



ALPS™, To L90, L60 D60 or D30 Replacement

ALPS™ ADVANCED LINE PROTECTION SYSTEM

ALPS™ is a digital protective relay system providing distance protection for HV or EHV transmission lines. It has been applied on, or adjacent to, series compensated lines, and for single or three phase tripping applications.

The current product portfolio offered by GE Multilin has more options to meet your specific application needs. To take advantage of the latest in technology and the new developments on Transmission Line Protection, consider these ALPS™ replacements from the UR Family of Products:

UR FAMILY

- L90 Line Differential System
- L60 Line Phase Comparison System
- D60 Line Distance Protection System
- D30 Line Distance Protection System

KEY BENEFITS

- Secure operation during external faults
- Flash memory for product field upgrade
- Multiple breaker support
- Reduced installation space requirements through compact design - True convergence of protection, metering and control functions, multiple I/O options programmable pushbuttons and status LEDs, and communication interfaces
- Modular construction simplifying and reducing the stock of spare parts
- Programmable scheme logics for building customized schemes
- Embedded IEC61850 Protocol - No external protocol converters required
- Comprehensive metering - current, voltage, power, energy, frequency
- Front panel display and keypad for local direct access, with an RS232 port for local PC access
- Customize protection and control functions with Programmable logic (FlexLogic™), custom time-current curves (FlexCurves™), and custom built protection and control functions (FlexElements™)
- Multi-language support - French, Chinese, Russian option
- Networking options - Ethernet-fiber (optional redundancy), RS485
- Pilot channel options - Direct fiber for up to 150 km, RS422, G.703, direct to multiplexer fiber C37.94
- Multiple protocols - IEC61850, DNP 3.0 Level 2, Modbus RTU, Modbus TCP/IP, IEC 60870-5-104
- Reduced relay to relay wiring and associated installation costs through high-speed inter-relay communications
- Dependable - Globally accepted, with performance backed up by many years of field experience



L90 Line Differential System

- Overhead lines including series compensated lines and underground cables of different voltage levels
- Suitable for three terminal line configurations, with channel redundancy and direct transfer tripping (DTT)
- Circuits with in-zone power transformers and tapped transformer feeders.
- Wide area system monitoring and control and using integrated protection and synchrophasor measurement

Key Benefits

- Real time monitoring of remote, local and differential per phase currents
- Highly secure, phase segregated current differential protection
- Adaptive restraint characteristic provides excellent stability against measurement errors including CT saturation.
- Increased sensitivity through dynamic charging current compensation and communication channel asymmetry compensation
- Reliable and secure protection on lines equipped with series compensation
- Superior phase selection algorithm ensures secure high speed single pole tripping



L60 Line Phase Comparison System

- Flexibility in application - short and long lines and cables of different voltage level
- Adapted to suit different line configurations - Breaker-and-half or ring bus configurations
- Suitable for applications with in-zone transformer feeders.
- Well suited for line equipped with series compensation

Key Benefits

- Phase comparison protection, with a true replication of a simple phase-comparison principle including permissive and blocking schemes, dual or single phase comparison, and 2 or 3-terminal applications
- High-speed single/three pole tripping and reclosing, with a typical tripping time of $\frac{3}{4}$ power cycle.
- Cost effective and reliable solution in systems with communication links based on Power Line Carrier, due to advanced algorithms for channel noise immunity, accurate per-channel signal asymmetry and channel delay compensation
- Real time monitoring of remote, local and differential per phase currents
- Backup Distance protection with three zones of phase and ground distance protection with power swing blocking, out-of-step tripping, line pickup, load encroachment, and POTT features are included



D60 Line Distance Protection System

- Overhead lines including series compensated lines and underground cables of different voltage levels
- Single and dual-breaker circuits requiring single pole/three-pole autoreclosing and independent synchrocheck supervision
- Circuits with in-zone power transformers and tapped transformer feeders
- Secure application with Capacitively-Coupled Voltage Transformers (CCVTs)
- Backup protection for generators, transformers and reactors

Key Benefits

- High speed cost effective five zone quad or mho, phase and ground distance protection
- Reliable and secure protection on lines equipped with series compensation
- Superior phase selection algorithm ensures secure high speed single pole tripping
- Supports multiple standard pilot schemes for fast fault clearance within the protected section
- Programmable scheme logics for building customized schemes
- Simplified teleprotection interfaces with Direct I/O communications hardware for Transfer Trip and Pilot-Aided distance schemes



D30 Line Distance Protection System

- Overhead sub-transmission lines and underground cables including series compensated lines.
- Single and dual-breaker circuits requiring three-pole autoreclosing and independent synchrocheck supervision
- Circuits with in-zone power transformers
- Secure application with Capacitively-Coupled Voltage Transformers (CCVTs)
- Backup protection for generators, transformers and reactors

Key Benefits

- Cost effective, three zone quad or mho, phase and ground distance protection
- Programmable scheme logic for building customized pilot schemes
- Simplified teleprotection interfaces with Direct I/O communications hardware for Transfer Trip and Pilot-Aided distance schemes