

## EQACC SOLAR

# Vector control of three-phase inverter



## Overview

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How to control a three-phase voltage inverter?

At present, the mainstream control strategies for three-phase voltage inverters mainly include vector control and direct power control. But in vector control, the selection of its proportional-integral control parameters can only be obtained by experience, which requires a large amount of experimental data to support.

What is a three-vector model predictive control strategy for grid-connected inverters?

Aimed at the issues of the fixed range of vector selection, fixed amplitude, and fixed direction in the conventional single and double vector model predictive control for grid-connected inverters, such as the large current pulsation and poor steady-state performance of the system, a three-vector model predictive control strategy is proposed.

Can a vector current control a two-level inverter?

Both currents can then be controlled using conventional PI controllers, with zero steady-state error. In this note, it is proposed to study the vector current control of a two-level inverter. This example features two state variables: the grid current on the d-axis  $I_{g,d}$  and on the q-axis  $I_{g,q}$ .

What is vector current control?

Vector current control (also known as dq current control) is a widespread current control technique for three-phase AC currents, which uses a rotating reference frame, synchronized with the grid voltage (dq -frame). First, the note introduces the general operating principles of vector current control and then details a possible design methodology.

## Vector control of three-phase inverter

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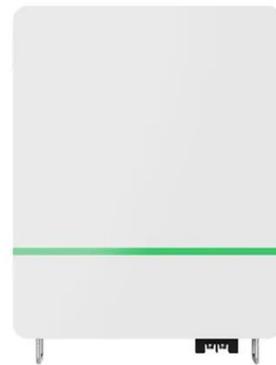


### Three-vector model predictive control without weight ...

Three-phase three-level neutral point clamped inverters are widely used in new energy fields such as photovoltaic power generation and wind power generation by virtue of ...

### Scalar and Vector Controlled Inverter Topology FED ...

This paper aims to provide a comprehensive comparison between scalar and vector control techniques, focusing on their application to inverter-fed three-phase induction ...



### Three-Vector Model Predictive Control Strategy for NPC ...

The proposed three-vector model predictive current control synthesizes a new voltage vector using three vectors from the vicinity of the small sector, effectively utilizing ...



### Instantaneous vector control of four switch three phase inverter ...

This paper proposes a transformation matrix to generate Pulse Width Modulation (PWM) signals for Four Switch Three Phase Inverter (FSTPI) using vector control. The ...

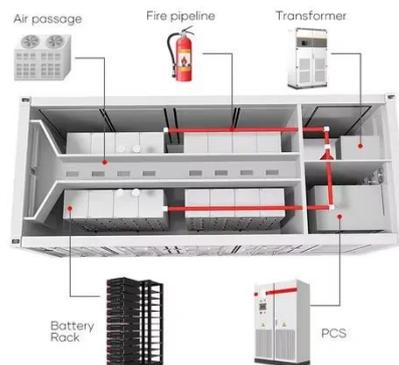


### **An improved three-vector coordination robust model predictive control**

This paper introduces an improved three-vector robust coordination model predictive control for three-phase two-level (3P-2L) grid-connected inverters. Initially, an improved three ...

### **Instantaneous Vector Control of Four Switch Three Phase ...**

This paper proposes a transformation matrix to generate two phase reference voltage signals for Four Switch Three Phase Inverter (FSTPI) using vector control. The feasibility of the control ...



### **Vector current control**

General Principles of Vector Current Control  
 Inverter Current Control  
 Example B-Box / B-Board  
 Implementation  
 In this note, it is



proposed to study the vector current control of a two-level inverter. This example features two state variables: the grid current on the d-axis  $I_{g,d}$  and on the q-axis  $I_{g,q}$ . Using general Kirchhoff circuit laws, the fundamental voltages generated by the inverter are expressed as:  $E_a = R_g I_{g,a} + L_g \frac{dI_{g,a}}{dt} + V_{g,a}$   $E_b = R_g I_{g,b} + L_g \frac{dI_{g,b}}{dt} + V_{g,b}$   $E_c = R_g I_{g,c} + L_g \frac{dI_{g,c}}{dt} + V_{g,c}$  See more on imperix ScienceDirect

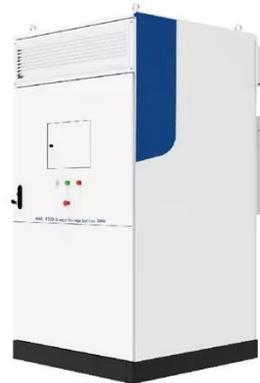
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### **VECTOR CONTROL OF TWO-LEVEL VOLTAGE SOURCE ...**

This project covers several academic areas, such as computer architecture, analog and digital circuit design and construction, induction machine modeling and vector ...




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### **(PDF) Vector Control of Four Switch Three ...**

Abstract and Figures This paper presents a cost-effective vector control strategy for four switch three phase (FSTP) inverter fed a ...



### Three vector modulation model predictive control of grid-connected inverter

The output optimal voltage vector combination is modulated to generate a PWM wave, which acts on the grid-connected inverter. Finally, the proposed three-vector model ...



**2MW / 5MWh**  
**Customizable**

### Vector current control

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### (PDF) Vector Control of Four Switch Three-Phase Inverter Fed

Abstract and Figures This paper presents a cost-effective vector control strategy for four switch three phase (FSTP)

inverter fed a synchronous reluctance motor with conventional ...



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