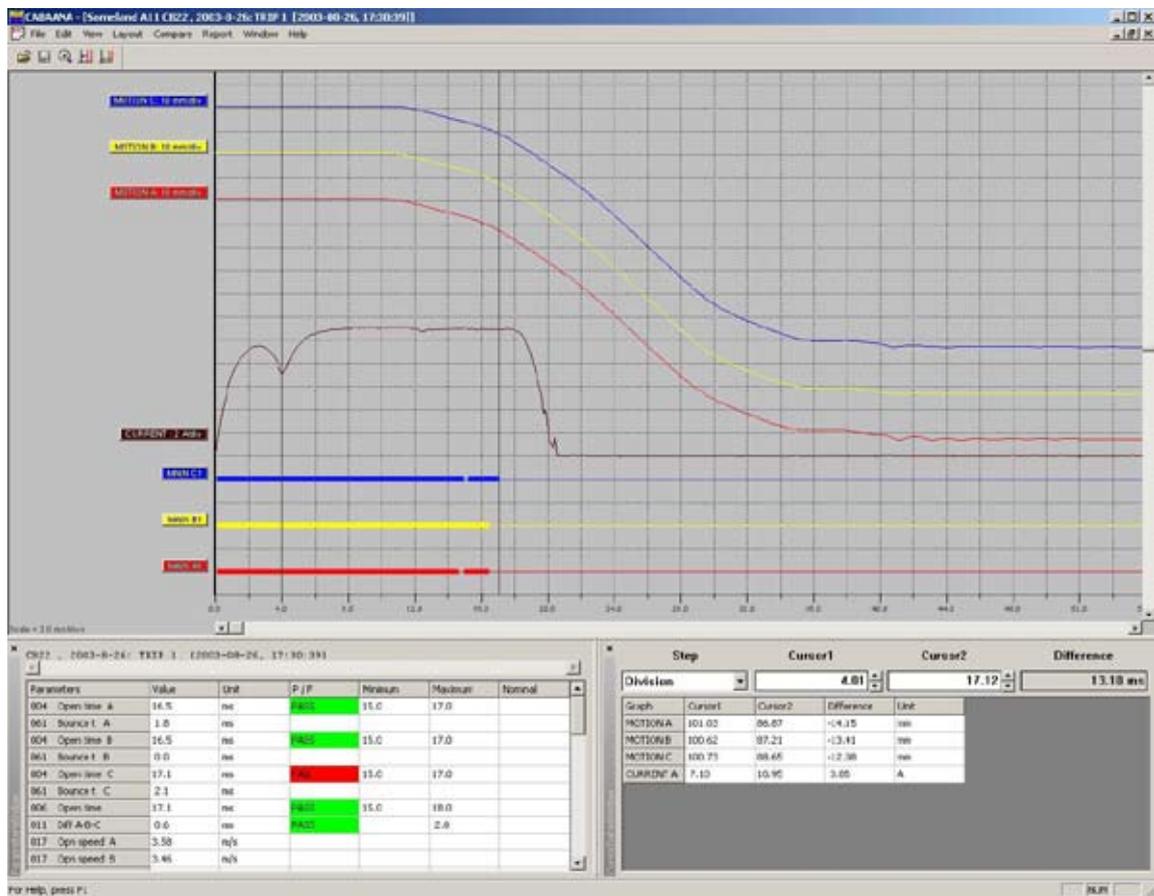
