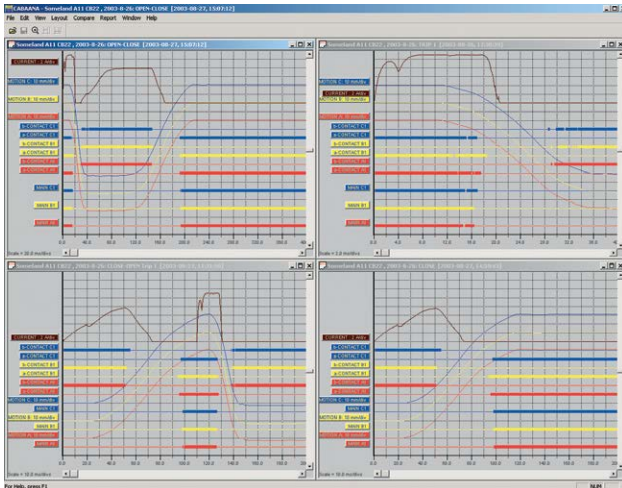# CABA Win
## Circuit Breaker Analysis Software



- **Test Plan Editor for creation of your own test plans**

- **Detailed circuit breaker analysis by accurate comparison with historical test results**

- **Graphical display of a variety of measurements and timing test results**

- **Convenient report generation with MS Word, Excel or List&Label**

- **Compatibility with TM1800, TM1700-series, TM1600/MA61 and EGIL units**

## DESCRIPTION

Effective circuit breaker maintenance requires well-organized, accurate testing. The ability to accurately compare circuit breaker tests with previous test results is essential. Therefore, it is required 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 for further investigation.

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 CABA Win™ (Computer-aided Breaker Analysis) program has earned a benchmark reputation in circuit breaker analysis. Test results from earlier versions of CABA are upwards compatible to CABA Win.

CABA Win can be used with Megger breaker analyzers TM1800, TM1700-series, 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.

## APPLICATION

### 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 are kept together. You will be guided through the test procedure in exactly the same way each time the breaker is tested, regardless of who did the original testing. Precise comparisons can be confidently made from one test to the next. All of the test and circuit breaker data are saved in a data base together with the breaker's unique test plan. You can also enter the results of manually conducted tests, and enter separate comments for the breaker regarding the test in question. A breaker specific test plan is automatically created, based on the specified test and breaker data. The test plan also specifies the data that is to be presented graphically and how the results are to be reported.

### TPE - Test Plan Editor

With this tool you easily create test plans for your circuit breakers. The test plans will work together with the Circuit Breaker Analyzers TM1800, TM1700 and TM1600.



| Station | Line | Inv. No. | Ser.No. |
|---|---|---|---|
| Elton | A37 | B94G34 | 13598382 |
| Elton | B15 | A24H3 | 135792498 |
| Elton | B18 | A23H1 | 987345987 |
| Powertown | 22C | C35X5 | 89278734 |
| Powertown | 22F | W25Y5 | 8798748345 |
| Powertown | 34E | C44X1 | 9093458943 |

## Test data and breaker data

The test data and all the items of information about the circuit breaker are stored individually as shown in Figure 1. CABA Win uses Microsoft® Access® database. 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. See Figure 2. 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. CABA Win gives the user the flexibility of importing or exporting a transducer to/from the transducer list. A conversion table needed to recalculate data from angular movement to linear movement can be linked to a given circuit breaker. 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 tabular format. Multiple graphs and test results can be displayed simultaneously, see Figure 3. 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.

## Limits

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

## Database

Database functionality for easy administration and backup of measurements is available in CABA Win. The Microsoft Access-based database lists all the circuit breakers with their specification and pertaining tests.

## Calculation parameters

Readings and calculated values are presented in tabular format. The test plan determines which parameters are to be calculated and presented. You can delete and/or add calculated parameters, depending on the circuit breaker design, the way it is hooked up and the operations being performed. More than 300 different calculation parameters are defined in CABA Win.

