

Capacitor online monitoring

What are the condition monitoring methods for single capacitors and capacitor banks?

Most of the condition monitoring methods for both single capacitors and capacitor banks are based on the estimation of capacitance C and equivalent series resistance (ESR), which are indicators of capacitor degradation.

What is capacitor condition monitoring method based on artificial neural network?

A capacitor condition monitoring method based on the artificial neural network method is proposed in . This applies to back-to-back converter study cases for estimating changes in the capacitance value of DC link capacitors.

How can a state observer be used to monitor a capacitor?

A state observer method for monitoring the state of capacitors is proposed in . A 100 Hz square wave which is a low frequency signal, is used to avoid the additional hardware. The input voltage signal causes large fluctuations in the capacitor voltage. Therefore, it can be detected by ordinary voltage sensors and processing devices.

Can a capacitor be monitored using a current sensor?

When one or several capacitor banks are utilized, monitoring methods using the capacitor's current sensor to estimate the health of individual capacitors cannot be employed due to the increase in the required current sensors, which leads to an increase in weight, volume, and cost of the system.

Can data driven methods be used in condition monitoring of capacitors?

Data Driven Methods gives promising results in condition monitoring of capacitors. Capacitors are an important component of power conversion systems because they affect the cost, size, performance, and range of such systems. However, capacitors have the highest degradation and failure rates of any power converter component.

What is a DC link capacitor condition monitoring technique?

A DC link capacitor condition monitoring technique for medium and high power AC-DC-AC PWM converters based on a designed variable electrical network (VEN) is proposed in . Several capacitors are connected in series as a capacitor bank to maintain the required intermediate circuit voltage.

This paper presented an online monitoring method for the SM capacitors in MMC systems. The start time and end time of the SM capacitor charging and discharging can ...

The online monitoring circuit includes four parts: Transient detection circuit, capacitor pre-discharge voltage measurement circuit is activated. In order to avoid the voltage oscillation during the turn-on process of ...

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This letter introduces a cost-effective and nonintrusive method to monitor the condition of capacitors online. The proposed method offers real-time monitoring without ...

Distributed energy storage systems (DESSs) are now widely used in new energy generation technologies. In order to ensure the reliable and safe operation of the ...

Capacitor monitoring is one of the effective measures to assess the health status of power converters. Although some conventional methods have been proposed, they require adding ...

Aluminum electrolytic capacitor (Al-Cap) is widely used in dc/dc converters to suppress voltage ripple and store energy to stabilize the output voltage. However ... For the ...

In this paper, an online monitoring method of ESR without current sensor for boost converter under continuous conduction mode (CCM) mode is ...

To address the problem, an online monitoring method for capacitor conditions based on sensorless capacitor voltage detection is proposed. Initially, the mapping relationship ...

This paper proposes a suitable grey-box method for online monitoring of dc-link capacitors. It is found that the transient behavior of dc-link voltage in ac/dc and dc/dc ...

A novel noninvasive online monitoring method of dc-link capacitor's ESR and C for boost power factor correction converter is proposed in this paper. By analyzing the ...

The lack of noninvasive online capacitor monitoring methods is a great problem in an ac/dc/ac system. To address this urgent need, in this article, we propose a truly noninvasive online ...

To address this urgent need, in this article, we propose a truly noninvasive online capacitor monitoring method specifically for three-level neutral-point-clamped ...

In this article, a general capacitor condition monitoring approach based on improved recursive least square (RLS) for CHB-type converters is proposed. The key ...

This letter proposes a novel condition monitoring scheme of dc-link capacitors in PWM inverter-fed induction machine drives with front-end diode rectifiers, which is based on ...

To avoid the use of current sensor, a current-sensorless online monitoring method of output capacitor's ESR and C is proposed for continuous-conduction-mode (CCM) ...

In this paper, an online monitoring method of ESR without current sensor for boost converter under continuous conduction mode (CCM) mode is proposed by analysing the ...



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