

# EPOS CV. APPLICATION

EPOS – ELECTRONIC POWER SOURCE  
CURRENT / VOLTAGE SOURCES GUIDE



## EPOS CV 201 – Powerful electronic voltage source for demanding test tasks

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### Requirements of modern test systems

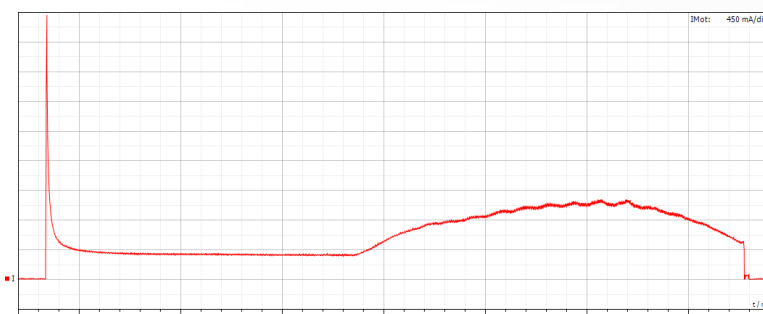
Test equipment must deliver stable output voltages and provide high inrush and surge currents – requirements that are crucial in many areas of electric drive technology, component testing, and quality assurance. When electric motors start up or inductive and capacitive loads are switched on, short-term current peaks occur that can be many times the rated current. These transient phenomena place high demands on the performance of a voltage source, especially its overload behavior, thermal stability, and control response.

### Why conventional power supplies fail

A conventional power supply is often unable to provide these short-term high currents without causing voltage drops or protective shutdowns. However, with the EPOS CV 201 electronic voltage source, high inrush currents can be reliably supplied in development and test environments as well as in production facilities, while maintaining a constant voltage. This allows operating conditions to be simulated and components to be tested under realistic load conditions.

### Inrush currents as a key challenge

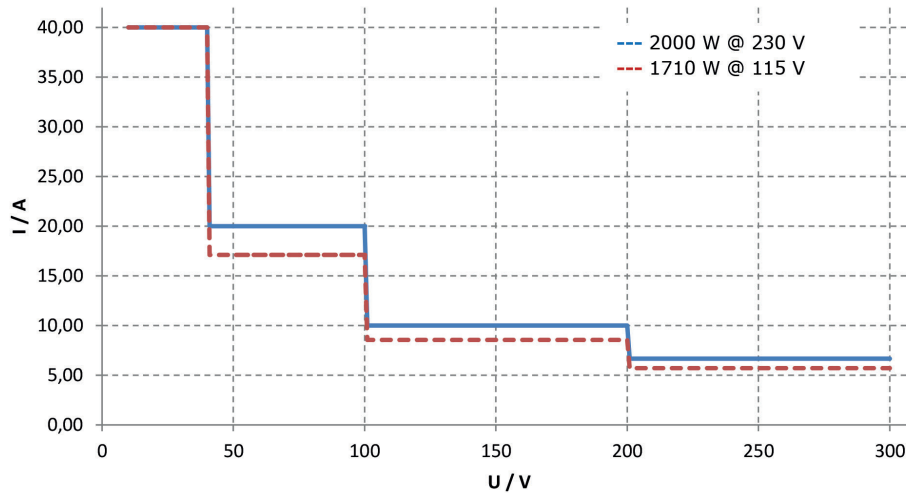
When starting motors or commissioning power electronic components, very high current peaks occur in the first few milliseconds. These are caused, among other things, by the oscillation of magnetic and electric fields in coils and capacitors or by the current consumption when rotating machines start up. The inrush current can reach five to ten times the rated current. A suitable voltage source must not only be able to cope with this short-term overload, but also be able to supply the current actively and stably without the control system oscillating or the voltage dropping.



Current curve during switch-on: short-term peak currents in the millisecond range require dynamic control.

