



High-speed current differential protection of transmission lines for single or three-phase tripping.

Features and Benefits

- Innovative current differential scheme with adaptive restraint
- FlexLogic™ and distributed FlexLogic™
- Virtual and expandable I/Os
- Flash memory for field upgrades
- Common drawout modules to reduce spare parts costs
- Charging current compensation for applications on long lines or cables
- Channel asymmetry compensation (GPS)

COMING SOON

Applications

- Transmission lines of any voltage level, including series compensated lines
- Stand-alone or component in automated substation control system

NEW

- enerVista.com compatible (see page 275)

Protection and Control

- Current differential protection, DTT
- Phase and ground distance
- Multiple current and voltage elements
- Directional phase and neutral
- FlexElement™ universal comparator
- Single-pole dual-breaker autoreclosure

Monitoring and Metering

- Actual remote, local and differential per phase current
- Current, voltage, power, power factor, frequency, fault location

User Interfaces

- URPC software for HMI
- RS232, RS485 and Ethernet ports



Protection and Control

The L90 is an advanced current differential relay intended for use on transmission lines of any voltage level, including series compensated lines. As a member of the Universal Relay Family, the L90 offers unparalleled digital protection that includes:

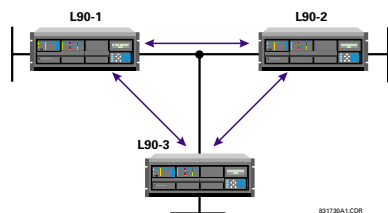
Current Differential Function

This function utilizes adaptive restraint to maintain high security and prevent mis-operation. If CT saturation is detected on external fault relay increases restraint.

Pilot Communications Channels

Peer-to-peer architecture between L90s allows replication of protection and distributed synchronization. Terminals are time synchronized with frequency tracking.

Current phasors are sent from each relay to every other relay.



Relays communicate through fiber optic interface or RS422 and G.703 interfaces at 64,000 bps via direct fiber optic cable or multiplexed

networks. A unique ID may be assigned to every L90 in a protection scheme.

Fiber optic typical distances.

Emitter Type	Typical (km)
820 nm LED	1.65
1300 nm LED	3.8
1300 nm ELED	11.4
1300 nm LASER	64.0
1550 nm LASER	105.0

Direct Transfer Trip (DTT)

Besides current differential DTT (single or three-phase), up to eight signals can be sent over pilot communications channels by the relay, or by the user through configurable logic or communication ports.

Channel Monitor

Communications channel deterioration or failure will activate an alarm, alerting the user to enable backup protection. Channel propagation delay is monitored and adjusted according to variations in communication paths.

Trip Logic

50DD (Disturbance Detector) provides security for single-pole or three-pole tripping logic and seals in the trip command.

Charging Current Compensation

Compensation of the line capacitive current makes the L90 applicable to long transmission lines or cables.

Tapped Transformer Applications

The L90 can remove any zero-sequence current from its operating signals. This makes it immune to zero-sequence infeed from tapped transformers (including wye-grounded) during external ground faults.

Distance Protection

Protection includes single-zone phase and ground with power swing detection and permissive over-reaching transfer trip. Line pickup provides tripping if the breaker is closed onto a fault. Distance elements are reversible and can be shaped to mho, lens or quadrilateral characteristics. Load encroachment can be configured to block selected elements. Distance elements can be applied on series compensated lines.

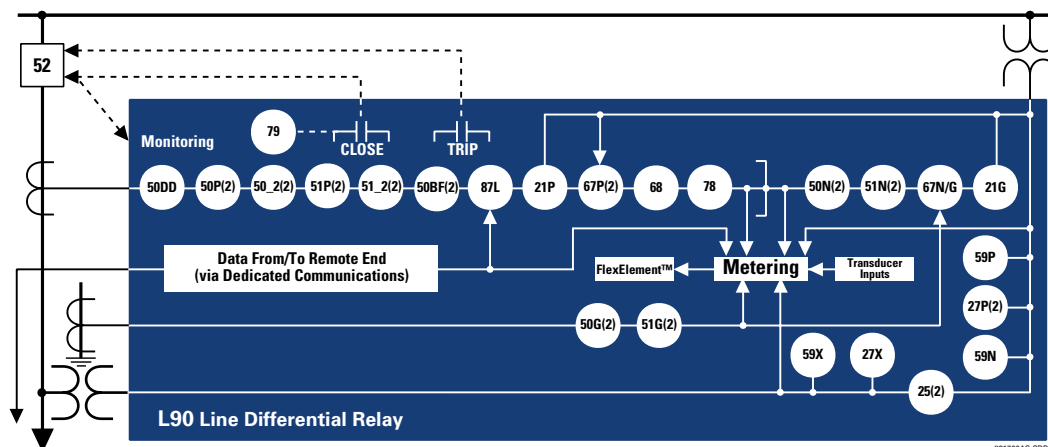
Overcurrent Protection

Instantaneous and time protection functions are provided for phase, ground, neutral and negative-sequence currents. A variety of standard time curves are provided plus two user-programmable curves.

Directional Overcurrent

Phase directional elements use memory polarization. Neutral directional elements can work under zero-sequence voltage, ground current or dual polarization.

Functional Block Diagram



UR Family Advantage
View the UR Family brochure
on page 7 for all the details.
www.GEIndustrial.com/Multi

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