

Sometimes the relay protection device does not trip

Article Overview

A relay protection device may fail to trip due to issues in sensing, relay logic, trip circuit, or coordination with other protection devices.

Common Causes

1. Protection Coordination Issues If multiple relays share the same fault path, improper time grading can cause an upstream relay to trip before the downstream relay, making it appear that the relay did not operate. Reviewing time-current coordination curves and event logs can help identify such issues, and recalculating protection grading using software like ETAP or DigSILENT may be necessary . 2. CT/PT and Sensing Circuit Problems Relays rely on accurate current and voltage inputs from instrument transformers. Faulty or incorrectly rated CTs/PTs, open circuits, or wiring issues can prevent the relay from detecting a fault . 3. Trip Circuit or Master Trip Relay (86) Malfunction The trip signal must reach the circuit breaker through the trip circuit. A Master Trip Relay (ANSI 86) isolates protection relays from the breaker coil and ensures proper tripping. If the trip circuit or 86 relay fails, the breaker may not operate even if the protection relay detects a fault . 4. Relay Settings and Logic Errors Incorrect pickup settings, time delays, or misconfigured logic in digital or numerical relays can prevent tripping. Complex software-based relays may also fail if logic or communication links are corrupted . 5. Power Supply or Auxiliary Voltage Issues Relays powered by DC batteries or auxiliary supplies may fail to operate if voltage drops below the required level during a fault. Short interruptions or dips in supply can temporarily disable the relay . 6. Mechanical or Contact Failures Electro...

Article Content

Apr 11, 2026

What is Protection Relay?

A protection relay is a crucial component of electrical systems that safeguard infrastructure, employees, and

Sep 21, 2025

Protective Relays and Cascading Failures

Protective Relays and Cascading Failures Dr. Greg Zweigle Schweitzer Engineering Laboratories, Inc. IEEE General

Jul 27, 2025

Troubleshooting Relay Circuits: A Practical Guide for Electrical

Relay circuits are vital components in countless electrical systems, from industrial automation to automotive

May 21, 2026

Maintenance and testing of overcurrent protective devices

The electrical system reliability, component and circuit protection, and overall safety are directly related to the

Dec 14, 2025

Relay Not Operating During Fault: Causes & Solutions

Conclusion A relay not operating during fault doesn't always mean the relay is bad. In most cases, it's a chain failure

Aug 17, 2025

What are Protective Relays?

Protective relay work as a sensing device, it senses the fault, then known its position and finally, it gives the tripping command to the

Mar 12, 2026

Relay Not Operating During Fault: Causes & Solutions

Why Didn't the Relay Trip Even Though the Fault Occurred? This is the first and most common question. The relay

Jan 27, 2026

Lockout Relay Fundamentals: Basic Maintenance & Functional

These relays hold significant importance as electrical control devices within a facility and require regular maintenance.

Sep 14, 2025

Protection practice recommendations and relay schemes for ...

Local tripping for bus fault Breaker failure protection Remote backup Local backup Full breaker failure backup 1.

Jul 25, 2025

Common Issues with Relays and How to Troubleshoot Them

Common Issues Heat: power relays that switch loads they are not rated for can cause them to overheat. If the relay

Sep 04, 2025

Basics of Protective Relaying and Design Principles

The protective equipment (CBs, VTs, CTs, and relays) are connected together to enable closed-loop simulation, i.e., the trip signals

Oct 13, 2025

Microsoft Word

Protective relay trip circuits are usually intended to operate the output device (circuit breaker or switcher) at high speed and, at the

Nov 01, 2025

Protection Basics

Protection System Elements Protective relays Circuit breakers CTs and VTs (instrument transformers)

Jul 27, 2025

Protective Relays: Overcurrent and Safety Relays | TE ...

