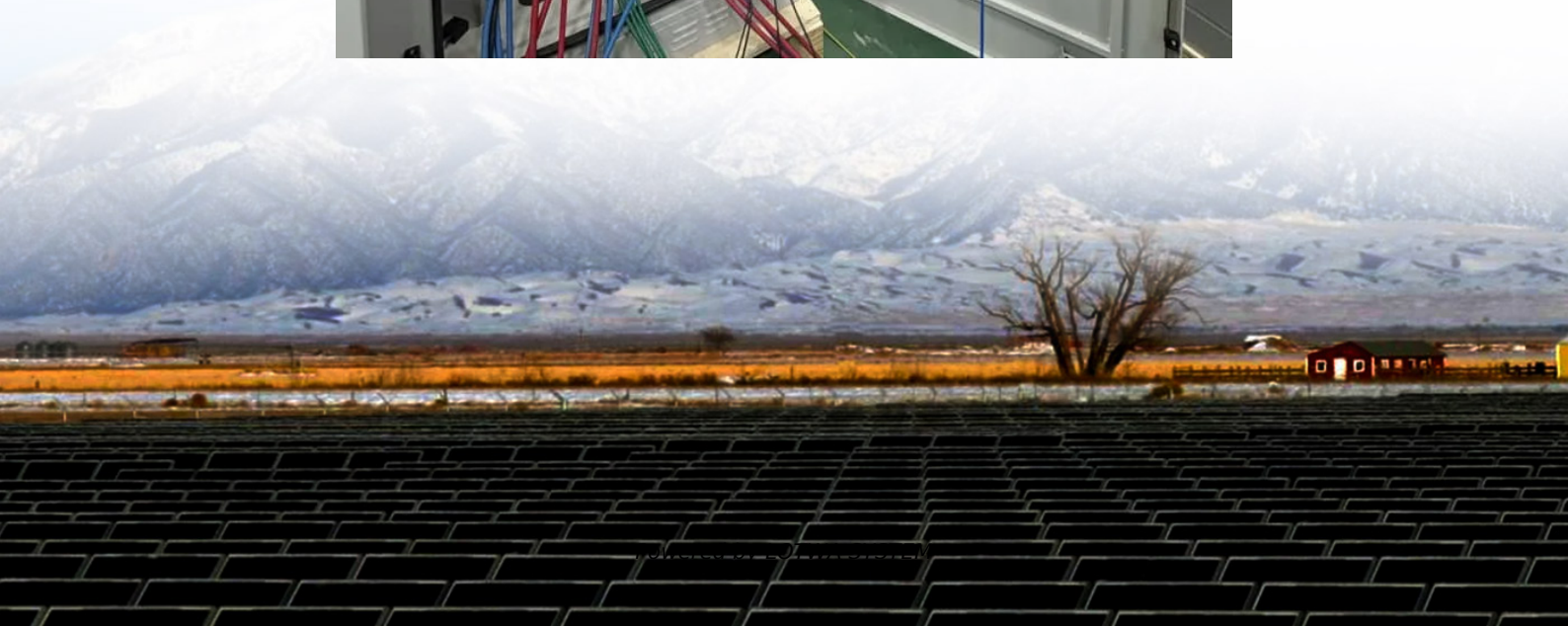


Motor neutral point voltage and inverter





Overview

Do inverters have a neutral-point potential imbalance?

However, these inverters have the problem of neutral-point potential imbalance, which brings many hazards to the system, such as shortening the service life of switching devices under different voltages, distortion of output voltage, and low-order harmonics in waveform.

Is neutral-point voltage a continuous function of the inverter output power?

It is revealed that the neutral-point voltage is a continuous function of the inverter output power by establishing the dynamic model of the neutral-point voltage, and designs a proportional integral (PI) controller based on the continuous model.

How to achieve accurate neutral-point potential balance of NPC three-level inverter?

Based on the improved reasonable sectors' division, the suitable small vectors are selected by this composite signal to obtain the switching sequence of power devices. The voltage feedback control method is employed to realize accurate neutral-point potential balance of NPC three-level inverter.

Which voltage vector does not affect the neutral-point potential?

Since the voltage vector V_0 , V_7 , $V_{1'}$ do not affect the neutral-point potential, the neutral-point current of V_{1N} is i_a , the neutral-point current of V_{1P} is i_a . When the neutral-point voltage is imbalanced, different small vectors will be selected according to different situations, shown in Table 4.



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