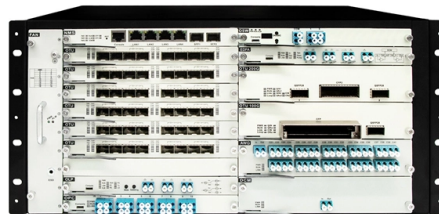


Anti-pumping principle of relay protection



AI Overview

The anti-pumping relay prevents repeated or continuous closing of a circuit breaker, ensuring it operates safely and only once per close command.

Purpose of Anti-Pumping Relay An anti-pumping relay is a circuit breaker auxiliary relay designed to protect the breaker from multiple closing commands. Without it, if a closing command is continuously applied while a fault persists, the breaker could repeatedly close and trip, potentially damaging the breaker mechanism, the closing coil, or other system equipment, and creating unsafe electrical conditions.

Working Principle The anti-pumping relay operates using a combination of normally open (NO) and normally closed (NC) contacts in the breaker's closing circuit:

- Initial Condition:** When the circuit breaker is open and the closing spring is fully charged, the auxiliary contacts allow the closing command to energize the closing coil.
- Breaker Closing:** Once the breaker closes, the auxiliary NO contacts change state, and the anti-pumping relay coil is energized through a series auxiliary NO contact.
- Blocking Further Commands:** Energizing the anti-pumping coil opens its NC contact in the closing path, disconnecting the closing coil from any further closing commands. This ensures that even if the operator holds the close switch or sends multiple commands, the breaker will not close again until the fault is cleared.
- Reset:** After the breaker opens and the fault is cleared, the relay resets, allowing the next valid close command to operate the breaker safely.

Key Components

- Auxiliary Contacts (NO/NC):** Detect the breaker's open or closed state and control the anti-pumping relay activation.
- Anti-Pumping Coil:** Energized during breaker closing to open the NC contact and block repeated operations.
- Closing Coil:** Receives the closing command only once per operation, preventing overheating or mechanical damage.

Importance in Relay Protection The...

Article Content

What is an Anti-Pumping Relay?

Working Principle of Anti-Pumping Relay: Typically, a DC contactor serves as the anti-pumping relay in a circuit breaker. As shown in the diagram,

Circuit Breaker Antipumping Device

Now, if there is an Anti Pumping Relay, as continuous DC positive is coming from TNC switch (TNC switch being stuck on C), the AP relay will remain energised. As AP relay is energised,

Anti-Pumping Scheme in Circuit Breakers – A Complete Guide

The anti-pumping scheme is a simple yet vital protection feature in circuit breaker control circuits. By ensuring that the breaker closes only once per command, it prevents unwanted repeated

Anti Pumping Relay in Circuit Breaker

Meanwhile a fault has taken place and fault sensing relay gives a trip command to the Circuit Breaker. The Trip Free Mechanism / Anti pumping feature ensures that the Circuit Breaker is

Anti Pumping and Lockout Relay Overview

The document discusses anti-pumping and lockout relays. It defines them as follows:
- Anti-pumping relays are classified as auxiliary relays that prevent alternate tripping and closing of a circuit breaker

Anti-Pumping Coil: Essential Protection in Circuit Breakers

The anti-pumping mechanism ensures that once a circuit breaker trips due to a fault, it will not automatically reclose until the close signal is reset, even if the operator continues to hold the

Anti Pumping Relay: Working Principle, Circuit Diagram & Testing ...

An anti-pumping relay is a specialized electrical protection device integrated into the closing circuit of circuit breaker control systems to prevent hunting oscillations.

Anti pumping relay

An anti-pumping relay satisfies the electrical trip-free requirement. For full trip-free protection, some engineers also add a normally closed trip contact from the protection relay in series

Anti-Pumping Scheme in Circuit Breakers – A Complete

By implementing an anti-pumping relay, the circuit ensures: Conclusion The anti-pumping scheme is a simple yet vital protection feature in

Anti-Pumping relay diagram and Working Function Explanation

Anti-Pumping relay diagram and Working Function Explanation Anti-Pumping relay diagram and Working Function Explanation

What is Anti Pump Relay?