### Performance data at a glance

The EPOS CV 201 is an electronically controlled AC/DC power supply with a rated power of up to 2000 VA, which can provide both AC and DC voltage. Its output voltage range extends up to 270 VAC or 300 VDC. Thanks to modern power electronics, the source is able to provide its output power across the entire voltage range. This means that high currents are also available at low voltages. This is a decisive advantage when devices are to be tested in the partial load range or at low operating voltages.



High output currents even in the lower voltage range enable realistic testing.

### Compact design for flexible integration

A special design feature of the EPOS CV 201 is its compact form factor with a shallow installation depth, which allows for space-saving integration into test cabinets, laboratory setups, and automated test systems. Despite its small volume, it offers high power density and all the necessary protection and control components in a closed housing. This makes the voltage source suitable for both stationary and mobile test applications where space and accessibility play a decisive role.



EPOS CV 201 as a compact AC/DC power supply for demanding test tasks in laboratory and production environments.

### High dynamics and control response

The EPOS CV 201 responds quickly to changes in load and adjusts the output parameters. These high dynamics are particularly important during start-up processes, as the current curve in the first milliseconds has a decisive effect on the behavior of the test object. The electronic control system keeps the output voltage stable even in the event of sudden current changes, significantly improving the repeatability of the measurement results.

### Delivering current peaks safely

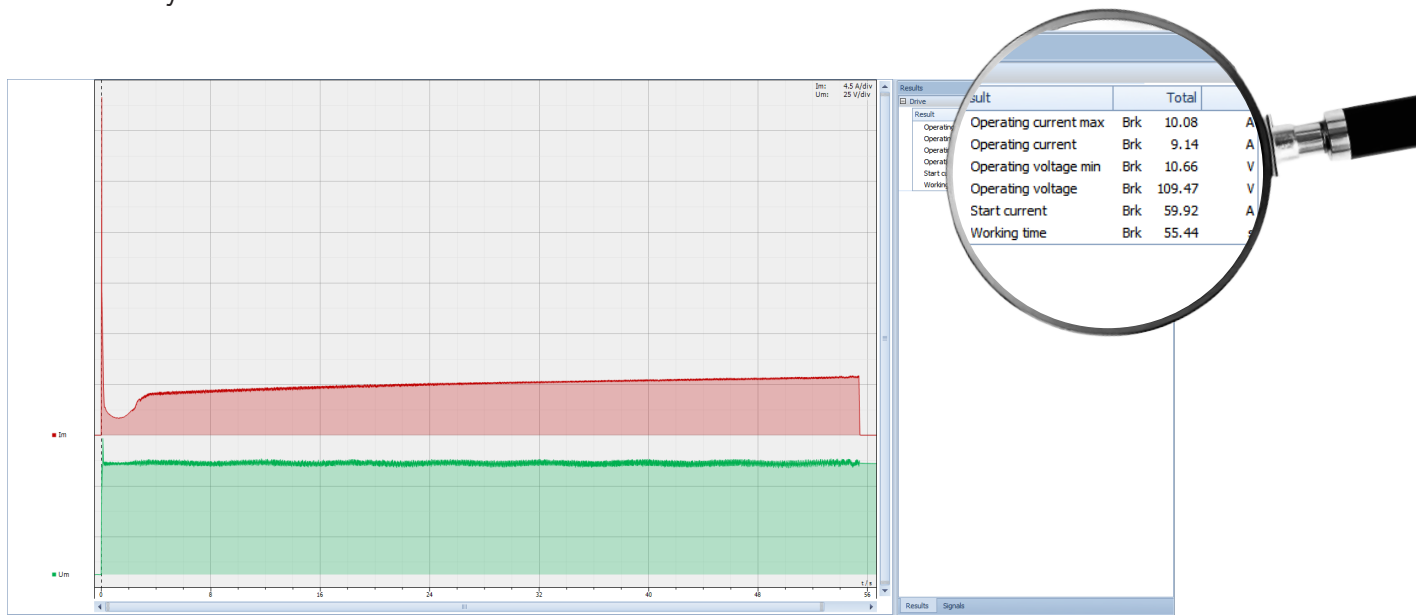
A key feature of the EPOS CV 201 is its ability to provide high currents during the switch-on process. It can deliver current peaks of up to ten times the rated current for short periods without the output voltage dropping. The internal current control reacts within a few milliseconds, compensating for load changes and keeping the voltage constant. At the same time, the robust design of the power components ensures that thermal loads are safely controlled. These characteristics make the voltage source ideal for applications involving high starting currents, such as testing motors, solenoid valves, transformers, relays, or power supplies with large input capacities.

