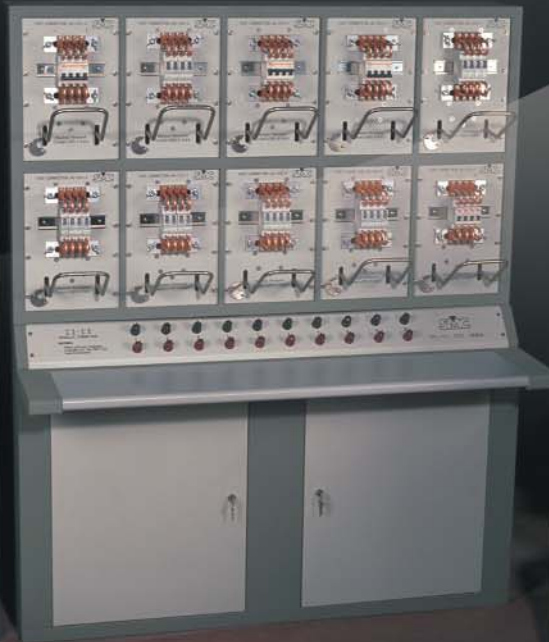


# AUTOMATIC TEST SYSTEM FOR MINIATURE CIRCUIT BREAKERS - MCB's

▶ SMC-12



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# SMC-12

## Automatic Test System for Miniature Circuit Breakers - MCB's

### APPLICATION CHARACTERISTICS

The SMC-12 system is designed to meet the needs established by the International Standards for the routine and quality control tests of Miniature Circuits Breakers (MCB) with regards to their Thermal and Magnetic (Instantaneous) response. Due to the very good characteristics of the power supply output ensures that the results are according the International Standards in terms of current accuracy ( $\pm 1\%$ ), frequency ( $50\text{Hz} \pm 0,1\text{Hz}$ ) and distortion of the output wave form ( $<1\%$ ).

The standard configuration is designed for 10 test positions, each position is capable of testing MCB'S of 1,2,3, or 4 poles, independently as each position is controlled by 1 programmable current power supply the EMU-100.

This configuration allows the system to work in a complete synchronize way, not only in the nominal current of the MCB to be tested, but also in different testing procedures. If there is a failure of 1 MCB it can be replaced and a new test can begin while the others continued being tested.

This system completely avoids the uncertain trip problems, inducted by the trip of any other MCB, which normally occurs in other test systems used up until now.

Due to it's capacity to be connected in parallel, the SMC-12 system is a very flexible system for testing MCB's, The following applications can be obtained:

- Thermal test with current values higher than 100A.
- Magnetic (Instantaneous) test, with the use of an external timer, tests up to 1000A.
  - 10 Test positions up to 100A.
  - 5 Test positions up to 200A.
  - 3 Test positions up to 300A.
  - 2 Test positions up to 500A.
  - 1 Test positions up to 1000A.

### FLEXIBILITY OF USE

An auxiliary output control of 220V ac. is, programmable from the computer (off/on). This connection is located on the rear panel of the EMU-100. The use of this output, is to control any auxiliary device such as an automatic closer of the MCB, a bridge contact for poles, activate a sonic or optical signal, etc. in a completely programmable way. The power of this output is 220Vac, 50mA.

The EMU-100 unit contains a time measurement section, which measures time between the current injection (start) and the trip of the MCB under test (stop). The Measuring Range is from 1.- 9999s, with a Resolution: 0.1 s. The accuracy is  $\pm 0.01\%$  of the reading  $\pm 0.1$  s.

### CONTROL PROGRAM (M12 TEST)

4 main control uses	Automatic control
	Manual Control
	Automatic Parallel Control
	Manual Parallel Control
Regulation Functions	Control Current output values
	Print test results
	Stores/Records Data
	Automatically preforms all test

Related information: SEE EMU-100 CATALOG

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### CONTROL PROGRAM.

#### SMC-12 TEST (M12TEST)

The M12TEST software is the control program that allows the user to work with the SMC-12 system.

Furthermore, the capacity of the software, M12 test, it is possible to use a number of units in thermal tests and the rest, parallel connected for magnetic test at the same time.

There are four main control possibilities in the SMC-12 system:

**Automatic Control:** This function allows the user to perform preprogrammed tests using, controlling, and reading up to 20 test positions simultaneously.

**Manual Control:** This function allows the user to work with any one of the ten "Test Positions" in a complete manual mode.

**Parallel Manual Control:** This function allows the user to define groups of power supplies EMU-100 connected in parallel and to work with them simultaneously in the Display Monitor.

**Automatic parallel control:** This function allows the user to perform preprogrammed test with a group of EMU-100 connected in parallel.

The M12TEST software has a Test Procedures Editor, which allows the user to write, using a very easy language, up to ten different automatic test procedures.

This Procedures Editor has many commands and functions, but the main ones are as follows:

- Selection of the current to be injected, (or the ramp to increase it) at any moment.
- Selection of "Continue the test" or "Test Failure" conditions.
- Possibility to write a "Comment" in each step of the procedure, that explains what each step has accomplished.
- The test procedures created can be called and assigned to one or more "Test Positions" in the Automatic Control mode.
- The software allows the user to Load, Review or Print any of the test reports. File name and/or protocol number can save all test reports on to the Hard Disk.

### THE ADVANTAGES OF THE SMC-12 SYSTEM COMPARED TO OTHER SYSTEMS OF TESTING MCB'S.

- Fully automatic operation; the unit can operate without personal supervision, therefore test can be made at night.
- Records, stores, and prints all test results.
- Different current values and brands of MCB's can be tested at the same time.
- There are 4 options supplied with the software; manual, automatic, manual parallel control, and automatic parallel control.
- Possibility to be connected in parallel (the EMU-100 power supplies), to obtain a current output up to 1000A.
- Meets IEC requirements for testing MCB's with it's specifications; a stable electronic current supply with very low output distortion.
- Avoids the problems of uncertain trips, by the tripping of other MCB's.
- Various tests can be preformed at the same time. This is to say, not only can different current values be tested, but different test routines as well.
- If there is a failure in 1 MCB, it can be replaced and a new one installed while the others continue being tested.
- Closed case calibration of the units (EMU-100) is by software, allowing easy calibration of the units as often as necessary.

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Rack with 10 units EMU-100 installed