

# Relay Protection in the 1980s



## Overview

The introduction of digital microprocessor-based relay technology in the 1980s marked a turning point in relay protection. Early digital relays appeared around 1980, with numerical relays following by 1985. These devices transformed relay protection by using analog-to-digital conversion and. Programma in Sweden started in 1980 producing the famous SVERKER 608 (Figure 2, table 1) for testing where variable current and voltage are required. Additional use cases have been measuring of current. In 1901, the induction-type overcurrent relay was introduced, followed by ASEA (now ABB) launching the first time-delay overcurrent relay, TCB, in 1905, enabling graded protection. However, due to their very long life span, tens of thousands of these "silent sentinels" are still protecting transmission lines and electrical apparatus all over the world. Important transmission lines and generators have cubicles dedicated to protection, with many individual electromechanical. Protective Relays — Feature Past, Present, and Future. a Path of Great Resistance ecially when that industry has engrained roots of conservatism as a basis of its culture. While reliable, these relays.



## Article Content

Aug 20, 2025

### 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 relay protection, and illustrates the basic principles of relay

May 24, 2026

### Guide To The Evolution of Protective Relays - Geatlabs

Unlike their electromechanical predecessors, static relays utilized electronic components such as transistors and diodes, which allowed for faster

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### The Good Old Electromechanical Protective Relay

The electromechanical protective relay converts the voltages and currents to magnetic and electric forces and torques that press against spring

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### The different eras of protective relays

Since the advent of the first commercial digital relay that was introduced in 1980 and more recently, the Ethernet-based communication digital relays, they have played

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### Evolution of Protection Relays: From Electromechanical

The rise of electromechanical protective relays changed the way engineers approached relay protection. Companies like Alstom played a major

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### The Role of Protection Relays in Power Systems and an

Protective relays are critical in power systems because they serve as decision-making devices that ensure the safe operation of power grid. They play a key role in power system protection.

Jan 06, 2026

### Protective relay

Microprocessor-based solid-state digital protection relays now emulate the original devices, as well as providing types of protection and supervision impractical with

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Testing of relays until the end of the 1920s

Mechanical issues might harm the proper operation of the relay. That's why the relays should be clean and protected against dust. Testing of the trip circuit

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Power System Protective Relays: Principles & Practices

Protective relays and devices have been developed over 100 years ago to provide "lastline" of defense for the electrical systems. They are intended to quickly identify a fault and isolate it so the balance of

Dec 23, 2025

History of protection engineering

In contrast to the previous protection systems, the Buchholz relay (Fig. 7) was the first to use a device that did not activate the deviation of the

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A review on protective relays' developments and trends

Protective relays are the decision-making devices in the protection scheme. These relays underwent, through more than a century, important changes in their

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Testing Technology in the 1980s (Part 1)

The Central Research Institute of Electric Power Industry in Tokyo, Japan, published a paper on noise testing equipment for existing protective relays in 1986. The

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100 Years of Relay Protection, the Swedish ABB Relay History

The next era was static or electronic relays, which were introduced in the 1960s. The present era with microprocessor based relays started in the beginning of the 1980s, where microprocessor performed

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Protective relay

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

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Rules for protecting a network using overcurrent relays. Requirements for instrumentation (number and locations of instrument transformers) and switching apparatus (number and locations of circuit

Jan 12, 2026

History of Global protection Relay

Explore the evolution of protective relays from 1880s electromechanical designs to today's smart relays with AI. Learn about key milestones from ABB, Siemens, and PILZ in overcurrent, distance, and

Aug 04, 2025

Relay Testing - Test Sets and Testing Technology in the 1980s

Further developments in protection testing resulted in portable devices, especially for distance protection, directional earth fault relays, generator protection and railways auxiliary

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Alstom Protection Relays Evolution Overview

Alstom Protection Relays have evolved from electromechanical relays in the early 1900s to numerical relays utilizing digital signal processors. This evolution

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The Relay That Changed the Power Industry

The relay decides whether to trip a circuit or take other actions in 1 to 2 milliseconds. Previously, it would take a protective relay on the order of 16 ms.

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Types and Revolution of Electrical Relays

Types and Revolution of Electrical Relays Introduction: Protective relays work in concert with sensing and control devices to accomplish their function. Under normal power system operation, a protective

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A review on protective relays' developments and trends

The evolution of protective relays spans over a century, influencing power system protection practices. Electromechanical relays, despite being

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## Protective Relays — Feature Past, Present, and Future a Path of

microprocessor-based protective relays barely resemble their early 1990s distant cousins. Most early microprocessor relays became obsolete so fast (thanks to Moore's law) that again there was concern

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## Relay Testing - Test Sets and Testing Technology in

ABB produced the modular static generator protection system GSX5e in 1981. All static relay modules are equipped with test button. This allowed

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## History of relay protection

All relay protection devices of early generations were performed on an electromechanical element base. Then, from the 30s, almost simultaneously, electronic relays began to appear both on lamps and on

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## Testing Technology in the 1980s (Part 2) | PAC World

It was in 1986 when CIGRE Working Group 04 Study Committee 34 (Protection) published testing recommendations for the different types of relays, covering

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