## Test plans

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

## 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.

## Data communication

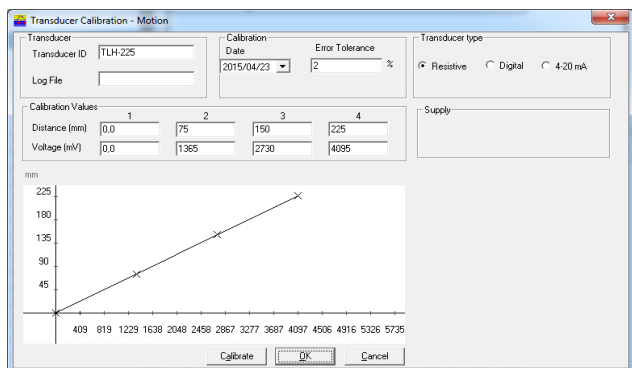| TM1800 | Ethernet |
|---|---|
| TM1700-series | Ethernet |
| TM1600/MA61 | USB/Fiber-optic modem |
| EGIL | USB |



Fig. 2. Linear and angular travel, voltage, current, pressure and vibration tansducers can be defined and calibrated with CABA Win
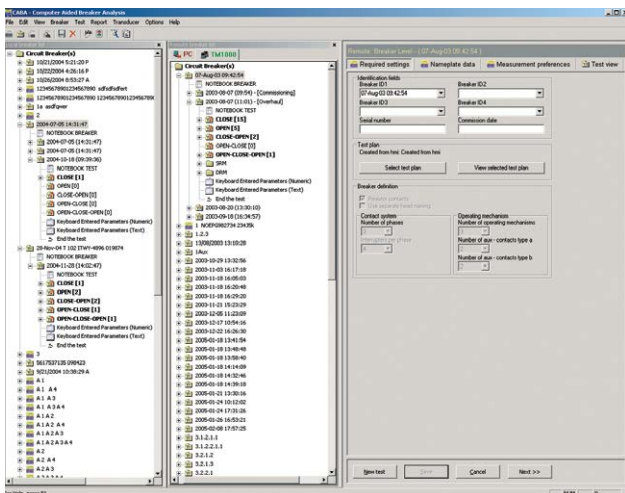


