

Article Overview

Finland offers advanced professional relay protection test benches through local suppliers like Teklab and service providers such as EPF, complemented by international systems like Megger SMRT410 and OMICRON.

Finnish Suppliers and Service Providers

Teklab specializes in manufacturing professional electric test bench solutions for industrial and educational purposes. Their workstations are modular, ergonomic, and designed for realistic training and R&D applications. Teklab's products are Finnish-made, and they provide full support for designing and configuring laboratories or workshops, including layouts and workstation plans tailored to customer needs. Electric Power Finland (EPF) offers testing and commissioning services for substations, including maintenance and relay testing. Their services cover all device models commonly used in Finland, regardless of manufacturer or age, and can be scheduled flexibly to minimize disruption to electricity distribution.

Professional Relay Test Systems

Megger SMRT410 and SMRT410D are portable, multi-phase relay test systems capable of testing electromechanical, solid-state, and microprocessor-based protective relays. They feature up to 4 voltage channels and 6 high-current channels, with the ability to daisy-chain multiple units for synchronized testing of large busbar systems. The systems support manual, semi-automatic, and automatic testing via the Smart Touch View Interface (STVI) and RTMS software, making them suitable for commissioning and maintenance of complex protection systems. OMICRON provides compact, modular relay test sets for primary and secondary injection, including multi-phase testing and IEC 61850 digital relay verification. Their systems can simulate sensor inputs using accessories like LLX1, allowing testing of relays with voltage dividers, Rogowski coils, or low-power current transformers. OMICRON solutions are designed to test protection relays of all generations efficiently without deactivating relay functions. Other Options include high-current primary injection devices like the DDG Primary Current Injector Test Set, which can generate controlled large currents for CT calibration, temperature-rise testing, and safety verification of protection devices.

Key Considerations

When selecting a professional relay protection test bench in Finland, consider:

- o Type of relays: Electromechanical, static, microprocessor-based, or IEC 61850 digital relays.
- o Testing capabilities: Primary and secondary injection, multi-phase testing, and high-current output.
- o Portability and modularity: Field-portable systems versus fixed laboratory benches.

- o Software support: Automatic test routines, data logging, and compatibility with Windows-based management software.
- o Local support: Availability of Finnish suppliers for installation, training, and maintenance. By combining local expertise from Teklab and EPF with international test systems like Megger and OMICRON, Finland provides comprehensive solutions for professional relay protection testing, suitable for industrial, educational, and substation applications.

Our testing approach will not only unveil hidden mistakes in the protection relay but within the entire protection system. The quality of

2. Types of Tests 2.1 Acceptance Testing This is a bench test performed either by the manufacturer or end-user to check the

Reliably working protection relays are key in modern energy systems. Read on to learn about best

The bench provides the advantage of having a setup on a small and movable platform. The circuit of the Overcurrent Protection

A relay test bench is specialized equipment used for testing and calibrating protective relays in electrical power

The complete handbook combines basic electrical fundamentals, detailed descriptions of protective elements, and generic test plans

This paper presents a novel design of a DC protection relay test bench and discusses key considerations and

To provide a small setup for demonstrating the working of overcurrent, differential, and directional overcurrent relays, two test

Testing Set-up for AC Contactors, AC Electromagnetic Relays, DC Electromagnetic Relays (IEC 60898-1 Clause 9.9) Protection has

Solutions for Power Industry Testing Protection Relay Test Wide range of solutions for secondary injection testing, protection relay

The testing and verification of protection devices and arrangements introduces a number of issues. This happens because the main

Finland Professional Relay Protection Test Bench

Plant protection system functional testing Protective circuit functional testing, including

This online protective relay testing seminar follows Chris Werstiuk (author of The Relay Testing Handbook) as he tests a relay from

PROTECTION RELAY TESTING AND COMMISSIONING The testing and verification of protection devices and arrangements

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