

Inverter front stage DC voltage regulation





Overview

They act as quasi-ideal switches that modulate the voltage applied at each motor phase winding and re-create a waveform with low-frequency components (typically sinusoidal) related to the motor velocity (typically in the range DC-1kHz) and instantaneous position and an averaged voltage amplitude related to the motor velocity and rated magnetic flux. Can a single stage DC/DC converter control MPPT and DC voltage regulation?

In this paper, coordinated control of MPPT and DC voltage regulation is done in a single stage DC/DC converter. The operation of three switches with two different duty ratios enables both the control.

Can a single-phase inverter control DC-bus voltage?

When cascaded with a single-phase inverter, the double-line frequency ripple component in the dc-bus voltage is reduced by 76.2% compared to conventional PI control, confirming the effectiveness of the proposed control scheme. This work was supported by The Hong Kong Polytechnic University Central Research Grant G-YBXL.

How does DC voltage regulation work?

The DC voltage regulation is done by comparing reference DC voltage with the converter output voltage. The main advantage of the proposed coordinated control is that, the DC loads are supplied from the DC bus, even though the inverter is disconnected during fault conditions.

How does a single stage high gain DC-DC converter work?

In this paper, a single stage high gain DC-DC converter with three switches S1, S2 and S3 perform both the control; in which two switches S1 and S2 are operated with a duty ratio of D1 to extract maximum power and third switch S3 is operated with a duty ratio of D2 to provide DC voltage regulation.



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effectively ...



Simulation results when L and R change: (a) ...

Two-stage inverters composed of the front DC-DC stage and the rear DC-AC stage are broadly employed for the current tracking. Structures vary ...

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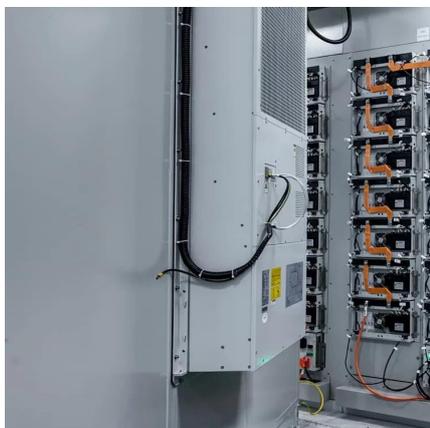
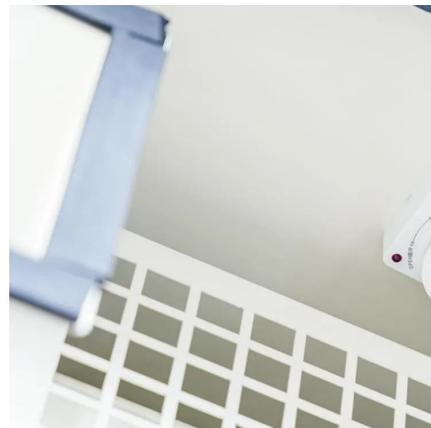


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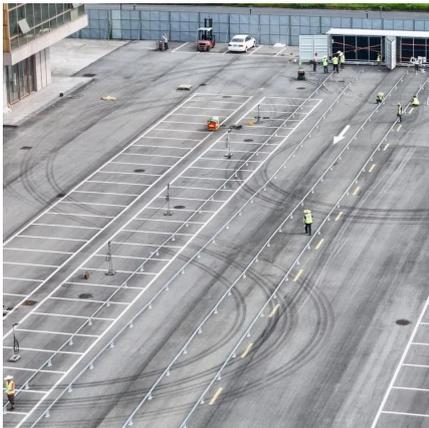
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[Inverter front-stage frequency and output voltage ...](#)

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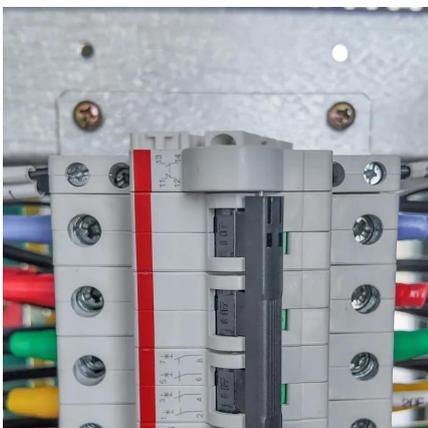


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