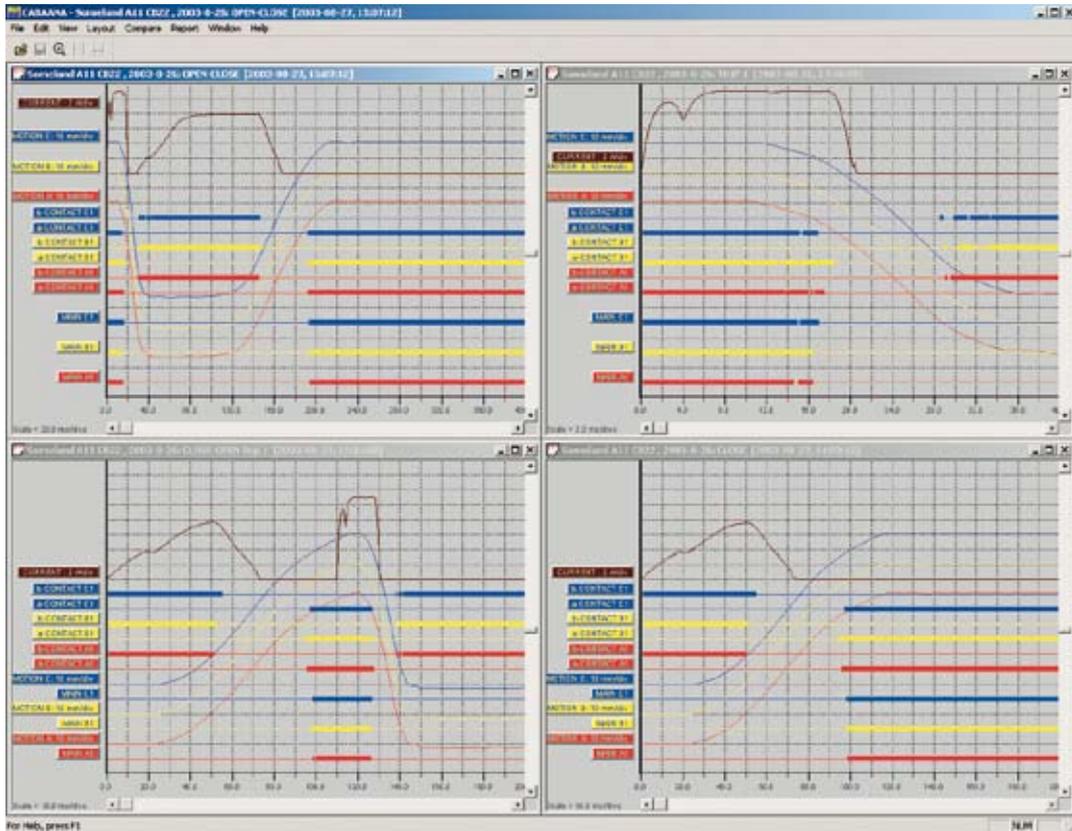