### Efficiency advantages over oversizing

The ability to deliver extreme currents for short periods of time offers significant advantages in testing practice. Instead of using an oversized power supply that only requires a fraction of its rated power in continuous operation, the EPOS CV 201 can provide the required current peaks in a time-limited and controlled manner. This reduces energy consumption, saves space in the test bench, and lowers investment costs without compromising test quality.

### Practical example: Motor start under load

A practical example illustrates the performance of the voltage source. In an industrial test bench, the start-up behavior of a DC motor with a nominal voltage of 110-125 V DC and a power of 1900 W was to be investigated. The aim of the test was to measure the starting current and the voltage stability of the supply during the start-up process. The motor was powered by the EPOS CV 201, which was operated in automatic mode. When the voltage was applied, a short-term starting current of around 60 A was measured, which corresponded to approximately six times the rated current. The voltage source provided this current without any noticeable voltage drop and stabilized the output voltage to the set point within less than 150 milliseconds. The measurements showed exact reproducibility of the current curves during repeated motor starts – a clear indication of the control stability of the source.



Reproducible measurements thanks to fast control and stable output voltage even during sudden load changes.

## Wide range of applications in testing and measurement

The stability achieved in this example proves that the EPOS CV 201 is not only suitable for motor applications, but also for other applications where high inrush currents occur for short periods. These include, for example, switchgear testing, functional tests of power electronic assemblies, or stress tests on sensor and control units. The ability to provide both AC and DC voltages means that a wide range of different test scenarios can be covered.

## Operation and system integration

Another advantage lies in its operation and integration. The voltage source has a 3.5-inch display, a rotary/selection knob, and function keys, allowing parameters to be set directly. The current output values are clearly displayed, and status LEDs provide information about the operating status. The EPOS CV 201 can be easily integrated into automated test systems via the Ethernet interface, which facilitates integration into existing test benches. For example, the voltage source can be combined with automatic switchgear test systems to perform test runs.

## Protection concept for safe operation

The EPOS CV 201 has a comprehensive protection concept to ensure operational safety. Electronic overcurrent and overvoltage protection circuits, temperature monitoring of the power components, and automatic shut-down in the event of a short circuit or thermal overload ensure safe operation even under extreme conditions. These protection functions take effect in real time, preventing damage to the power source and at the same time protecting the device under test from impermissible loads.

## Precision, dynamics, reliability

Its high power density, fast control, and ability to provide a stable supply even under critical load conditions make the EPOS CV 201 a powerful tool in modern testing technology. It combines precision, dynamics, and reliability in a compact housing, covering a wide range of applications – from research and development to laboratory operations and automated production test benches.

## Key advantages of the EPOS CV 201

Electrical test systems and test equipment require voltage sources that operate reliably under various operating conditions and deliver reproducible results. The EPOS CV 201 voltage source offers a combination of overload capability, fast response time, and robust protection concept. It enables realistic simulation of switch-on processes, such as those that occur in motors and other inductive or capacitive loads, while ensuring stable, reproducible test results. Its electronic architecture, space-saving design, and flexible control options make it a central element of modern test systems that require precision, efficiency, and safety in equal measure.



Space-saving integration thanks to compact design and shallow installation depth – ideal for test cabinets and automated test systems.