

Single-phase inverter pulsation





Overview

How do single-phase inverters affect DC bus power quality?

In general, the connection of several single-phase inverters to a DC bus to supply AC loads generates a double-frequency power oscillation in the DC link. Usually, each single-phase inverter has a random voltage phase angle reference and a different load power factor that strongly influences the DC bus power quality.

How does a single phase inverter affect MG components?

In a multi-home building application, each single-phase inverter adds a double-frequency sinusoidal power ripple at DC bus, resulting in several adverse effects on MG components , , , , , : the converters switches are put under high stress, reducing system reliability and conversion efficiency .

What is qzsi in a single phase quasi-Z source inverter (qzsi)?

The double-line frequency ripple power of the single-phase quasi-Z source inverter (qZSI) will result in a large designed qZS impedance on the dc side, which can be greatly reduced by the coupled-type active power decoupling (APD) method.

How is a sinusoidal voltage reference adjusted in a single-phase inverter?

The sinusoidal voltage reference is adjusted with a phase shift of one degree per cycle in each single-phase inverter, ensuring a smooth transition that does not abruptly affect the inverter controllers. The experimental verification of the proposed method is shown in Fig. 15, Fig. 16.



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