MCCB-500

molded case circuit breaker tester

Vanguard Instruments Company, Inc.
www.vanguard-instruments.com

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ordering information

Part No.	Description
9107-UC	110V MCCB-500 and cables
9108-UC	220V MCCB-500 and cables
9127-UC	110V MCCB-500-2 and cables
9128-UC	220V MCCB-500-2 and cables
9107-SC	MCCB-500 shipping case

Sample Test Results Screen

Product Overview

The Vanguard MCCB-500 is a microprocessor-based high current circuit breaker test set. This unit provides a variable high current source, control, metering, and timing circuitries for testing overload relays and thermal and magnetic circuit breakers. The MCCB-500 high output current source can also be used in other primary current injection applications.

Current Source

The MCCB-500's current source has 3 outputs: 500A @ 4 Vac, 125A @ 14Vac, and 25A @ 70Vac. The current sources can output short-duration overload conditions. This feature is convenient for performing instantaneous trip tests of molded case circuit breakers, or testing the time delay characteristics of magnetic overload relays.

Test current is measured and displayed on a 128 x 64 pixel back-lit LCD screen that is clearly visible in direct sun light or low light levels. Control switches are used to turn the current source on and off, select the timer stop input type (current mode, dry contact, or wet contact), and control the LCD contrast.

A "momentary" mode can turn on the current source, capturing the current reading and displaying the value on the LCD. This feature can be used to set the test current and minimizes the possibility of overheating the device under test.

Test current is turned on at the zero crossing point using a solid state device for reliability and precision timing.

Built-in Current Meter

The MCCB-500 features a built-in current meter that displays the test current (100mA – 3000A). Current reading accuracy is: ±1% of reading, ±2 digits. Test results (current reading and time) are retained after performing a test so that the test results can be reviewed. This is a convenient feature when used with the momentary mode to preset the test current to avoid overheating the circuit breaker.

Current Source Thermal Protection

Built in thermal sensor allows the microprocessor to monitor the transformer current source operating temperature.

Built-in Timer

The MCCB-500's built-in timer displays the test results in milliseconds and cycles. The cycle time (50 or 60 Hz) is selectable by the user. Timer reading range is from 0.1 ms to 2 hours. Timer resolution is 0.1 ms and the timer accuracy is ±0.1% of reading, ±0.1 ms.

Timer Start Mode: Timer can be started when the current source is turned on or off.

Timer Stop Mode: Timer can be stopped with the removal of the test current or detection of a status change of dry contact or voltage input.

Modular Model

The MCCB-500 is also available as a more portable modular model, the MCCB-500-2. For greater convenience, the MCCB-500-2 separates the current module and the current supply module. The control module weighs 32 lbs. (14.5 Kg) and the current supply module weights 67 lbs. (30.4 Kg) This arrangement makes it easier to carry the MCCB-500-2 through tight work spaces or stairways. A 4' (1.22 m) umbilical cable connects the MCCB-500-2 control module to the current supply module.

MCCB-500 Features

MCCB-500 *technical specifications*

physical specifications	**Dimensions:** 16"W x 14"H x 13" D (40.6 cm x 35.5 cm x 33 cm) **Weight:** 93 lbs. (42.2 Kg)	**input voltage**	100 – 120 Vac or 200 – 240 Vac (factory-pre-set), 50/60 Hz
internal current meter	1 A – 3,000A; accuracy: 1% of reading, ±2 digits	**measurement method**	isolated CT
timer stop inputs	voltage input (20V – 300V, dc or peak ac), dry contact input, or removal of test current	**timer reading range**	0.1ms – 2 hours (also displayed in cycles); accuracy: 0.1% of reading, ±0.1ms
display	back-lit LCD screen (128 x 64 pixels); viewable in bright sunlight and low light levels	**output currents**	**500A** @ 4V, **125A** @ 14V, **25A** @ 70V
humidity	90% RH @ 40°C (104°F) non-condensing	**instantaneous current**	**2,500A**
temperature	**Operating:** -10°C to +50°C (+15°F to +122°F) **Storage:** -30°C to +70°C (-22°F to +158°F)	**safety**	designed to meet IEC61010 (1995), UL61010A-1, CSA-C22.2 standards
cables	two 5-foot (1.5m) #2/0 current cables, two 8-foot (2.5m) external timer input cables with alligator clips, one ground cable, one power cord	**altitude**	2,000 m (6,562 ft) to full safety specifications
furnished accessories	shipping case	**warranty**	one year on parts and labor

NOTE : the above specifications are valid at nominal voltage and ambient temperature of +25°C (+77°F). Specifications are subject to change without notice.

Output Current and Duration Table

percentage rated current	max on time	max off time
40% (200 A)	continuous	continuous
100% (500 A)	30 minutes	30 minutes
200% (1,000 A)	5 minutes	15 minutes
400% (2,000 A)	30 seconds	5 minutes
500% (2,500 A)	3 seconds	5 minutes

NOTE: The MCCB-500 is capable of delivering 2,500 A instantaneous current.

Instruments designed and developed by the hearts and minds of utility electricians around the world.

Vanguard Instruments Company (VIC), was founded in 1991. Currently, our 28,000 square-foot facility houses Administration, Design & Engineering, and Manufacturing operations. From its inception, VIC's vision was, and is to develop and manufacture innovative test equipment for use in testing substation EHV circuit breakers and other electrical apparatus.

The first VIC product was a computerized circuit breaker analyzer, which was a resounding success. It became the forerunner of an entire series of circuit breaker test equipment. Since its beginning, VIC's product line has expanded to include microcomputer-based, precision micro-ohmmeters, single and three phase transformer winding turns-ratio testers, transformer winding-resistance meters, mega-ohm resistance meters, and a variety of other electrical utility maintenance support products.

VIC's performance-oriented products are well suited for the utility industry. They are rugged, reliable, accurate, user friendly, and most are computer controlled. Computer control, with innovative programming, provides many automated testing functions. VIC's instruments eliminate tedious and time-consuming operations, while providing fast, complex, test-result calculations. Errors are reduced and the need to memorize long sequences of procedural steps is eliminated. Every VIC instrument is competitively priced and is covered by a liberal warranty.

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