Protective Relays: Trips faulty circuit breakers A protective relay is a compact and self-contained switchgear that trips a circuit

Oct 13, 2025

Protection Relay Nuisance Tripping – Causes, Analysis & Solutions

Coordination failure occurs when multiple relays are not properly graded, causing minor disturbances to propagate into

Jul 24, 2025

PROTECTIVE RELAY TESTING

A comprehensive testing program should simulate fault and normal operating conditions of the relay. Acceptance testing,

Nov 24, 2025

How Protection Relays Solve Electrical Problems

Solution: A multifunction motor protection relay has multiple trip and alarm settings for current protection. Overcurrent protection is

Mar 21, 2026

Protective Relays: Types, Working Principle & Uses

A relay target that says “trip” does not automatically prove the relay was wrong or right. Engineers usually review the

Nov 22, 2025

Relay Troubleshooting Guide: 10 Common Protection Relay Problems

Relay failure to trip occurs when protection remains inactive during real faults, eventually resulting in equipment

Sep 16, 2025

8 Reasons Why a Protection Relay Keeps Tripping — Relay Trip

Relay Trip Problems: Unexpected protection relay trips disrupt operations, lower productivity and increase

Nov 27, 2025

Protective Relays: Types, Working Principle & Uses

Protective relays do not normally interrupt current directly. They receive measurements

Feb 01, 2026

Troubleshooting Relay Circuits: Common Issues and Fixes

Relay circuits are fundamental components in many electrical and electronic systems, from automotive applications to industrial

Feb 02, 2026

Understanding Protective Relays in Power Systems

Protective relays are critical components in power systems, providing essential protection for various elements such

Oct 20, 2025

Protective Relay Testing and Maintenance Overview

Protective relay testing may be divided into three categories: acceptance testing, commissioning, and maintenance

Jun 05, 2026

Common Protection Relay Misconfigurations in Industrial Facilities

This article breaks down the most common protection relay misconfigurations in industrial facilities, why they happen,

May 06, 2026

Protective Relaying Principles and Applications

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

Mar 01, 2026

Protective Relays | Electromechanical Relays | Electronics Textbook

Protective relays can monitor large AC currents by means of current transformers (CT's), which encircle the current-carrying

Nov 12, 2025

Transformer Protection Application Guide

Transformer Protection Application Guide This guide focuses primarily on application of protective relays for the protection of power

Nov 11, 2025

What is a Protective Relay? Principle, Advantages, Applications

A protective relay is an electrical component that is designed to trip a circuit breaker when a fault is encountered or

Oct 15, 2025

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

May 08, 2026

What to Know About Protective Relays | EC& M

Electromechanical relays For many years, protective relays have been electromechanical devices, built like fine watches, with great

Mar 10, 2026

Common Faults and Troubleshooting of Industrial Safety Relays

This article aims to deeply explore the common fault types of safety relays and their troubleshooting methods, in order

Jan 18, 2026

troubleshooting

If it is running, the latching relay will sometimes try to switch over but most of the time it will only "half click" and the

Oct 06, 2025

e series protective relay troubleshooting guide

Use the online E-Series protective relays troubleshooting guide to diagnosis and correct issues with Eaton's motor relay, generator

Feb 04, 2026

Distance relay reliability enhancement using false trip root ...

Abstract A distance relay, which is widely used for protecting a power transmission line as the primary as well as remote backup

Oct 24, 2025

Fundamentals of Modern Protective Relaying

Protective Relays locate faults and trip circuit breakers to interrupt the flow of current into the defective component. This quick

Jan 26, 2026

Relay Circuits - How to Troubleshoot a Relay?

In this article, you will learn the basic relay circuits and how to troubleshoot a relay in an electrical circuit.

May 19, 2026

Protection Relay Tripping Circuit

The protection relay tripping circuit refers to the critical electrical control loop that executes trip/close commands from

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.iiss.co.za>

Email: sales@iiss.co.za

Phone: +27 63 174 2895

Address: Unit 8, Innovation Park, 15 Rivonia Road, Sandton, Johannesburg,
2196, South Africa

This document is for informational purposes only. Specifications subject to
change without notice.

