PS250

Protection Relay Test Set

For comprehensive investigations into the theory and practice of electrical power system protection

- Floor-standing console enabling wide range of protection relay investigations
- Ideal for classroom demonstrations as well as laboratory experimentation
- Selection of up-to-date numerical protection relays, specially adapted for educational use, available separately
- Supplied with relay support software
- Uses genuine industrial relays, not simulations
- Full range of safety features incorporated throughout
- Detailed diagrams on the equipment enable students to set up and perform experiments with minimal supervision
- Comprehensive controls, supplies, transformers and instrumentation
- Ergonomic design includes useful desk space for students to work on
- Mounting area for relays

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com

An ISO 9001 certified company

TecQuipment

PS250 Protection Relay Test Set

Description

A teaching console which gives students theoretical and practical experience with a variety of industrial relays. This includes experiments investigating overcurrent, earth fault, differential, circulating current and distance numerical protection. It also covers relay setting and tripping characteristics, as well as grading and discrimination under fault conditions. The equipment uses genuine industrial protection equipment and techniques, not simulation, and a range of industrial relays, specially adapted by TecQuipment for educational use, is available separately.

The equipment allows students to compare individual relay characteristics, as well as simultaneous comparison of any two relays to introduce the topic of discrimination.

The console incorporates instrumentation, power supplies, transformers and load resistors. It also has an ergonomic desk space for students to work on. Separate enclosures house the selection of relays.

Note: All relays are optional and available separately.

The relays are housed in rugged, portable enclosures, which conveniently mount either end of the console work top. The test set will support up to two relays at once. These can be different relays or both the same. The relays are programmed either directly or using software. The PS250 includes relay support software which enables users to program the relay modules on a suitable computer (computer not included).

Students connect the relays to the console by plugging leads into terminals on the front panels. They then perform experiments (as described in the user guide or developed by the lecturer) using the console to set test conditions and control and monitor relay behaviour. The console and relay front panels have schematic diagrams which help students carry out and understand the experiments.

A user guide (included) describes the equipment in detail, including experiment theory and procedures.

Standard Features

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

Experiments

A wide variety of investigations into the performance and characteristics of a range of different industrial relays.

Essential Ancillaries

One or more of the following relays:

- Overcurrent and Earth Fault Relay (PS251)
- Differential Protection Relay (PS252)
- Directional/Non-Directional Overcurrent Relay (PS253)
- Feeder Management Relay (PS254)
- Distance Protection Relay (PS255)

Essential Services

380/415 V three-phase and neutral electrical supply fused at 16 A per phase

Operating 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:
80% at temperatures < 31°C decreasing linearly to 50% at 40°

Specification

Dimensions:

- Width 2660 mm x depth 1020 mm x height 1890 mm
- Packed 5 m^3

Weight:

- Net 731 kg (console only),
- Packed 930 kg

Recommended floor area:
Spaces of at least 1,000 mm at the back of the test set and 2,000 mm around the front and sides are recommended.

Console controls and instrumentation:

- 0 to 220 V variable voltage supply
- 0 to 10 A variable current supply
- Two fault limiting resistors
- Timed fault application circuit breaker
- Configurable tapped transformer with delta or star secondary
- Variable three-phase load delta connected
- Variable three-phase load star connected
- Four sets of three-phase current transformers
- Two sets of three-phase voltage transformers
- Mains isolator

Test circuits:

- Relay test area
- Configurable transformer test circuit
- Transmission line model (5 x 50 km)

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com

An ISO 9001 certified company

TecQuipment