# CABA Win

## Circuit Breaker Analysis Software



# CABA Win



## Circuit breaker analysis software

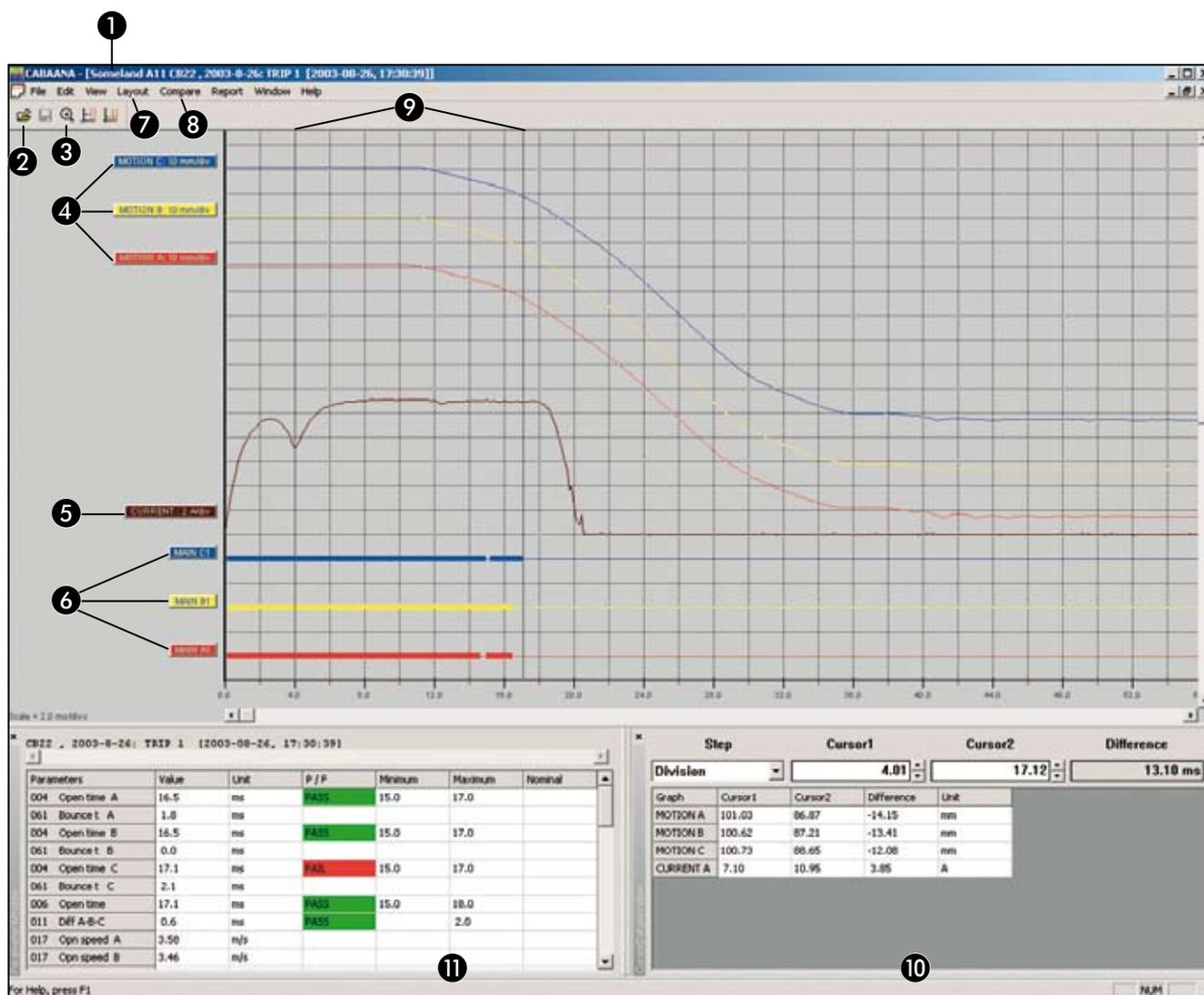
Effective circuit breaker maintenance requires well-organized, accurate testing. The ability to accurately compare circuit breaker tests with previous test results is essential. It must thus be possible to conduct tests in exactly the same way and under the same conditions as those conducted earlier. Comparison can then provide a clear picture of any deviations and changes, thereby indicating whether or not the circuit breaker should be kept in operation or taken out of service.

Comprehensive, accurate testing also requires analytical tools and efficient reporting. It must be possible to validate test results in detail and then easily compare them with other test results.

The Programma CABA Win™ (Computer-aided Breaker Analysis) program has earned an enviable reputation in this field. Test results from earlier versions of CABA are upwards compatible to CABA Win.

CABA Win can be used with Programma breaker analyzers TM1800, TM1600/MA61 and EGIL. CABA Win organizes all the test tasks and ensures that measurements are conducted in the same way for each object being tested. CABA Win saves the results and generates the report. In the analysis section, you can work with a number of graphic windows, compare different measurements by overlaying one graph on another in the same display, and use cursors and powerful zoom functions for detailed analysis. CABA Win simplifies testing and ensures the quality of the test procedure.

- 1 Test ID with information about the actual circuit breaker and measurement
- 2 Display additional tests
- 3 Zoom
- 4 Motion traces
- 5 Coil current trace
- 6 Time measurements
- 7 Design/change analysis window, test curves, colors, scales and positioning
- 8 Compare with other tests
- 9 Cursors for detailed analysis
- 10 Cursor values
- 11 Calculated parameters for the actual operation



