharge and pulse aging functions are also available as options. This series represents an ideal regulated DC power supply solution; offering exceptional stability and reliability, it is widely used in factories, schools, research institutes, laboratories, and other settings requiring a highly stable DC power source.

I. Product Features

- ◆ Utilizes PWM switching control technology, resulting in a compact, lightweight, and highly efficient unit.
- ◆ Features high precision, low ripple, and stable performance.
- ◆ Excellent electronic properties and fast response speed.
- ◆ It has an automatic switching function between constant pressure and constant current working modes.
- ◆ High-stability output with voltage and current regulation.
- ◆ Features built-in O.V.P. (Over-Voltage Protection), O.T.P. (Over-Temperature Protection), and short-circuit protection.
- ◆ Soft-start with power-on delay to prevent output voltage overshoot during startup.
- ◆ Functions for presetting and viewing constant voltage, constant current, and over-voltage protection values.
- ◆ Supports preset voltage and current outputs as well as contact switch outputs; simple to operate and convenient to use.

II. Functional Features

- **Constant Voltage/Constant Current:** Voltage and current are continuously adjustable from zero to rated values, with automatic crossover between constant voltage and constant current modes.
- **Over-voltage protection:** The protection threshold is continuously adjustable from 0% to 120% of the rated value; the system trips to provide protection when the output voltage exceeds this threshold.
- **Short-circuit protection:** Allows for continuous short-circuiting or power-on into a short circuit under any operating condition.
- **Intelligence:** Optional 0–5V or 0–10V analog control for PLC integration, or RS-485 communication protocol, enables the configuration of an intelligent, remotely controlled power supply with regulated voltage and current.
- **High adaptability:** Suitable for various types of loads, delivering equally excellent performance with resistive, capacitive, and inductive loads.
- Each power supply unit is designed with sufficient power headroom, ensuring that performance and longevity remain well-maintained even during prolonged operation at full load.

III. Application Areas

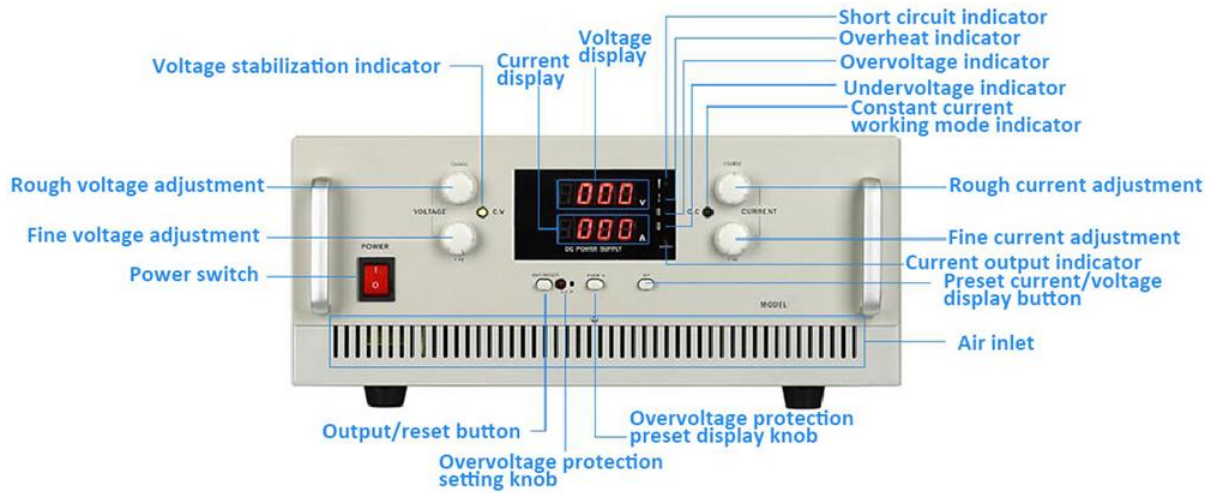
Variable DC power supply is widely used in industrial control, power electronics, electroplating, telecommunications, scientific research, instrumentation, the military industry, medical care, shipbuilding, railways, and other high-tech sectors.

- **Electric Motors:** Electric vehicle motors, electric vehicle controllers, DC motor testing, etc.
- **Electrical lighting equipment:** LED testing and burn-in, energy-saving bulb testing and burn-in, luminaire testing, tungsten filament vaporization, etc.
- **Automotive:** Automotive electronics, high-power DC motors, automotive motor controllers, automotive lighting, cigarette lighters, automotive audio-visual systems.
- **Electronic components:** capacitors, resistors, relays, transistors, sensors, etc.
- **Displays:** display screens, LCD screens, touch screens, in-vehicle DVD displays, mobile phone displays, etc.
- **Electrochemistry:** electrolysis, electroplating, anodizing, non-ferrous metal research, etc.
- Other fields involving product testing and R&D that require DC power supplies.

