

Relay Maintenance and Testing



Preventive Maintenance

Benefits

System Reliability and Asset Protection Support

Protection systems play a key role in ensuring the safe and reliable operation of the entire electrical grid including generation, transmission, and distribution for utility and industrial applications. Protective relays are your most powerful defense against long, costly outages and extensive equipment damage. In the event of a fault, they keep the damage to a minimum, helping you reduce downtime, prevent equipment damage, and most importantly, protect people. Proper startup and commissioning procedures and ongoing maintenance are critical to safeguarding your electrical system and maintaining standard compliance.

Benefits

- Avoid substantial financial loss associated with service disruptions
- Eliminate unplanned downtime through cost-effective testing and maintenance
- Ensure ongoing reliability of electrical generation, transmission, and distribution systems
- Avoid costly penalties associated with a negative impact on the Bulk Electric System (BES)
- Ensure timely reporting for NERC compliance



Ensure optimum system performance, efficiency, and safety with preventive relay maintenance and testing

Today's challenges in relay maintenance and testing are many. Due to rapid advancements in technology, it is not unusual for one utility or plant to operate multiple generations of relays all in one integrated protection scheme. Ensuring your system is properly protected requires a high learning curve and unique skill sets for each technology in operation. This can be difficult to manage in-house without the assistance of outside technical resources familiar with the various relay manufacturers' operating philosophies.

For over 50 years, High Voltage Maintenance (HVM) has been providing startup, commissioning, testing, maintenance, and engineering services for advanced relay systems. As a member of the InterNational Electrical Testing Association (NETA), we can provide independent testing for any manufacturer's relay devices or systems.

HVM provides turnkey solutions for maintaining and testing electromechanical, solid-state, and microprocessor-based relays, as well as IEC 61850 IEDs, relay panels, and distributed protection systems.

Our relay preventive maintenance services include:

- Relay startup and commissioning services
- Relay maintenance and testing
- Compliance support for NFPA and NERC

Relay Startup and Commissioning

New relay installations require startup and commissioning to ensure proper protection for your system. HVM's experience in advanced utility and industrial relay applications includes:

- General inspection of equipment
- Wiring diagram check with functional and point-to-point wiring checks
- Insulation resistance measurements
- Relay device testing
- Current and voltage transformer testing
- Verification of relay alarm and trip settings
- Primary and secondary injection testing
- End-to-end testing of protection scheme logic

Relay Maintenance and Testing

Periodic maintenance and testing is necessary to ensure your protection scheme continues to provide satisfactory performance for many years after installation. With microprocessor relays, the built-in, self-testing features can be expected to reveal most faults, but this alone does not meet regulatory requirements or cover the other components involved in the protection scheme. Regular inspection and testing of a protection scheme is therefore recommended.

HVM relay technicians understand the critical nature of working with an active protection scheme and the impact testing and maintenance has on critical system operation. Our technicians perform

testing based on the maintenance recommendations from NETA, NERC, and NFPA, as well as specific customer requirements. Tests vary based on the relay technology, but may include:

- Visual and mechanical inspection
- Insulation resistance measurements
- Secondary injection tests
- Verification of relay settings
- Functional testing on wire connections, current and voltage transformers, and all auxiliary devices
- Control verification

Test Equipment

HVM utilizes leading-edge technology for relay testing services, allowing us to provide you with the most efficient solution. The equipment and software used by our test technicians includes Doble, Manta, Omicron, PowerDB, Enoserv RTS, and Doble Protection Suite.

Compliance Support Services for NFPA and NERC

Whether in your substation or power plant, regulations from NFPA and NERC require an ongoing and systematic program to test, maintain, and document the performance of your protection scheme devices and systems that impact the BES. Complying with these requirements can exceed the capacity of your in-house resources. HVM has in-depth experience helping customers adhere to industry standards. We can assist with asset management, testing, and reporting to ensure your compliance with NFPA and NERC requirements.

Summary

Ensuring the proper installation and maintenance of electrical system protection schemes is important to reducing risk and managing the health of your electrical system. Protection scheme management requires highly qualified personnel with experience working in a variety of environments and on a diverse installed base of devices with different operating practices. Engaging experts to assist with startup and commissioning and routine maintenance will ensure standard compliance, mitigate the risk of downtime, protect workers, and maintain operations.

Experts In Electrical Reliability

Trust HVM to deliver a complete relay maintenance and testing solution for your system. Our NETA certified technicians have the knowledge and experience to work on multiple types of technology from all major manufacturers, including electrochemical, solid-state, and microprocessor-based relays, IEC 61850 IEDs, relay panels, and distributed protection systems. The HVM network of relay experts is available to support your protection scheme maintenance requirements wherever and whenever it's needed.

Ordering Information

To learn more about HVM's Relay Maintenance and Testing Services, please contact us at 1 866-HVM-TEAM or visit HVMcorp.com.