# Operation

## Test plans

CABA Win can be used for all breaker testing applications, ranging from simple time measurement to dynamic resistance and vibration measurements. A circuit breaker is defined before it is tested the first time. All of the entered data is kept together. This enables CABA Win to step the user through the test procedure in exactly the same way each time the breaker is tested. This results in efficiency gains throughout the test process, since the tests are conducted in exactly the same way regardless of who did the original testing. Accurate comparisons can be confidently made from one test to the next. All of the test and circuit breaker data is saved together with the breaker's unique test plan. It is also possible to enter the results of manually conducted tests, and to enter separate comments for the breaker regarding the test in question. After being organized on the basis of individual circuit breakers and individual tests, the data can be stored in a data-base. Each breaker is given a unique identity by means of four individually user-defined fields. A breaker specific test plan is automatically created, based on the specified test and breaker data. The test plan controls the individual measurements, the test points that are to be used, the transducers connected to the different measurement channels, and the parameters that are to be calculated. The test plan also specifies the data that is to be presented graphically and how the results are to be reported.

## Test data and breaker data

The test data and all the items of information about the circuit breaker are stored individually. The data can be copied and/or exported to other data media and formats e.g. Microsoft® Excel®.

## Transducers and conversion tables

Linear and angular travel, voltage, current, pressure and vibration transducers can be defined and calibrated with CABA Win. The calibration accuracy for a transducer is determined by the user. The calibration program automatically indicates whether or not the desired accuracy has been achieved, along with the actual calibration data. A conversion table needed to recalculate data from angular movement to linear movement can be linked to a given transducer. This makes it possible to measure contact travel of a circuit breaker in situations where a transducer cannot be connected directly to the moving contact.

## Analyzing the test data

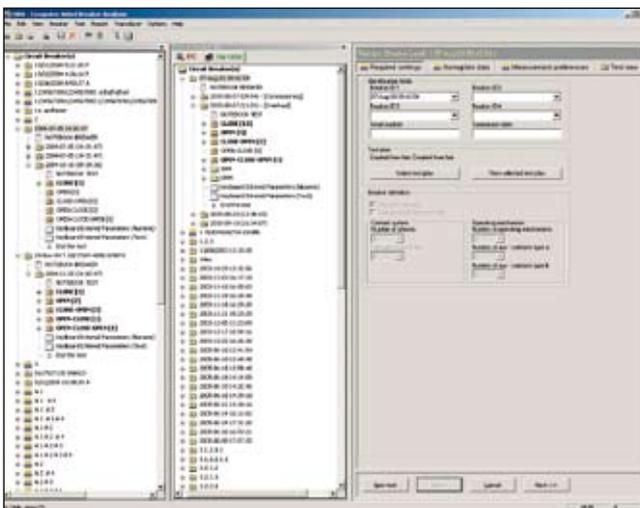
The test data is presented graphically and in table form. Multiple graphs and testresults can be displayed simultaneously. Zoom functions and cursors make it easy to conduct detailed analysis of test data. Comparisons between different tests can be viewed conveniently by overlaying them in a single window. Colors, grids, scales and the positioning of the test data are all controlled by the user.

## Calculation parameters

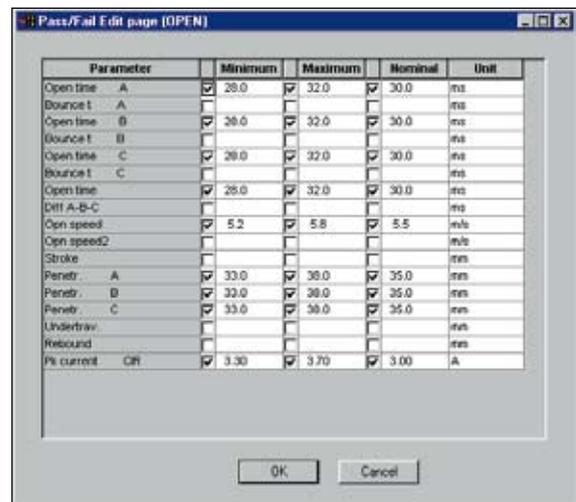
Readings and calculated values are presented in table form. The test plan determines which parameters are to be calculated and presented. The user can delete and/or add calculable parameters, depending on the circuit breaker design, the way it is hooked up and the operations being performed. More than 200 different calculation parameters are defined in CABA Win.

