Microcomputer Relay Protection Testing Equipment

Overview

By integrating high-fidelity waveform playback, modern equipment allows for "Group Tests" which evaluate the entire protection chain rather than isolated components.

Key Takeaways

Microcomputer relay protection testers are intelligent devices designed to verify the functionality, accuracy, and performance of relay protection devices in power systems.

Overview

Microcomputer relay protection testers integrate microprocessor technology, digital signal processing (DSP), and advanced electronic measurement systems to perform precise testing of protective devices in electrical networks. They are essential for ensuring that relays, which act as the "guardians" of the power grid, operate correctly during faults, preventing equipment damage and system failures. Types and ArchitectureThree-phase and six-phase testers: The main distinction lies in the number of output channels.

Three-phase testers are suitable for standard relay testing, while six-phase testers are used for more complex scenarios requiring multiple voltage and current outputs. Microcomputer architecture: Modern testers are based on an industrial computer + DSP architecture, offering high precision, programmability, and the ability to perform complex tests such as setting value verification, action time testing, and harmonic analysis.

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Key Functions

Protection Function Testing: Verifies correct relay settings, trip times, and output performance using methods like stepwise approach and fixed-value testing, ensuring measured values are within ±5% of set values.

Inverse-

Time Protection Testing: Measures relay operation time against theoretical curves to confirm compliance with protection standards. Vacuum Integrity Testing: Evaluates circuit breaker insulation and arc-quenching performance, critical for high-voltage applications. Calibration Compliance: Must support calibration according to JJG 1112-2015 to maintain accuracy and reliability.

Practical ConsiderationsScenario-based selection: Choose testers based on the type of relay (line protection, transformer differential, etc.), voltage level (10kV–220kV), and budget. Grounding and safety: Both the tester and the device under test must share a common ground. Modules should not be inserted or removed while powered, and anti-static precautions are necessary.

Operator proficiency: Skilled operators are crucial for accurate testing, data analysis, and adherence to standards. Standards compliance: Equipment should meet DL/T 995-2016 for on-site testing procedures and the latest technical specifications to ensure valid results. Recommended Equipment ExamplesGFUVE Test-330: A three-phase current output and five-phase voltage output tester with embedded host machine and programmable logic device, suitable for research, production, and industrial testing.

Wuhan UH

V Power Technology testers: Known for high stability, precision, and comprehensive support for AC/DC voltage withstand tests and relay protection verification.

Conclusion

Selecting the right microcomputer relay protection tester requires balancing channel requirements, voltage compatibility, testing functions, and standards compliance. Properly chosen and calibrated instruments ensure reliable relay operation, enhance grid safety, and optimize testing efficiency in both high-voltage and low-voltage applications.

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Article Content

Why is Microcomputer Protection Essential? Choosing the Right Relay ...

By integrating high-fidelity waveform playback, modern equipment allows for "Group Tests" which evaluate the entire protection chain rather than isolated components.

Three phase relay protection microcomputer test system

This model relay test equipment can independently finish device test in professional fields of microcomputer protection, relay protection, excitation, metering, fault recording, etc.

LND-802 Microcomputer Relay Protection Tester

It can test not only various traditional relays and protection devices, but also various modern microcomputer protections, especially for transformer differential

Protection Relay Testing Equipment

Protection relay test sets, or relay testers, verify relays and microcomputer protections by simulating complex transient, permanent, and conversion faults. This is done to ensure a power system''s

Protection Relay Tester

Smart Multi-phase Relay Protection Tester is a new generation of intelligent relay protection test equipment for Substation ABB, Siemens, SEL, Schneider, NR

Six phase universal protection device relay test kit

TEST-630 six phase microcomputer protection relay test kit is a smart relay test equipment which offers all the characteristics and functions needed for protective

Protection relay testing device, Protection relay test

Find your protection relay testing device easily amongst the 72 products from the leading brands (MEGGER, SIEMENS, Huazheng, ...) on DirectIndustry, the

Protection Relay Tester Buying Guide 2026: 3-Phase vs

Looking to buy a microcomputer relay protection tester? Learn the key technical metrics, 3-phase vs 6-phase comparison, and how to evaluate manufacturers for

Relay Protection Microcomputer Protection Relay Test Equipment

The design basis of performance and test method is: "new protection relay inspection" compiled by the safety supervision and production coordination department of the ministry of electric power industry.

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Electrical Engineering Guides – IEE Business

For testing high-voltage microcomputer protection devices, it is recommended to use a microcomputer relay protection tester capable of simultaneously outputting three-phase voltage and

Protection relay testing and diagnostic solutions

Verify protection schemes during commissioning and maintenance to ensure reliable system operation. Megger''s relay testing solutions help prevent

SAC PST 648UX Sealed Subminiature Overcurrent Transformer Protection ...

It is a professional high-tech manufacturer of power relay protection equipment. Our main products include protection relays, capacitor control devices and substation automation systems. We have

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Three phase relay protection microcomputer test system

Test-330 three phase microcomputer protection relay test system is the highly efficient relay test equipment of GFUVE company. It is produced by referring to technical condition for "DL/T624-2010"

New & Used Wave 110I 2012 for sale. Lisun equipment & more

TEST-330 Three phase relay protection microcomputer test system Test-330 three phase microcomputer protection relay test system is the highly efficient relay test equipment of GFUVE

Kingsine: Electrical Test and Measurement Equipment

Kingsine, a global leading electrical test and measurement equipment manufacturer, offers comprehensive electrical testing solutions, products covering relay test kit,

Reliability Analysis and Improvement Strategies of Microcomputer Relay ...

Abstract: In today''s increasingly complex power system, microcomputer relay protection device plays a very important role in ensuring the safety and stability of power grid. In this paper, the

Functional Testing of Microcomputer Protection Devices: Verifying ...

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For testing high-voltage microcomputer protection devices, it is recommended to use a microcomputer relay protection tester capable of simultaneously outputting three-phase voltage and three-phase

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