Space vector three-phase inverter

Overview

How does a 3 phase inverter work?

Three-phase inverter circuit connected to the stator windings of a motor. The switching states that correspond to the basic space vectors (for direction) and the null vectors (for magnitude) are combined to approximate a voltage vector of any magnitude, at any position, within the space vector hexagon.

What is a three-phase inverter circuit?

Three-phase inverter circuit connected to the stator windings of a motor. * The states of switches S2, S4, and S6 are complimentary to S1, S3, and S5 respectively. Each switching configuration results in a specific voltage applied to the motor terminals.

How many switches does a 3 phase inverter have?

According to Figure 2 a, the three-phase inverter has six switches. The inverter's switches can be configured in only eight distinct ways, as the output cannot be short-circuited through any of the three half-bridge terminals, and the load cannot be disconnected at any time.

What is space vector PWM (SVPWM)?

SVPWM is a different approach from PWM modulation, based on space vector representation of the voltages in the α-β plane. The α-β components are found by Clark's transformation. Space Vector PWM (SVPWM) refers to a special switching sequence of the upper three power transistors of a three-phase power inverter.

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Space Vector PWM

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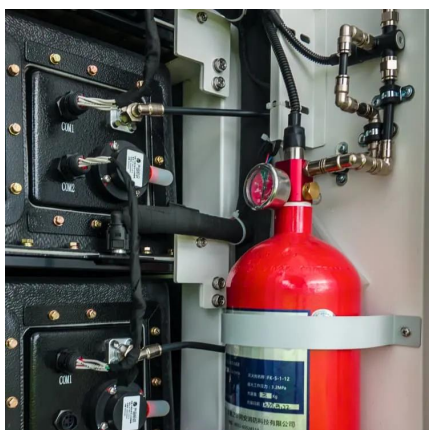

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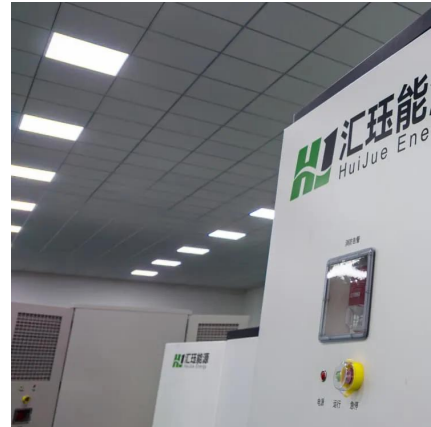
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