What Does CV & CC Mean On Variable DC Bench Power Supply

When using a variable bench DC power supply, you will typically encounter two primary modes: Constant Voltage (CV) and Constant Current (CC). Understanding these modes is crucial for effectively designing and testing electronic circuits. Each mode has unique advantages and is suitable for different applications.



Two Working Modes On Variable Bench Power Supply: CV & CC

ETOMMENS <u>variable DC power supply</u> is capable of automatically transitioning between constant voltage (CV) mode and constant current (CC) mode. These modes enable our DC power supply to maintain a stable output of either voltage or current, adapting to the requirements of the connected load.

Constant Voltage (CV) Mode

In constant voltage mode, the benchtop power supply automatically adjusts the output current to maintain a constant output voltage. For example, when testing electronic circuits, if the power supply is set to output 12V, it will automatically adjust the output current to keep the voltage stable at 12V, regardless of changes in the load resistance. This is crucial for devices that require a stable voltage, enhancing the accuracy and reliability of circuit testing.

Constant Current (CC) Mode

In constant current mode, the bench DC variable power supply adjusts the output voltage to maintain a constant output current, regardless of changes in load resistance. When load resistance increases, the power supply increases the output voltage; when load resistance decreases, it reduces the output voltage, ensuring the current remains at the set value.

How Does The Bench Variable DC Power Supply Control The CC/CV

Mode

The benchtop DC power supply transitions between CC and CV modes automatically based on the load's requirements and the settings provided by the user. When the load demands more

current than the user-set current limit, the power supply switches to CC mode to prevent exceeding this limit. Conversely, when the load requires less current than the set limit, the power supply operates in CV mode to maintain the desired voltage.

All in all, the bench power supply control effectively manages the CC/CV modes by allowing the user to set precise voltage and current limits. The power supply then automatically transitions between maintaining a constant voltage or current based on the load's demands, ensuring safe and efficient operation for a wide range of electronic applications.

Main Applications of Variable Bench DC Power Supply CV & CC Mode

Bench variable power supplies are versatile instruments commonly utilized in electronics because they can function in both Constant Voltage (CV) and Constant Current (CC) modes. Here are the main applications for each mode:

Electronic Circuit Testing and Development

CV Mode: Ideal for powering and testing digital circuits, microcontrollers, and other voltage-sensitive components by providing a stable voltage.

CC Mode: Useful for testing current-limiting circuits and components with specific current requirements, ensuring they do not exceed safe operating conditions.

Battery Charging and Testing

CV Mode: Employed in the final stages of battery charging to maintain the battery at its maximum voltage without overcharging.

CC Mode: Used initially in battery charging to provide fast, controlled charging by maintaining a constant current, crucial for safe, efficient charging, especially for lithium-ion batteries.

Electrochemical Applications

CV Mode: Applied in electroplating processes to maintain a constant voltage, ensuring uniform deposition of materials.

CC Mode: Essential in electrolysis and other electrochemical reactions requiring a constant current to maintain reaction rates and product consistency.

Solar Cell and Photovoltaic Testing

CV Mode: Used to characterize the output of solar cells under various voltage conditions, helping in the evaluation of their performance.

CC Mode: Employed to measure the efficiency and performance of solar cells under different current loads, providing crucial data for optimizing solar panel designs.

ETOMMENS Variable Bench DC Power Supply

ETOMMENS offers a range of variable bench power supplies designed to meet diverse needs in electronics testing and development. Our products include <u>high voltage DC power supply</u> for applications requiring elevated voltage levels, <u>programmable DC power supply</u> for automated

and customized testing routines, and <u>high precision DC power supply</u> ensuring accurate and stable output for sensitive components. Each type of power supply is engineered for reliability and performance, making ETOMMENS variable DC power supply a trusted choice for professionals and hobbyists alike.