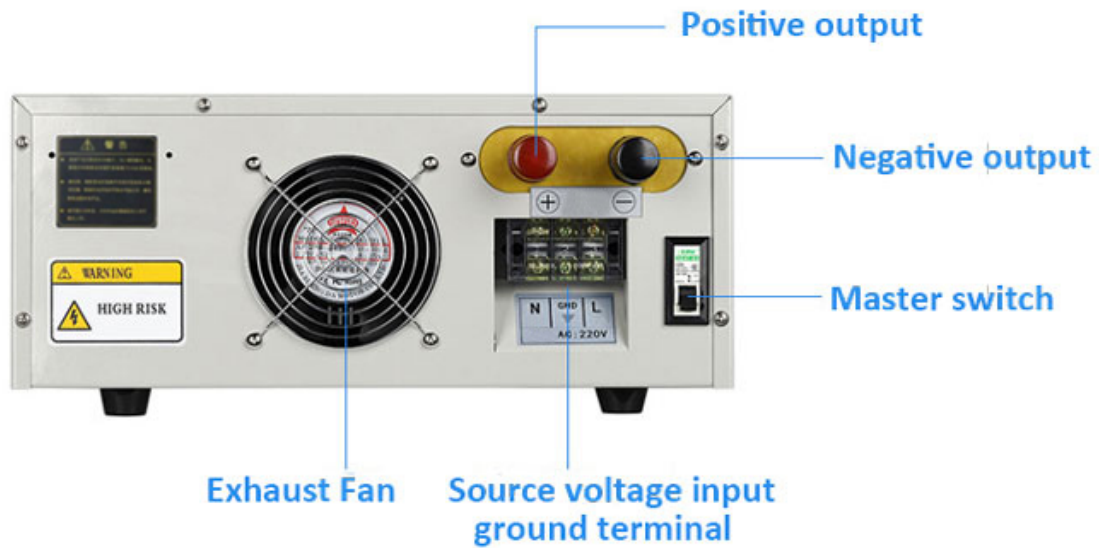
IV. Main Technical Parameters

Item	Technical Parameter
Model	JK12050K
Input Voltage Range	Single-phase AC 220V $\pm 10\%$
Input Frequency	50Hz/60Hz
Output Voltage	DC0-120V
Output Current	0-50A
Output Power	6KW
Power Supply Stability	$\leq 0.5\% + 10\text{mV}$
Load Regulation	$\leq 0.5\% + 30\text{mV}$
Ripple	$\leq 0.8\% + 10\text{mVrms}$
Voltage Value Display	3½-digit digital meter Accuracy: $\pm 0.5\%$ FS + 1 digit (10%–100% of rated value)
	Display format: 00.0V–120.0V;
Current Value Display	3½-digit digital meter Accuracy: $\pm 0.5\%$ FS + 1 digit (10%–100% of rated value)
	Display format: 00.0A–50.0A
Insulation Resistance	Input-Output: $\geq 20\text{ M}\Omega$; Input-Case: $\geq 20\text{ M}\Omega$ Output-Case: $\geq 80\text{ M}\Omega$
Dielectric Strength	Input-Output: AC 1500V, 10mA, 1 minute Input-Case: AC 1500V, 10mA, 1 minute Output-Case: AC 1500V, 10mA, 1 minute
Output Overvoltage Protection	Built-in OVP protection; the protection threshold is the rated value +5%
Output Overcurrent Protection	Constant current output for overload and short-circuit conditions
Overtemperature Protection	Built-in O.T.P. protection with a threshold of $85^{\circ}\text{C} \pm 5\%$ (heatsink temperature)
Voltage and Current Settings	Potentiometer
Output Polarity	The positive (+) and negative (-) outputs can be grounded at will
Heat Dissipation Method	Forced-air Cooling
Operating Environment	Designed for indoor use; temperature: -10°C to 40°C ; humidity: 10% to 85% RH
Storage Environment	Temperature: -20°C to 70°C ; Humidity: 10% to 90% RH
Case Dimension	530mm (L) $\times$ 430mm (W) $\times$ 200mm (H)
Note: All values are typical; therefore, they may be exceeded under different load conditions or other circumstances. Accuracy is measured under load-side voltage sensing conditions; deviations between the actual value and the rated value may occur due to temperature errors and component aging.	

V. Front Panel Introduction



VI. Back Panel Introduction



VII. Dimension

