

Microprocessor-based relay protection devices have drawbacks

Preview

Faulty operation of relay protection due to internal malfunctions can lead to the development of failures and even to the collapse of the power system with attendant financial losses. According to the North American Electric Reliability Council in 74 % cases the reason for heavy failures in power systems was the incorrect actions of relay protection in trying to avoid the failure. Thus, Modern relay protection and automation devices are built on a microprocessor-based elemental base (we denote them as MP device). When discussing the advantages and disadvantages of MP device, they often do this in comparison with electromechanical protection devices (EM device). This is probably. Through detailed analysis based on many references it is shown that the basis of these theses are widespread myths, and actually MP reliability is lower than the reliability of electromechanical and electronic protective relays on discrete components.

In addition to customizing specific microprocessor-based relay capabilities, skilled integration engineers can also help utilities and industrial facilities design their microprocessor-based relay protection

Unfortunately, many owners fail to maximize the protection and value afforded by their new microprocessor-based relay systems. They may lack the time and/or skill to appropriately configure

This article compares and contrasts the two major relay technologies: the venerable electromechanical relay and its modern counterpart,

In this study, FTA and FMEA methods are used to systematically diagnose and analyze the reliability of microcomputer relay protection devices, and the potential failure modes of the

One utility reported that they attempted to quantify the useful life of several relay technologies and fit a failure curve based on observed data with protective relays divided into three categories:

The work presents the advantages and problems of using microprocessor-based relay protection and automation devices in modern substations. The stages of complexity of relay protection and

Reliability of MPD is lower than reliability of electromechanical

Microprocessor-based protection devices (MDs) of all types are supplied with what is called switchmode power supplies in which the input voltage (AC or DC) acts on the rectifier and the filter then interrupts

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Abstract: The paper presents the analysis of the basic constructive disadvantages of the present day microprocessor-based protective devices (MBR) and offers the basic principles for creating a new

A microprocessor increases the flexibility of static relays due to its programmable approach. A number of desired characteristics such as overvoltage,

This research not only enhances the understanding of potential failure modes of relay protection devices, but also provides strategic support for improving the overall stability of power

Usually, the operational condition of relay protection devices is checked with specific settings used for the relay operation in a certain network point. In the author's opinion in order to verify the proper

accuracy and cost, all of which hinder the extensive application of computer relaying devices. With the advent of more and more powerful microprocessors and the development of analytical algorithms,

The development of the relay protection based on open architecture is a relevant direction of electrical and electronic engineering. The paper presents the problem of the modern

Lately all but microprocessor relay protection devices (MPD) have disappeared from the market. MPDs based on a various principles of operation have their advantages and disadvantages [2, 3].

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