Relay Upgrades, Retrofits and Replacements

Equipment Upgrades and Replacements

ERS
ELECTRICAL RELIABILITY SERVICES
A VERTIV Company

Benefits

Protection Systems for the 21st Century

Relay protection technology has significantly advanced over the past 30 years. Today, one microprocessor relay can replace an entire rack of electromechanical relays for a fraction of the cost and improve all areas of performance. These new microprocessor relay protection systems provide built-in protocols that make data available anywhere on your system including distributed control and SCADA systems. Advanced diagnostic tools such as alarms, event recording, fault identification, and fault location can dramatically improve your ability to make decisions, report information, meet regulatory requirements, and improve overall system reliability.

Benefits

- Improve functionality and control
- Enhance communication capabilities
- Improve reliability and mean time between failures (MTBF)
- Simplify calibration
- Extend maintenance intervals
- Meet NERC and IEC 61850 requirements
- Improve cybersecurity by preventing malicious attacks

before *after*

Seamlessly upgrade your relays to add reliability, functionality, and communication capabilities

Keeping up with the rapid advances in technology and the increasing demand for improved power and reliability is certainly a challenge for today's electrical asset managers. Relay retrofits and upgrades provide a fast, cost-effective way to leverage the advantages of microprocessor relays without the expense of installing new switchgear. Seamlessly retrofitting your existing switchgear with new microprocessor relays adds the benefits of self-testing, event reporting, fault identification, and arc flash detection making troubleshooting and maintenance easier and safer. Microprocessor relays provide the system information you need to improve protection, reliability, efficiency, and IEC 61850 compliance.

Electrical Reliability Services (ERS) delivers turnkey relay upgrade solutions for all major relay manufacturers and relay applications including generator protection, automatic source transfer systems, feeder protection, arc flash mitigation, and medium-voltage back-up generation. From design and engineering to installation, testing and commissioning, ERS has qualified resources to meet your needs.

Our relay upgrades, retrofits and replacements include:

- Design and engineering
- Relay logic and settings
- Installation services
- Startup and commissioning services

Design and Engineering

ERS protection engineers are highly trained professionals with years of experience and a broad knowledge base, allowing them to provide the best solution for your system, regardless of manufacturer. In order to ensure our solution meets all of your needs including cost, space, time, functionality and regulatory compliance, our team will meet with you to understand your specific requirements. We will then design a retrofit solution utilizing the best technology for your system. Once a solution has been designed, complete schematics and diagrams are developed and reviewed prior to construction.

Relay Logic and Settings

Another important part of the design process includes accurate relay logic and settings. Correct logic settings affect the speed, selectivity, and reliability of your relays. They ensure that the correct relay elements are being used in the trip scheme and that the relay control logic will produce the desired results. Our protection engineers are available to help you design and implement logic settings to ensure your scheme delivers the required protection for your operation.

Installation Services

Professional assembly of your newly designed relay protection system improves the speed and accuracy of installation. ERS technicians will remove your existing electromechanical relays, controls, and associated control wiring, install the new protection panel assemblies, terminate the new wiring harness to the existing terminal blocks, and install additional control wiring as needed. Technicians will also verify all factory drawings to ensure the documentation reflects the as-installed design.

Startup and Commissioning Services

Once installed, the new relays require startup and commissioning to ensure proper operation. A technician uploads the settings into the relays and tests to verify calibration and operation. Trip check procedures are conducted to verify proper sensing and satisfactory operation of all protective relay devices.

Current and/or voltage secondary injection tests are performed to verify the correct annunciation and operation of associated devices.

ERS technicians will conduct some or all of the following tests:

- 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

Summary

Turnkey upgrade and retrofit solutions are designed to meet the needs of generation, transmission, and distribution applications for utilities and industrial customers. Replacement of existing legacy systems includes retrofits inserted directly into the existing cutout, requiring no panel cutting or modifications. Other retrofit options are built to match exact customer requirements and are designed to fit into the existing switchgear with little modification of existing panels, cabinets or doors.

Experts in Reliability

Performing an upgrade to your electrical protection scheme takes expertise to ensure project efficiency and seamless integration. ERS' team of highly qualified personnel have worked in a variety of environments, as well as on a diverse installed base of devices with different operating practices. They understand precisely how to ensure your relay upgrade project delivers improved communication and functionality for maximum reliability.

Ordering Information

To learn more about ERS' Relay Upgrade, Retrofit, and Replacement Services, please contact us at 1 877- 468-6384 or visit ERS.vertiv.com.

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