

Article Overview

Commissioning Sifang relay protection devices involves systematic installation, configuration, functional testing, and verification to ensure reliable operation in the power system.

1. Preparation and Safety

Before commissioning, ensure all safety protocols are strictly followed. Sifang IEDs operate in high-voltage environments, so personnel must avoid touching live circuits, use isolated test pins for measurements, and ensure proper earthing of the device to prevent damage or injury (CSC-103, CSC-211 manuals) . Verify that all hardware and firmware versions are compatible with the intended protection scheme.

2. Installation

- o Mounting: Secure the IED in the control panel according to manufacturer guidelines.
- o Wiring: Connect CTs, VTs, trip circuits, and communication ports (RS232, RS485, Ethernet) as specified in the device manual .
- o Power Supply: Confirm correct auxiliary voltage and grounding.

3. Configuration

- o Protection Settings: Configure distance, overcurrent, earth fault, and directional elements according to system requirements. For example, quadrilateral distance protection zones and negative sequence directional elements are set to ensure accurate fault detection and discrimination .
- o Communication Setup: Configure tele-protection and SCADA communication using IEC 61850 or IEC 60870-5-103 protocols .
- o Time Synchronization: Set GPS or IRIG-B time sources for accurate event recording.

4. Functional Testing

- o Secondary Injection Tests: Apply test currents and voltages to verify relay operation for each protection function (distance, overcurrent, earth fault, synchro-check, auto-reclosing) .
- o Trip Verification: Confirm that single- and three-pole tripping operates correctly.
- o Directional Verification: Test forward and reverse fault detection using phase and negative sequence components to ensure correct directional discrimination .

5. Integration and Monitoring

Sifang Relay Protection Commissioning Method

- o Fault Recording: Ensure the IED records trip, alarm, and startup events. Verify memory retention in case of power loss .
- o System Integration: Connect the IED to the Sifang Protection Management System (PMS) or Protection and Fault Information System (PFIS) for real-time monitoring, fault analysis, and report generation .
- o Online Monitoring: Use PMS to check secondary equipment status, alarm classification, and ledger management to support lean operation and maintenance.

6. Final Verification

- o Conduct a comprehensive test simulating various fault conditions to confirm all protection zones, communication, and recording functions operate as intended.
- o Document all settings, test results, and commissioning reports for future reference and regulatory compliance. By following these steps, Sifang relay protection devices can be safely and effectively commissioned, ensuring reliable protection and monitoring of the power system.

Target audience This manual mainly face to installation engineer, commissioning engineer and operation engineer with professional

Commissioning tests are done to show that a particular protection configuration has been correctly used prior to setting to work.

Meanwhile, testing and commissioning practices largely still focus on individual relays, not the protective relaying

SIFANG Protection Management System (PMS) collects and integrates the operation information and fault-related information of

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The purpose of this Standard Work Practice (SWP) is to standardise and describe the method for testing of Ergon Energy protection

The product consists of primary protection namely pilot protection using distance relay, 5 zones distance protection, 4 stages zero

Installation of protection relays Installation of protection relays at site creates a number of possibilities for errors in the

Sifang Relay Protection Commissioning Method

Current outputs of testing instrument are connected to protection terminals X3-a1 and b4, and current terminals of the protection are

Line differential protection (87L): The line differential protection consists of three protection functions,

CSC103 & CSC101 Sifang Line Differential - Free download as Powerpoint Presentation (.ppt), PDF File (.pdf), Text File (.txt) or view

Applicability of this Manual This manual is valid for SIFANG Distance Protection IED CSC-103; firmware version V1.00 and higher

Features Integrated protection function and monitor and control function. @#Meet demands for three-phase tripping in transmission

Beijing Sifang Automation Co., Ltd., established in 1994 by Professor Yang Qixun, one of the first academicians of the Chinese

SIFANG digital substation solution provides flexible data acquisition methods--via hardwire, GOOSE, or SV--and supports diverse

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