



FTMRS SOLAR

Inverter input voltage ripple requirements





Overview

How is voltage ripple evaluated in a DC-link inverter?

The inverter's input current ripple is evaluated in case of balanced and unbalanced output load currents, and the voltage ripple across both the individual capacitors and total dc-link are provided in Sections 3 and 4, respectively. Section 5 presents the experimental results and, finally, conclusions are drawn in Section 6.

Does RMS ripple affect inverter input current and voltage?

The analysis of the input current and voltage have been investigated through the RMS ripple value in . It has been shown that the waveform of the reference signal does not affect inverter input current ripple and that the voltage ripple RMS depends on the load power factor angle.

How are voltage ripple amplitudes calculated?

The voltage ripple amplitudes of the two dc-link capacitors are theoretically estimated as a function of both amplitude and phase angle of output current and the inverter modulation index. In particular, peak-to-peak distribution and maximum amplitudes of the capacitor voltage switching ripple over the fundamental period are obtained.

Does low-frequency inverter input current affect DC-link voltage ripple?

Under unbalanced input conditions, the effect mechanism of low-frequency inverter input current on dc-link voltage ripple is theoretically revealed. The rest of this paper is organized as follows. First, Sect. 2 establishes the inverter modulation model under input unbalance.



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