Anti-Pump relay is used in medium voltage power circuit breaker closing circuit to ensure that if breaker receives simultaneous open and close commands it does not indefinitely keep closing

What is an Anti-Pumping Relay?

Anti-pumping relays prevent circuit breakers from closing unexpectedly after tripping. The post explains Anti pumping relays in detail.

Circuit Breaker Anti-Pumping Relay Working Principle

Learn the working principle of the circuit breaker anti-pumping relay, its function, advantages, common issues, and troubleshooting tips.

Anti-Pumping Relay Explained! Anti Pumping Relay in Electrical ...

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Anti-Pumping Relay Diagram & Working Function Explained

The anti-pumping function is a protective feature in circuit breakers that prevents the breaker from repeatedly tripping and re-closing, a process that can cause damage to the breaker and create a ...

Working Principle of Antipumping Relay

The relay is there to stop coil from unintentional operating of CB due to remaining close pulse after CO operation. A device that prevents the CB from unintentional operation caused by

Understanding the Antipumping Relay in Switchgears: Ensuring Safe

Conclusion The antipumping relay is a vital component in switchgears, providing essential protection against repeated and unintended operations of circuit breakers. By ensuring

Anti pumping function in circuit breakers operating mechanism

Without the anti-pump function, if the user connected a maintained contact in the close circuit, and the circuit breaker were closed into a fault current, the protective relays would cause an

ANTI-PUMPING RELAY in Circuit Breaker | Explained Simply with

You will learn: What is pumping in a circuit breaker Why anti-pumping protection is necessary How the anti-pumping relay works Step-by-step explanation of the closing circuit operation Role of ...

Anti-Pumping Relay Diagram & Working Function Explained

This article describes the anti-pumping relay, its definition, function, and circuit diagram. In a circuit breaker it is desired that when close and trip operation is performed on the circuit breaker

Anti-Pumping relay diagram and Working Function Explanation

Anti-pumping-relay is used to protect the circuit breaker from multiple closing command. Once the breaker closed means, if we give again closing command means the breaker or the closing coil

Anti-Pumping Relay in Circuit Breakers | PDF

This document discusses anti-pumping relays used in circuit breakers. It explains that anti-pumping relays prevent continuous opening and closing of the circuit breaker if the spring in the trip-neutral

Anti pumping relay in Circuit Breaker -Diagram, Working principle

Anti pumping relay is used in the circuit breakers to prevent unwanted closing of the breaker after immediate tripping. Due to failure of the TNC switch (Trip normal close) or any other

Anti-Pumping Relay Function and Diagram

The document discusses anti-pumping relays, which are used to protect circuit breakers from receiving multiple closing commands. Anti-pumping relays connect in series with the circuit breaker closing

Anti-Pumping Coil: Essential Protection in Circuit Breakers

An anti-pumping coil, also known as an anti-pumping relay or non-reclosing device, is a protective mechanism integrated into circuit breaker control circuits. Its primary function is to prevent

Antipumping in Circuit Breaker | Why it is needed? Explained ...

This video explains the dangerous "pumping" situation that an electrical breaker can face, which can affect the entire power systems. We dive into how it wor...

Anti pumping relay

What is the use of an anti-pumping relay? It prevents a circuit breaker from closing more than once per close command, which protects the breaker from mechanical and electrical damage

Anti Pumping Relay: Working Principle, Circuit Diagram & Testing ...

Learn Anti Pumping Relay's Working Principle, Circuit Diagrams, Installation, Testing and Commissioning with Practical Examples.

Anti-Pumping Relay in Circuit Breakers | PDF | Relay | Switch

The document discusses an anti-pumping relay, which is a device that prevents multiple closures of circuit breakers. Multiple closures can damage the breaker's closing mechanism. The anti-pumping

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