PSA15

DIFFERENTIAL PROTECTION RELAY

For investigations into protection of transformers, autotransformers, generators and other apparatus with two windings

- An industrial numerical protection relay presented in an educational format
- Demonstrates clearly the characteristics of three-phase differential protection
- Supplied with TecQuipment's Protection and Relay Test Set (PSL50) and as an optional ancillary to other selected power systems products
- Needs no extra power source - powered from the TecQuipment Power System range products
- Fully adjustable settings to allow a wide variety of tests and investigations
- Connections via safety sockets
- Modern industrial relay to help teach the latest relay technology

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PSAI5

DIFFERENTIAL PROTECTION RELAY

DESCRIPTION

A numerical differential protection relay presented in an educational format. It connects to TecQuipment's Protection and Relay Test Set (PSL50) and other modules in the Power System range. It allows investigations into protection of transformers, autotransformers, generators and other electrical apparatus with two windings. The relay shows clearly the characteristics of three-phase differential protection. This includes high stability during 'out-of-zone' faults, zero-sequence current filtering for each winding, high-speed operation, magnetising inrush restraint, amplitude and vector matching.

The relay is housed in a robust enclosure with carrying handle. The unit mounts on the desk area of the Protection and Relay Test Set or other Power System product. It connects using a multi-core cable from the back of the relay to the Power System products.

A Micom P642 industrial relay forms the main part of the unit. The lecturer or student sets up different fault circuits on the Protection and Relay Test Set or other Power System product. They then use the keypad and display on the relay module to program it to the settings needed for the tests. They can also use the Micom S1 software (supplied) and a suitable computer (computer not included) to program the relay module. The user then connects the 4 mm shrouded sockets from the relay to the test circuits on the Power System product.

Most tests need only one relay. However, the Protection and Relay Test Set (PSL50) has two sockets to test two relay modules at the same time if needed.

The relay connects to the test circuits through the voltage and current transformers (VTs and CTs) built into the Power System products. This helps to show standard electrical engineering practice and the importance of CT ratio, connection and rating.

STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

LEARNING OUTCOMES

Investigations into the performance and characteristics of an industrial differential protection relay.

OOperating Conditions

OPERATING ENVIRONMENT:

Laboratory environment

STORAGE TEMPERATURE RANGE:

–25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

30% to 95% (non-condensing)

SPECIFICATION

DIMENSIONS:

- 300 mm x 550 mm x 278 mm
- Packed 0.16 m^3

WEIGHT:

- Net 13.5 kg
- Packed 30 kg

MAXIMUM INPUT RATINGS:

1 A (a.c.) current input

110 VAC Line to line voltage input

SUPPLY:

Relay operating supply is 110 VAC from Power System product through a multi-core interconnecting cable.

FREQUENCY:

50 or 60 Hz

ACCURACY:

±5%

OPERATING TIME:

Typically 10 ms to 25 ms

PROTECTION FUNCTIONS:

- Differential protection (ANSI 87, 87T)
- Restricted Earth Fault (ANSI 64)
- Definite time overcurrent protection (ANSI 50P, ANSI 50Q and ANSI 50N/G)
- Inverse time overcurrent protection (ANSI 51P, ANSI 51Q and ANSI 51N/G)
- Negative Sequence Overcurrent (ANSI 46)
- Standby Earth Fault (ANSI 50N/51N)
- Thermal overload protection (ANSI 49)

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