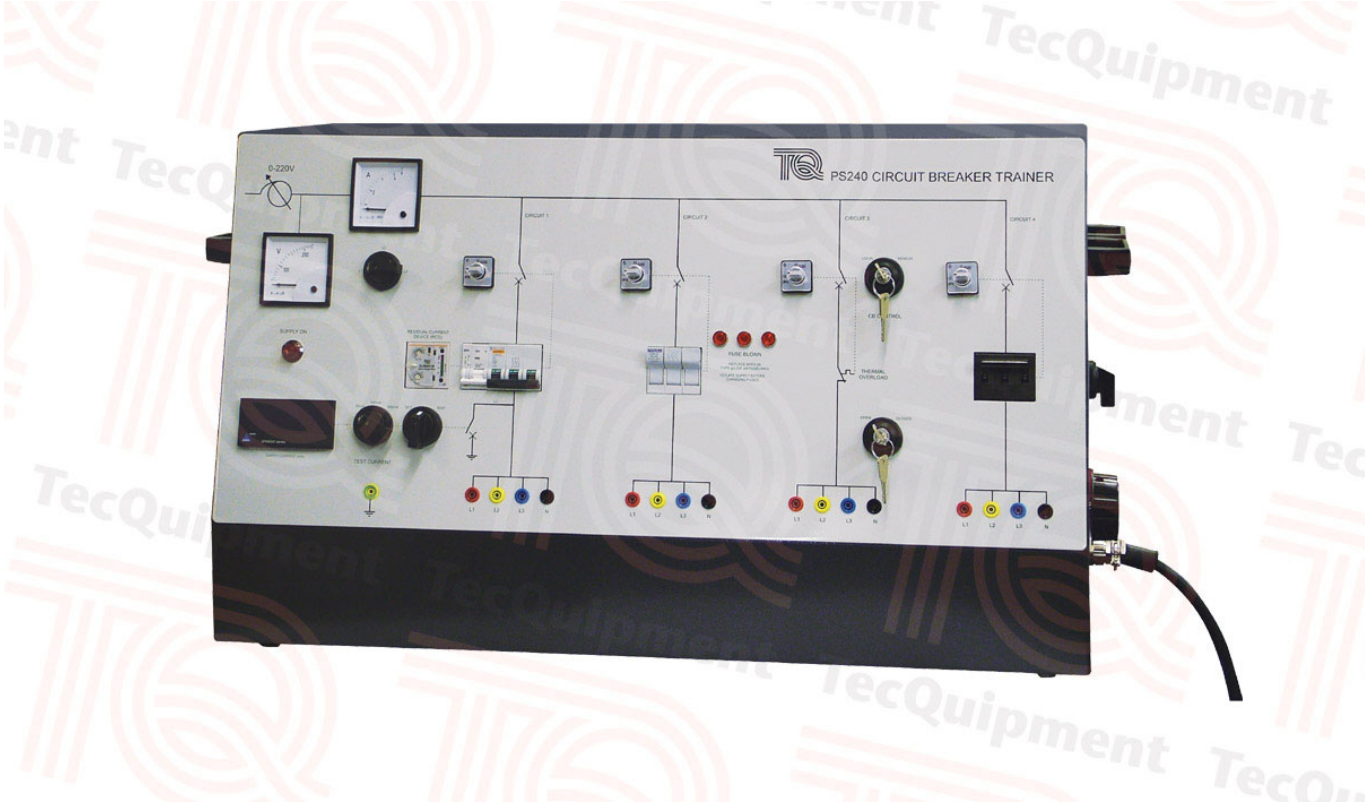
PS240 Circuit Breaker Trainer

Compares different circuit protection devices and shows students how they perform



- Compares four of the most common protection devices, including fuses and thermal and magnetic circuit-breakers - shows why each device is good for different circuits
- The fuse test circuit includes carriers that break the circuit and a ‘fuse break’ detector - for safe tests on cartridge style fuses
- Includes industry-standard discrepancy switch circuits - to show how industrial switching works
- Shows residual current protection in three-phase circuits and shows how it works with balanced and unbalanced loads
- Includes keyswitches - to show local and remote circuit breaker control used in industry
- Includes power supplies and instruments (for connection to a three-phase supply)
- Works with TecQuipment’s Portable Resistive Load Bank (PS231) for safe, repeatable tests with star or delta connected loads.

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PS240 Circuit Breaker Trainer

Description

This equipment works with a suitable three-phase supply and load to show how the most common circuit protection devices perform. It allows students to adjust the fault current in four different protection circuits to test and compare them.

A variable transformer inside the unit works with the load to set and control the fault current in each of four circuits.

Each circuit has a different current protection device, including fuses, a magnetic only circuit-breaker, a thermal only circuit-breaker, and a thermomagnetic circuit-breaker.

To show students how industrial switching circuits work, each circuit includes a contact breaker, switched by an industrial standard discrepancy switch.

Circuit one includes an additional adjustable residual current detector for experiments with different residual current faults. It includes a digital display and switches to help set the earth leakage fault current before the test.

Circuit two tests fuses and includes a 'fuse break' detector circuit. This uses lamps to show the students when each of the fuses breaks (one fuse for each of the three phases). It shows the fault current and breaking time relationship for different fuse types.

Circuit three also includes remote and local control keyswitches to switch its contact breaker and break the circuit. This helps to show how both a control room operator or a remote operator can switch a circuit on or off in a real installation.

Each circuit finishes at colour-coded shrouded sockets for safe and easy connection to a suitable load (TecQuipment recommend you buy their Portable Load Bank - PS231).

The equipment includes meters that measure the incoming voltage and current to the test circuits.

Standard Features

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

Essential Ancillaries

- Portable Load Bank (Resistive) PS231

Has individual switched loads with shrouded connections and built-in circuit protection. This allows safe, repeatable tests with delta or star connected three-phase loads.

Experiments

- Circuit overcurrent protection - using four different types of circuit protection
- Protection device rating and circuit current
- Local and remote control (of circuit breaking)
- Residual current detection (earth leakage) - with balanced and unbalanced loads

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°C

Sound Levels

Less than 70 dB(A)

Essential Services

Bench Space Needed:
1100 mm x 500 mm (plus space for the load bank)

Note: This unit is heavy - your bench must be strong.

Electrical Supply:
Three-phase 380/415 VAC 50 Hz (220/240 VAC line to neutral) with a neutral and earth connection. Supply must be rated at greater than 5 A each phase and fused at 16 A.

We can also build a 220 V three-phase version on request.

Specifications

Dimensions and Weight:
Nett: 1000 mm x 500 mm x 420 mm and 102 kg

Packed: 0.34 m^3 and 150 kg

Circuit 1
Thermomagnetic Miniature Circuit Breaker (MCB) with C curve characteristics and an Adjustable Residual Current Detector (RCD).

Circuit 2
Three type gG cartridge fuses in carriers. Includes a 'fuse break' detector circuit.

Circuit 3
Thermal overload and remote/local keyswitches.

Circuit 4
Magnetic circuit breaker with F2 curve characteristics.

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