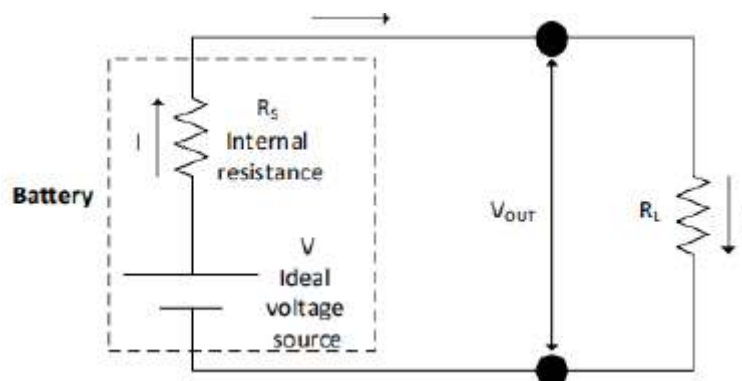


This series of application notes explains the key features and benefits of GENESYS+™ programmable power supplies.

How to simulate a battery's internal resistance using the GENESYS+

Over its full lifetime the battery is not an ideal voltage source. This is due to its internal resistance, caused by its construction, which can rise over time, particularly with a lead-acid type. As the cells age, the size of the metal plates decreases and so the voltage drop increases. In addition to this, the cell separators tend to clog up and the chemical structure of the electrolyte changes.



Simple circuit of a battery's resistance

When a load is applied to a battery, the voltage at the terminals will change – this is due to Ohm's law [$V_{out} = I \times R_s$]. As more power is consumed by the load, the battery voltage will drop further.

To test battery powered equipment, using an actual battery is inconvenient and time consuming. The GENESYS+ series of programmable power supplies is able to simulate the battery voltage drop, allowing the equipment to be tested thoroughly before deployment.

The internal resistance can be set and adjusted manually using the front panel menu or through any of the standard communication interfaces (USB, LAN, RS-232 and RS-485). Values from 1 mΩ to 1 Ω are possible, and can be programmed in steps of 1 mΩ. This function can also be used to simulate the effect of voltage drops over long load cable lengths.

GENESYS™



Scan or click to find out more:

