



PSL70

## CIRCUIT BREAKER TRAINER

Compares different circuit protection devices and shows students how they perform



### KEY FEATURES

- Compares four of the most common protection devices, including fuses and thermal and magnetic circuit-breakers
- Includes a 'fuse break' detector - for safe tests
- 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 a resistive Load Bank (PSA50).

### LEARNING OUTCOMES

- 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

### KEY SPECIFICATIONS

- Three-phase test circuits
- Four different circuit protection devices
- Four discrepancy switches
- Residual current detection (RCD) device
- Fuse break detectors
- Variable supply voltage
- Remote/local control switching

# 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.

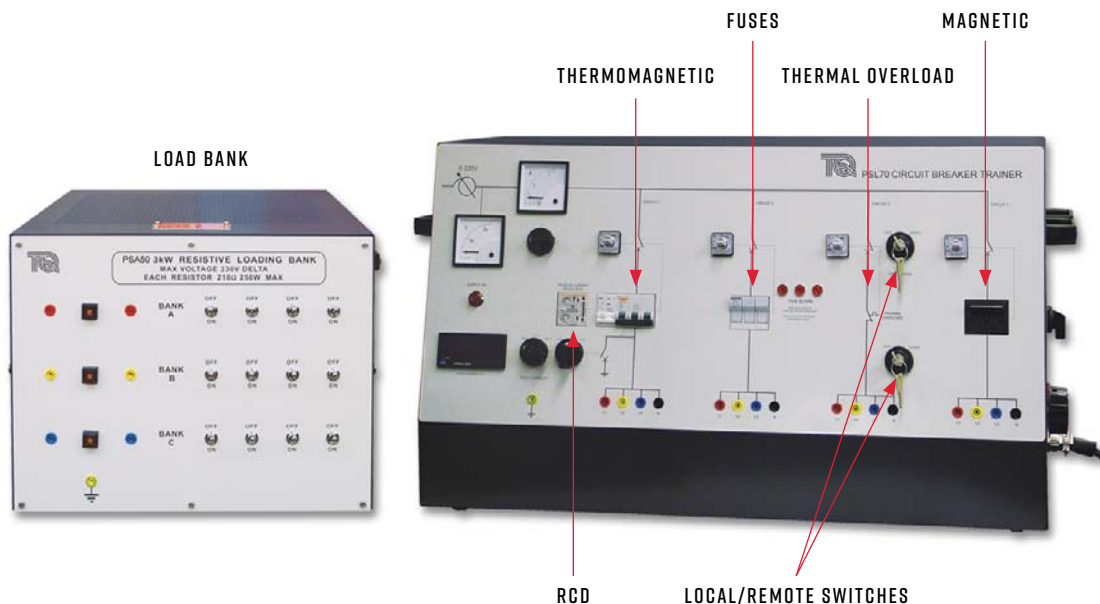
Circuit three also includes remote and local control keyswitches to switch its contact breaker and break the circuit. This helps to show how both a control room operator or a remote operator can switch a circuit on or off in a real installation.

Each circuit finishes at colour-coded shrouded sockets for safe and easy connection to the resistive load PSA50 (supplied).

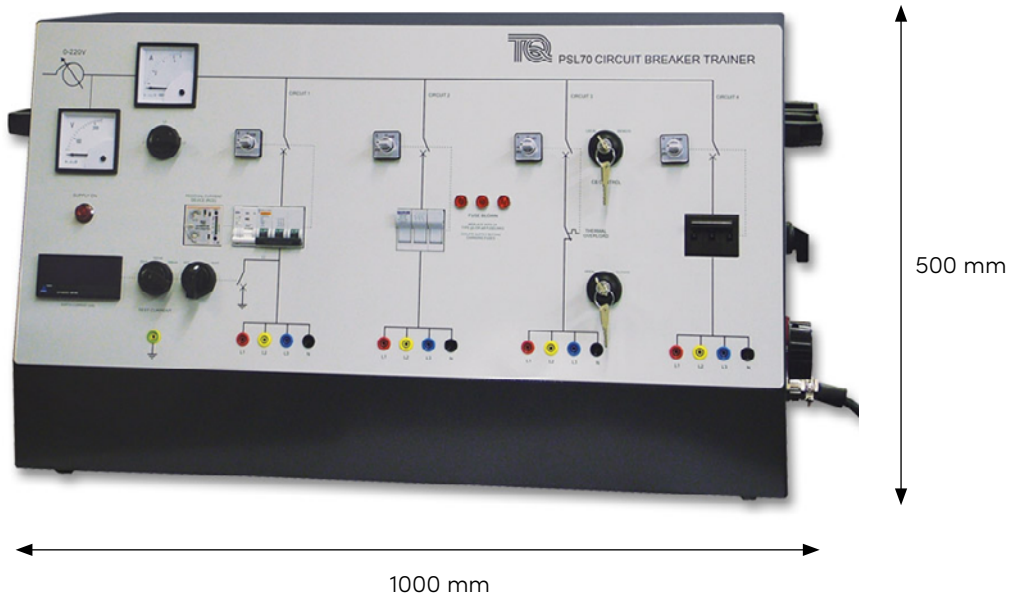
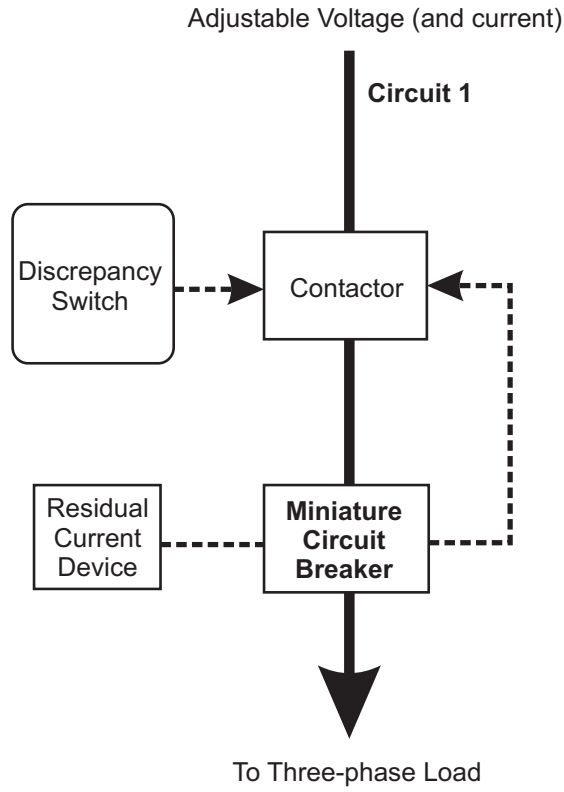
The equipment includes meters that measure the incoming voltage and current to the test circuits.

## STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Made in accordance with the latest European Union directives
- ISO9001 certified manufacturer



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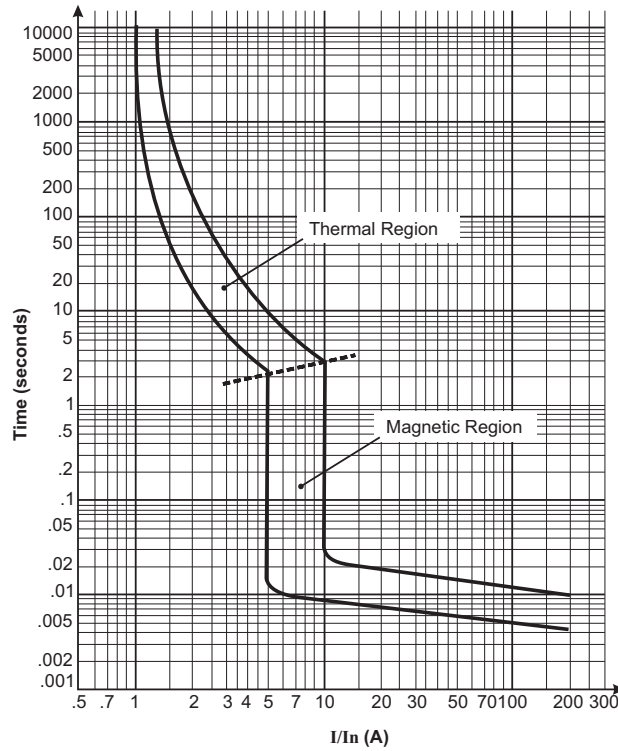


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## TYPICAL WORK ASSIGNMENTS

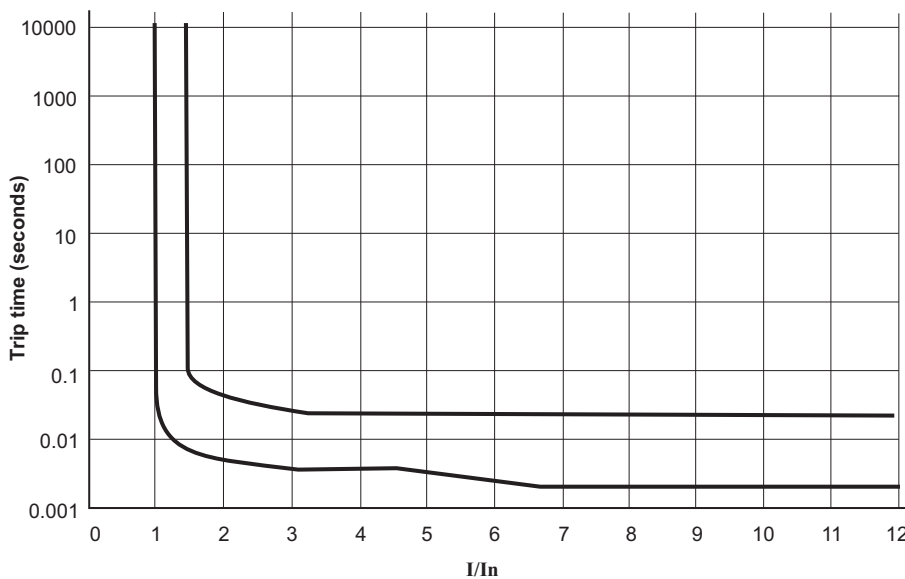
### CIRCUIT 1: THE THERMOMAGNETIC MINIATURE CIRCUIT BREAKER (MCB)

This test measures the time taken for the thermomagnetic MCB to break the circuit (trip) for a given current and compares it to the manufacturer's curves.



### CIRCUIT 4: THE MAGNETIC MINIATURE CIRCUIT BREAKER (MCB)

This test measures the time taken for the magnetic MCB to break the circuit (trip) for a given current and compares it to the manufacturer's curves.



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## DETAILED SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

### DIMENSIONS AND WEIGHT (PSL70):

Nett: 1000 mm wide x 500 mm high x 420 mm front to back and 102 kg

Approximate packed: 0.34 m<sup>3</sup> and 150 kg

### LOADBANK:

Refer to separate datasheet (PSA50).

### 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.

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory

### 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

## 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 4 kVA, 50 Hz or 60 Hz (specify on order)

50 Hz needs 380 – 415 VAC

60 Hz needs 200 – 240 VAC

## SOUND LEVELS

Less than 70 dB(A)