

CIRCUIT BREAKER TEST EQUIPMENT

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MULTI-AMP[®]
Model CB-845

- Digital memory ammeter
- Digital, multirange timer
- Lightweight and portable
- High-current output
- Solid-state output initiate circuitry

Circuit Breaker Test Set

DESCRIPTION

The Multi-Amp[®] Model CB-845 test set is a high-current circuit breaker test set consisting of a control unit that incorporates the latest in solid-state metering, control technology and a high-current output unit.

The lightweight, two-section design of Model CB-845 enables the user to easily transport the unit into areas previously inaccessible to high-current test equipment such as elevated or subsurface load centers, shipboard power panels, elevator machinery rooms and other isolated locations.

APPLICATIONS

Model CB-845 is suitable for a wide variety of testing requirements including molded-case circuit breakers; thermal, magnetic or solid-state motor overload relays and other overcurrent protective devices. Additional applications include verifying the ratio of current transformers and testing ground-fault trip devices.

The time-delay characteristics of motor overload relays and molded-case circuit breakers rated up to 500 amperes can be tested with Model CB-845, when following the recommended test procedure of testing the time delay of thermal devices at three times their rating. Instantaneous trip elements can be tested with the higher currents required for these tests. For example, the test set

will provide short-duration output of 5000 amperes through a typical 500-ampere, molded-case circuit breaker.

FEATURES AND BENEFITS

- Digital memory ammeter: High-accuracy, direct-reading instrument features read-and-hold memory for measurement of short-duration currents.
- Digital, multirange timer: Crystal-controlled, high-accuracy instrument measures operating time to 1 ms.
- Lightweight and portable: Two-section unit has a total weight of only 175 lb (80 kg).
- High output current: Provides instantaneous current up to 5000 amperes through a 500-ampere circuit breaker.
- Solid-state output initiate circuitry: Solid-state output circuit switching eliminates need for contact maintenance.
- Protection: Overload and short-circuit protection is incorporated.
- Enclosure: The test set is housed in two stackable, interlocking, rugged, metal enclosures with convenient carrying handles. The control unit comes with a lid for protection of the controls during transportation. The unit is easily transported by and/or on a standard hand truck.

SPECIFICATIONS

Input

Input Voltage (switch-selected)
208 and 240 V, 1 ϕ , 30 A

Input Frequency (specify one)
50 Hz OR 60 Hz

Output

Output Range: The output is continuously adjustable to accommodate a variety of test circuit impedances: 0 to 1200 A at 6 V max.

Output Capacity: The output circuit is designed to provide short-duration overloads. The above output range will provide several times its 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 devices rated up to 500 A using a test current of three times their rating (1500 A). Additionally, to perform an instantaneous trip test, it will provide 5000 A through a typical 500-A, molded-case circuit breaker connected with the 4-ft (1.2-m) test-leads provided.

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.

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 on 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—which 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: 3½-digit, extra-bright LED display with 0.3-in. (7.62-mm) numerals

Ranges (switch-selected)

0 to 19.99/199.9/1999 A/10 kA

Accuracy (overall ammeter system)

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

Control Units

11.25 H x 21.75 W x 17.5 D in.
29 H x 55 W x 44 D cm

Output Unit

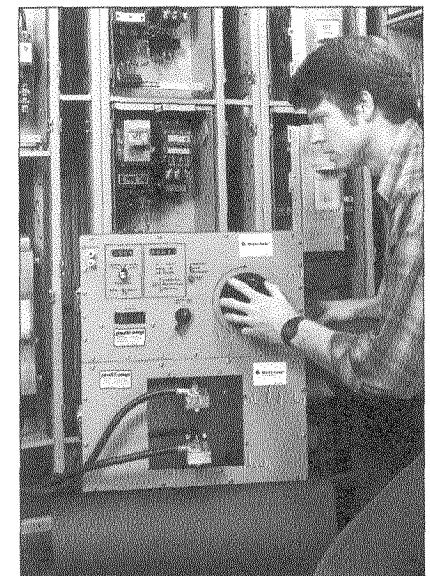
11.25 H x 21.75 W x 19.5 D in.
29 H x 55 W x 49 D cm

Weight

Control Unit: 69.25 lb (31.4 kg)

Output Unit (50 Hz): 123 lb (55.8 kg)

Output Unit (60 Hz): 103 lb (46.8 kg)



Model CB-845 facilitates testing molded-case circuit breakers installed in motor control centers as shown above.

ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
Model CB-845, 50-Hz application	CB-845-50	Fuses	
Model CB-845, 60-Hz application	CB-845-60	0.125 A, 250 V, MDL (5)	981
Included Accessories		30 A, 250 V, FNW (5)	9880
Timer leads, 5 ft [1.5 m] (1 set)	1282	Interconnect cable, 4 ft [1.2 m] (1)	9487
Current leads No. 4, 5 ft [1.5 m] (1 set)	2265	Instruction manual (1)	9820
Current leads 4/0, 4 ft [1.2 m] (1 set)	9311	Optional Accessories	
Input connector, 3W 20 A (1)	1402	Interconnect cable, 10 ft [3 m] (1)	9688