Online internal resistance detection of battery

How to measure battery internal resistance?
In addition,the pulse discharge method is a commonly used detection method ,but the pulse time of this method is in units of seconds and cannot accurately obtain the battery internal resistance when the battery is loaded. In this paper,the battery internal resistance is measured using the direct current short-pulse(DCSP) method .

What is the ohmic resistance of a battery?
Here,the voltage value of the DC power supply (?) is equivalent to the OCV. The ohmic resistance (Ri) in the model is the DC internal resistanceof the battery. This parameter shown in previous studies is closely related to the SOC,temperature,and life of the battery .

How to improve internal resistance detection accuracy?
In practical applications,battery voltage oscillations caused by external loads can affect the internal resistance detection accuracy. However,this can be effectively improved by reducing the pulse time and increasing the pulse current in the device. 3. Correlation between Internal Resistance and Capacity

What is the internal resistance test device?
The internal resistance test device is depicted in Figure 2. The entire apparatus consists of a voltage meter(V),a DC current source (I),a pulse control switch (K),and a microcontroller unit (MCU). The cell used in the experiment was a Panasonic NCR18650B (Panasonic,Japan) with a nominal capacity of 3200 mAh.

How accurate is an internal resistance monitor?
In order to achieve the accuracy requirements of an internal resistance monitor,voltage detection precision must be less than 1 mV. In addition,the duration of the pulse current is controlled by the switch (K) and is limited to hundreds of microseconds in total.

Can a lithium-ion battery OCV and internal resistance be calculated simultaneously?
In summation,the OCV and internal resistance parameters allow for determination of the SoC and SoH,respectively. In this study,a novel method for online estimatingof lithium-ion battery OCV and internal resistance simultaneously is presented.

This article first shows a simple and effective online internal resistance detection method. Secondly, the relationship between the measured internal resistance and the LiBs capacity is...

On-line measurement of internal resistance can real-time monitor the running state of each battery and accurately, can report fault state of the battery and...

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This study is motivated to develop a unified method for estimating open-circuit voltage (OCV) and internal resistance of a lithium-ion battery via online voltage and current ...

The internal resistance of a battery comprises several components that collectively determine how much opposition the battery presents to the flow of the electric current. These components can be broadly categorized into three main types: ohmic resistance, polarization internal resistance, and electrochemical impedance [23].

Lithium-ion battery real-time resistances can help the Kalman filter overcome defects from simplistic battery models. In addition, experimental results show that it is useful to introduce...

In this paper, a detection scheme of battery internal resistance is proposed, which measures the internal resistance of LIB through AC injection method .This method calculates the internal ...

In this paper, we present an effort to use the online measurement of internal resistance to estimate battery SOC that employs the traditional extended Kalman filter. This work is useful for studying the effect of internal resistance on SOC evaluation.

PDF | On Oct 29, 2021, Saihan Chen and others published Battery Internal Resistance Detection Based on AC Injection Method | Find, read and cite all the research you need on ResearchGate

This study is motivated to develop a unified method for estimating open-circuit voltage (OCV) and internal resistance of a lithium-ion battery via online voltage and current measurements. These two parameters can be used to determine battery state-of-charge (SoC) as well as state-of-health (SoH) via the built-in lookup tables that define the ...

Abstract: This paper presents a new substation battery internal resistance on-line detection method based on DC discharging internal resistance detection and AC impedance detection. DC internal resistance of battery can be obtained by means of calculating the difference of electromotive force of cells and discharge voltage of load during the ...

Supporting: 1, Mentioning: 17 - State of charge (SOC) and state of health (SOH) are two significant state parameters for the lithium ion batteries (LiBs). In obtaining these states, the capacity of the battery is an indispensable parameter that is hard to detect directly online. However, there is a strong correlation relationship between this parameter and battery internal ...

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A 10-s rest was introduced every 5 % SOC during the charging process, and the internal resistance of the battery under each SOC was calculated through change in the voltage and current. The batteries were rested for 3 h to monitor the VRP after lithium plating before discharged to 2.5 V at XXC. Fig. 2 presents the evolution of battery voltage and current during ...

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