Distribution Automation – Smart Switches

ECG 743
Conventional Switches

- Manually operated when feeder is de-energized.
- Do not measure any electrical quantity.
Smart Switches

• These are advanced switch that include
  – sensors to detect outages,
  – A computer that quickly analyzes the problem,
  – A communication system that talks with utility operators and other devices.
  – Automated opening and closing.

• The result is
  – higher power reliability,
  – Faster power restoration time,
  – shorter outage duration for many customers.
Underground Smart Switch

- Directional Fault Indicators (3)
- Indicator Window Open/Close
- Load Side (Feeder Cable)
- Line Side
Overhead Smart Switch
Application of Smart Switches for Improving the Reliability of Distribution Systems


• Reading Assignment: “Reliability improvements from the Application of Distribution Automation Technologies – Initial Results “

Recent Articles

1. Resilience-Oriented Distribution System Reconfiguration for Service Restoration Considering Distributed Generations

2. The study of the reliability indices of distribution networks with VIT switches on the MV feeders automation

3. Optimal feeder-switches and pole-mounted RTUs relocation on electrical distribution system considering load profile

4. On-line automatic switching of consumers' connections for improved performance of a distribution feeder

5. Optimal Feeder Switches Location Scheme for High Reliability and Least Costs in Distribution System

6. Feeder-switch relocation for value-based distribution reliability assessment