

# Protective Analog-to-Digital Relay Conversion

## ABB Electrification Industrial Solutions



With relays for protective analog-to-digital relay conversion, you can be confident in the proven reliability of ABB digital relays combined with ABB domain expertise and qualified field engineering resources to meet your individual needs.

### Overview

When originally constructed, many utilities such as power plants and transmission lines were forced to rely upon analog electromechanical relaying to provide electrical protection for their facility. Much of this protective relaying technology was developed early in the 20th century. Relay technology has made great strides in recent years in reliability, speed, communications and the ability to quickly troubleshoot issues.

For customers ready to switch to digital relays, ABB offers a comprehensive conversion process using proven ABB digital relays and a successful track record in large-scale environments.

### Key Features

- Prebuilt panels and panel fronts built off site with relays tested and the settings already installed, including point to point wiring tests prior to shipment that allows for reduced installation times.
- Multiple relay functions are included in a single digital relay allow one relay to replace multiple electromechanical relays
- Flexibility in settings and logic are available with multiple setting groups, set points and logic.
- Flexible communication methods are available including serial, Ethernet and fiber optic.
- Our modern relays support many common communications protocols including IEC 61850 Ed2, IEC 62439/PRP, DNP 3.0, IEC 60870-5-103, IEC 60870-5-104, Modbus RTU, and Modbus TCP/IP
- Scalable units with modular construction allow for multiple configurations and reduced spare parts inventory
- Event recording with over 1000 events with a 0.5ms scan time
- Complete oscillography with up to 64 digital and 40 analog channels
- Real time monitoring and annunciator system with remote desktop or control room access
- GPS time synchronization between relays
- Field Service capability and availability



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01 Before conversion to digital relays

02 After conversion to digital relays



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## Benefits of converting

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### Advanced Power Management & Monitoring

- Add power management function
- Enable advanced asset monitoring and controls using envisage
- Acquire more system intelligence with greater accuracy
- Capture event log/data of trip events for detailed root cause analysis
- Produce NERC testing and contingency



### Improved Protection & Control

- Integrate protection, control and communication solutions
- Improve equipment protection redundancy
- Prepare for complex interlocking protection schemes
- Reduce arc flash hazard



### Simplified Maintenance

- Reduced spare parts inventory
- Spend less on maintenance than with aging analog relays
  - Conversions can be made with ABB or other manufacturers relays of customer's choice\*

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