



## *MULTI-AMP, Model CB-832*

- Digital memory ammeter
- Digital, multirange timer
- High-current output
- Solid-state output initiate circuit

# Circuit Breaker and Overload Relay Test Set

## DESCRIPTION

The Multi-Amp, Model CB-832 test set is a high-current circuit breaker and overload relay test set. Model CB-832 is designed to test the circuit breaker and overload relays by means of primary current injection.

Model CB-832 is a self-contained test set that incorporates a variable high-current output and appropriate control circuitry and instrumentation for testing thermal, magnetic or solid-state motor overload relays; molded-case circuit breakers; and ground-fault trip devices.

## APPLICATIONS

One of the most common applications of Model CB-832 is the calibration of magnetic overload relays, such as those used for protecting air conditioning systems.

By providing up to 1000 amperes to simulate overload conditions, it also is capable of testing the time-delay characteristic of magnetic overload relays rated up to 500 amperes.

In addition, Model CB-832 can test the time-delay characteristics of thermal motor overload relays and molded-case circuit breakers rated up to 225 amperes, when following the recommended test procedure of testing the time delay of thermal devices at three times their rating.

Higher currents are available for the short durations required to test an instantaneous trip element. For exam-

ple, the test set will provide a short-duration output of 1800 amperes through a typical 225 ampere, molded-case circuit breaker.

Additional applications include verifying the ratio of current transformers and testing panelboard ammeters and voltmeters.

## FEATURES AND BENEFITS

- Digital memory ammeter: High-accuracy, direct-reading instrument has read-and-hold memory for measurement of short-duration currents.
- Digital multirange timer: Crystal-controlled, high-accuracy instrument measures operating time to 1 millisecond.
- High output current: Provides instantaneous currents up to 1800 amperes through a 225-ampere breaker.
- Solid-state output initiate circuit: Solid-state circuit eliminates the need for contact maintenance.
- Protection: Overload and short-circuit protection is incorporated.
- Enclosure: Heavy-duty Formica enclosure is equipped with carrying handles and removable hinged cover that protects instruments and controls during transportation and storage. Space is provided for test lead storage.

## SPECIFICATIONS

### Input (specify one)

120 V OR 240 V, 50/60 Hz, 1 $\phi$

### Output

#### Output Ranges:

Continuously adjustable in three ranges to meet a variety of test circuit impedances:

0 to 500 A at 3.5 V max.

0 to 125 A at 14 V max.

0 to 25 A at 70 V max.

**Output Capacity:** The output circuit is designed to provide short-duration overloads.

The output ranges will provide several times their current rating, provided the output voltage is sufficient to push the desired current through the impedance of the test circuit.

The test set is capable of testing the time-delay characteristics of magnetic overload relays rated to 500 A using a test current of two times their rating (1000 A).

It will test the time-delay characteristic of thermal devices rated up to 225 A using the recommended test current of three times their rating (675 A).

Also, to perform an instantaneous trip test, it will provide 1800 A through a typical 225-ampere, molded-case circuit breaker.

### Overload Capability:

To increase use of the test set, it is designed so that the current ratings may be exceeded for short durations.

Because the magnitude of the output current is determined by the impedance of the load circuit, the voltage rating must be sufficient to push the desired current through the device under test and the connecting test leads.

Overload Capability		
Percent Rated Current	Maximum Time On	Maximum Time Off
100 (1x)	30 min	30 min
200 (2x)	3 min	8 min
300 (3x)	30 s	4 min
400 (4x)	7 s	2 min

### Output Initiate Circuit:

The test set uses a solid-state output initiating circuit. To increase reliability and eliminate contact maintenance, this circuit uses a triac instead of a contactor to initiate the output.

Output Initiate Control Circuit: The initiating control circuit provides momentary and maintained modes to control output duration.

The momentary mode is used whenever the output is to be for a short duration. An example is an instantaneous trip test, or to avoid damage or overheating of the device under test while setting the test current.

In the maintained mode, the output remains energized until manually turned off or, when performing timing tests, until the device under test operates—this both stops the timer and de-energizes the output.

### Instrumentation

#### Ammeter

To measure the output current, the test set incorporates a solid-state digital instrument with multiple ranges and a read-and-hold memory to measure short-duration currents.

#### Operating Modes (switch-selected)

Memory

Normal

**Digital Display:** 3 1/2-digit, extra-bright LED display with 0.3-in. (7.62 mm) numerals

**Ranges (switch-selected)**

0 to 19.99/199.9/1999 A/3.00 kA

**Continuous Accuracy (overall ammeter system)**

±1% of reading, ±1 digit on three high ranges, ±1 digit on low range ±1% of range

#### Timer

A solid-state digital timer is incorporated to measure the elapsed time of the test in either seconds or cycles.

It uses a crystal-controlled oscillator, therefore, its accuracy is independent of the line frequency.

**Display:** 5-digit, extra-bright LED display with 0.3 in. (7.62 mm) numerals

**Ranges (switch-selected)**

0 to 99.999 s

0 to 999.99 s

0 to 99999 cycles

**Accuracy**

±0.005% of reading, ±1 digit

### Timer Control Circuit

This circuit automatically starts the timer when the output is energized and automatically stops the timer and de-energizes the output when the device under test operates.

This circuit accommodates the following test conditions by simple switch selection of the appropriate mode:

**Current Actuated:** Used to test a device that has no auxiliary contacts to monitor, such as a single-pole circuit breaker. The timer stops when the output current is interrupted.

**Normally Closed:** Used to test a device with normally closed contacts. The timer stops and the output is de-energized when the contacts open.

**Normally Open:** Used to test a device with normally open contacts. The timer stops and the output is de-energized when the contacts close.

### Dimensions

14 H x 14.5 W x 13.4 D in.

356 H x 368 W x 343 D mm

### Weight

75 lb (34.1 kg)

## ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
Model CB-832		Current leads	
120 volt input	CB-832-115	No. 6, 5 ft (1.5 m) [1 set]	16295
230 volt input	CB-832-230	4/0, 4 ft (1.2 m) [1 set]	9311
Included Accessories		Fuses	
Timer leads, 5 ft (1.5 m) [1 set]	1282	12 A, 250 V, MDA [5]	9312
Lead bag [1]	11437	0.125 A, 250 V, MDL [5]	981
		Instruction manual [1]	9841