

407 Relay Protection Secondary Circuit



Overview

This document provides fuse box diagrams and relay information for Peugeot 407 vehicles manufactured before and after 2007.

Key Takeaways

The secondary circuit of a 407 relay protection system connects instrument transformers to the relay, enabling fault detection, trip signaling, and coordination with other protection elements.

The secondary circuit of an SEL 407 relay is the portion of the protection system that interfaces with current transformers (CTs) and voltage transformers (VTs) to monitor line currents and voltages. It is responsible for:

- Receiving analog signals from CTs and VTs proportional to the primary line currents and voltages.
- Feeding these signals into the relay's protection elements, such as distance, overcurrent, and directional elements.
- Triggering trip outputs to circuit breakers when a fault is detected.



- Providing auxiliary functions like alarms, metering, and communication-assisted schemes for pilot protection.

Key Components

- **Current Transformer (CT) Inputs:** The secondary circuit receives current signals from CTs. These inputs are typically connected to the relay's differential, overcurrent, or directional elements. Proper CT ratio selection and polarity are critical for accurate fault detection and coordination.
- **Voltage Transformer (VT) Inputs:** VTs provide voltage signals to the relay for voltage-based protection elements, such as under/overvoltage, directional comparison, and distance protection.
- **Trip and Alarm Contacts:** The relay's secondary circuit includes dry contacts or solid-state outputs that actuate circuit breakers or alarms. These outputs are energized when the relay detects a fault condition.
- **Auxiliary Power and Control Wiring:** The secondary circuit also includes connections for DC auxiliary power, control inputs, and communication interfaces for remote monitoring and transfer trip schemes.

Operational Principles

- **Signal Conditioning:** The relay conditions the CT and VT signals to ensure accurate measurement and fault detection.
- **Protection Logic Execution:** The secondary circuit allows the relay to execute its protection logic, including distance protection zones, overcurrent thresholds, and permissive or blocking schemes.
- **Coordination:** The secondary circuit ensures proper coordination with upstream and downstream relays, enabling selective tripping and minimizing system disruption.

Practical Considerations

- **CT and VT Sizing:** Ensure CTs and VTs are rated for the expected primary currents and voltages, and that their burden does not exceed relay specifications.
- **Wiring and Polarity:** Correct wiring and polarity are essential to prevent misoperation of directional elements.
- **Testing and Commissioning:** Secondary injection testing is commonly used to verify relay operation without energizing the primary circuit. Understanding the secondary circuit is crucial for reliable operation of the SEL 407 relay, as it directly affects fault detection accuracy, trip coordination, and overall transmission line protection performance .

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Protection Basics

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Fuse and relay location. Fuse box diagram. Cigarette lighter fuse. Assignment of the fuses

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fault relays in 90° and one ground relay. z Directional overcurrent relays" settings must be calculated to achieve coordination. Using

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Virtually any manufacturer / model relay can be used with any manufacturer / model circuit breaker. It is the responsibility of the

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