## Limits

For each parameter and operation, the user can define pass and fail limits for each circuit breaker. If the user activates the function, CABA Win automatically compares each measured value to the actual limits and flags the values which are outside the limits.



Test and circuit breaker data and are stored individually



The user can define pass and fail limits for each circuit breaker operation.

## Database

Database functionality for easy administration and back up of measurements is available in CABA Win.

For advanced data and asset management CABA Win can be used together with the IPS-CBEX software. The two softwares are seamlessly integrated; sharing file formats and makes it even possible to initiate a circuit breaker test from within CBEX.

## Reporting

CABA Win contains a complete report generator which enables the user to design unique report forms as desired. A number of pre-defined standard reports can be used as supplied, or they can be edited. The report form is saved together with the breaker data, and can be used in future tests.

Graphs and screen displays can be copied to the clipboard and to a folder for additional processing in other Windows® applications software.

## Test plans

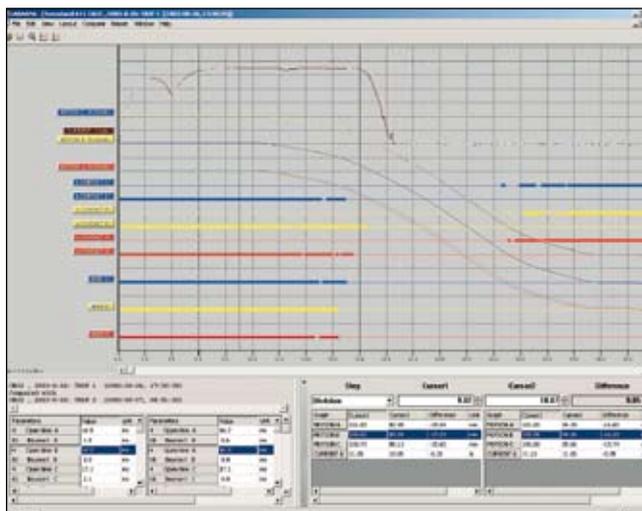
A number of standard test plans are delivered with CABA Win. Contact your Programma supplier for customer-specific test plans and conversion tables.

## Data communication

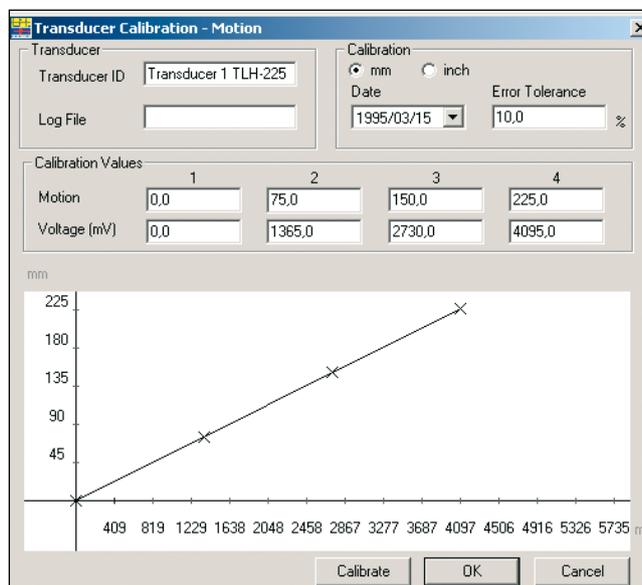
TM1800 Ethernet

TM1600/MA61 RS232/fibre-optic modem

EGIL Standard RS232



Multiple graphs and test results can be displayed simultaneously.



Linear and angular travel, voltage, current, pressure and vibration transducers can be defined and calibrated with CABA Win.

## Ordering information

### CABA Win

	Art.No.
incl. Ethernet cross-over cable	CG-8000X
incl. fiberoptics and USB interface	BL-8203X
incl. RS232 cable	BL-8204X

See also section "Circuit Breaker Testing Accessories"

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