

What is local relay protection



AI Overview

Local relay protection, or Local Breaker Backup (LBB) protection, ensures faults are isolated even if the primary circuit breaker fails to operate.

Overview

Local relay protection, commonly referred to as Local Breaker Backup (LBB) protection, is a critical safety mechanism in power systems designed to maintain stability and prevent equipment damage when a primary protective device, such as a circuit breaker, fails to trip during a fault. It acts as a secondary safeguard, operating independently of the primary protection system to isolate the faulted section quickly.

How LBB Protection Works

- **Fault Detection:** When a fault occurs, the primary protection relay detects it and sends a trip signal to the associated circuit breaker.
- **Breaker Failure Monitoring:** If the circuit breaker fails to open due to mechanical issues, trip coil failure, control circuit faults, or DC supply failure, the LBB relay monitors the fault current and breaker status.
- **Backup Action:** After a short delay (typically 200–800 milliseconds), if the fault persists, the LBB relay sends trip commands to adjacent or upstream breakers to isolate the faulted section. This ensures the fault is cleared even if the original breaker cannot operate. The LBB relay continuously checks two key parameters: whether the breaker auxiliary contact is open or closed, and whether the fault current is still flowing. If the breaker opens and the fault current disappears, the LBB relay resets and waits for the next fault

Article Content

Aug 02, 2025

Protective Relaying Principles and Applications

Protective Relaying Principles and Applications The article provides an overview of protective relaying principles and their

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4 essential implementations of protective relays in power systems

In this article, protective relays are categorized depending on the component which are protect generators,

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Basic Theories of Power System Relay Protection

This chapter first introduces the basic theories of power system relay protection, summarizes the functions and basic requirements of

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What is the LBB Protection Relay? (Local Breaker Backup)

The local breaker backup (LBB) protection relay acts as a backup to trip adjacent breakers if

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The basics of power system protection that every engineer should

Protection is the branch of electric power engineering concerned with the principles of design and operation of

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Relays Part 4: The Protective Relay Basic Theory

The types of protective relays that exist are overcurrent, electromechanical, directional, distance, pilot, and differential

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The basics of power system protection that every

Introduction to relay protection Protection is the branch of electric power engineering

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A Complete Guide to Protective Relays and Their Role in Power

Without it, a minor electrical issue can snowball into a system-wide outage or dangerous event. Protective relaying

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Types of Electrical Protection Relays or Protective Relays

□□ Key learnings: Protective Relay Definition: A protective relay is an automatic device that senses abnormal conditions

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Basic protection relay knowledge

Selectivity Selectivity is a mandatory requirement for all protection, but the importance of it depends on the application. For example,

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Protective Relay: Working, Types, and Applications

Learn about protective relays, their working principle, types, and applications in power

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Installing and Maintaining Protective Relay Systems

Introduction Relay systems protect high-voltage equipment and transmission lines to ensure safe, stable systems. Although failure of

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Protective Relays: Types, Working Principle & Uses

Learn how protective relays detect faults, trip breakers, coordinate protection zones, and

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What's really important to achieve in transmission line protection ...

As you already know, the real purpose of transmission line protection is to detect faults or abnormal operating

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Five protection relay types used to detect grid

The following protection relays are used to detect grid disturbances, its severity and isolate

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Protective relay

Distance relays, also known as impedance relay, differ in principle from other forms of protection in that their performance is not

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SEL-710 Motor Protection Relay | Schweitzer Engineering Laboratories

The SEL-710 Motor Protection Relay dynamically calculates slip. This premiere motor protection scheme allows maximum start

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What is Protection Relay?

What is Protection Relay? Protection relays have a crucial role in maintaining the safety, reliability, and integrity of

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Protection relays — ABB Group

ABB's smart protection technology ensures smooth and safe everyday life without blackouts. ABB released its first programmable

Apr 12, 2026

Power System Protective Relays: Principles & Practices

Abstract: Protective relays and devices have been developed over 100 years ago to provide “last line” of defense for the electrical

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Understanding Protective Relays in Power Systems

Protective relays are vital for safeguarding power systems, ensuring protection against faults and abnormalities. This

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SIPROTEC Protection Relays | Siemens

SIPROTEC: Multifunctional protection relays Experience the benchmark in grid protection, automation, and monitoring! SIPROTEC

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Local Breaker Backup (LBB) Protection Explained | LBB Relay

Whether you're preparing for a relay protection exam or designing substation controls,

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Fundamental overcurrent, distance and differential protection ...

Essential protection principles The aim of this technical article is to cover the most important principles of four

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Protective relay

Electromechanical protective relays at a hydroelectric generating plant. The relays are in round glass cases. The rectangular devices

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What is LBB protection? Working, Purpose, Scheme

LBB stands for Local Breaker backup, and it is used as backup protection of the circuit breaker to isolate the fault in

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Protective relays and predictive devices | Eaton

Eaton's protective relays provide you with unique microprocessor-based devices that eliminate

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Protective Relay Basics

Traditionally, protective relays were electromechanical devices utilizing induction disk, coils, contacts, and solenoid elements to

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