Fig. 1. Test and circuit breaker data are stored individually
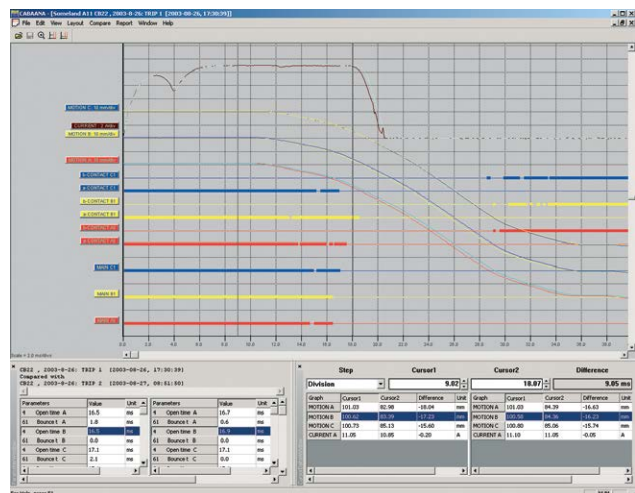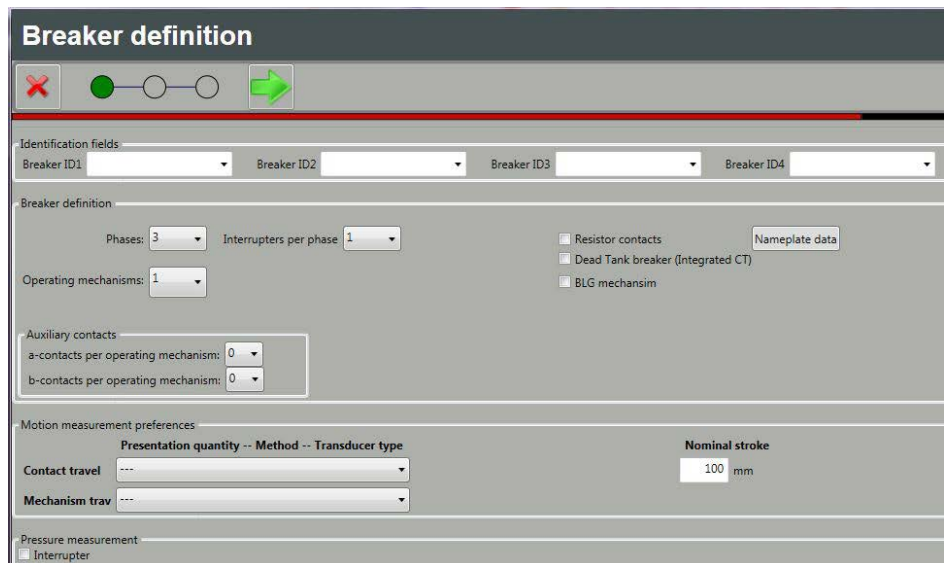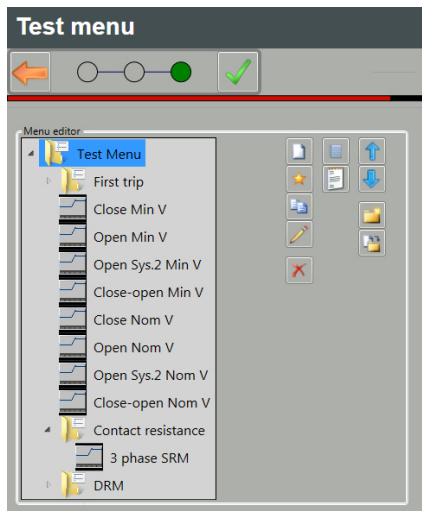


Fig. 3. Multiple graphs and test results can be displayed simultaneously
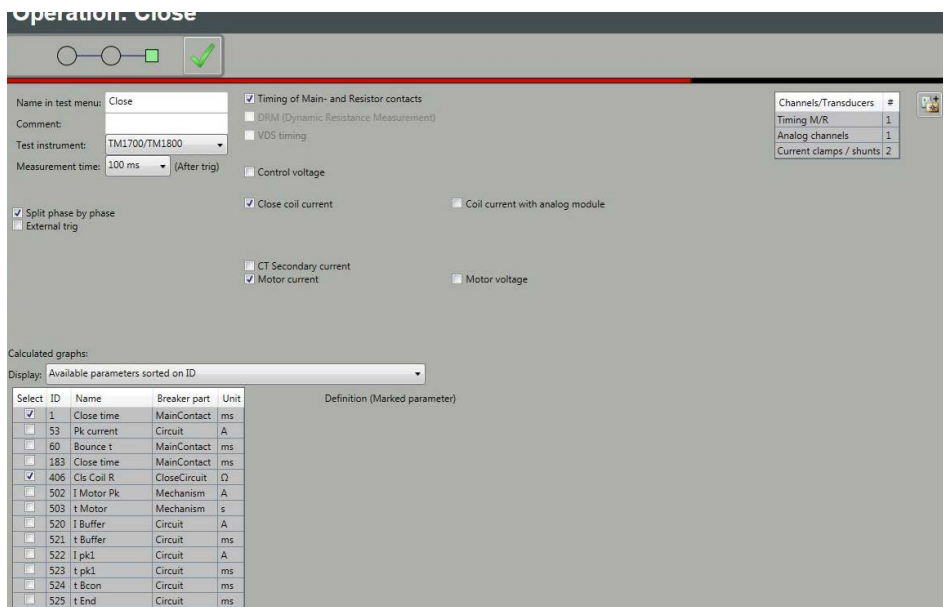
## TPE – Test Plan Editor

The TPE is a wizard for easy creating and editing all data for a circuit breaker test. The TPE shares the breaker list with CABA Win.
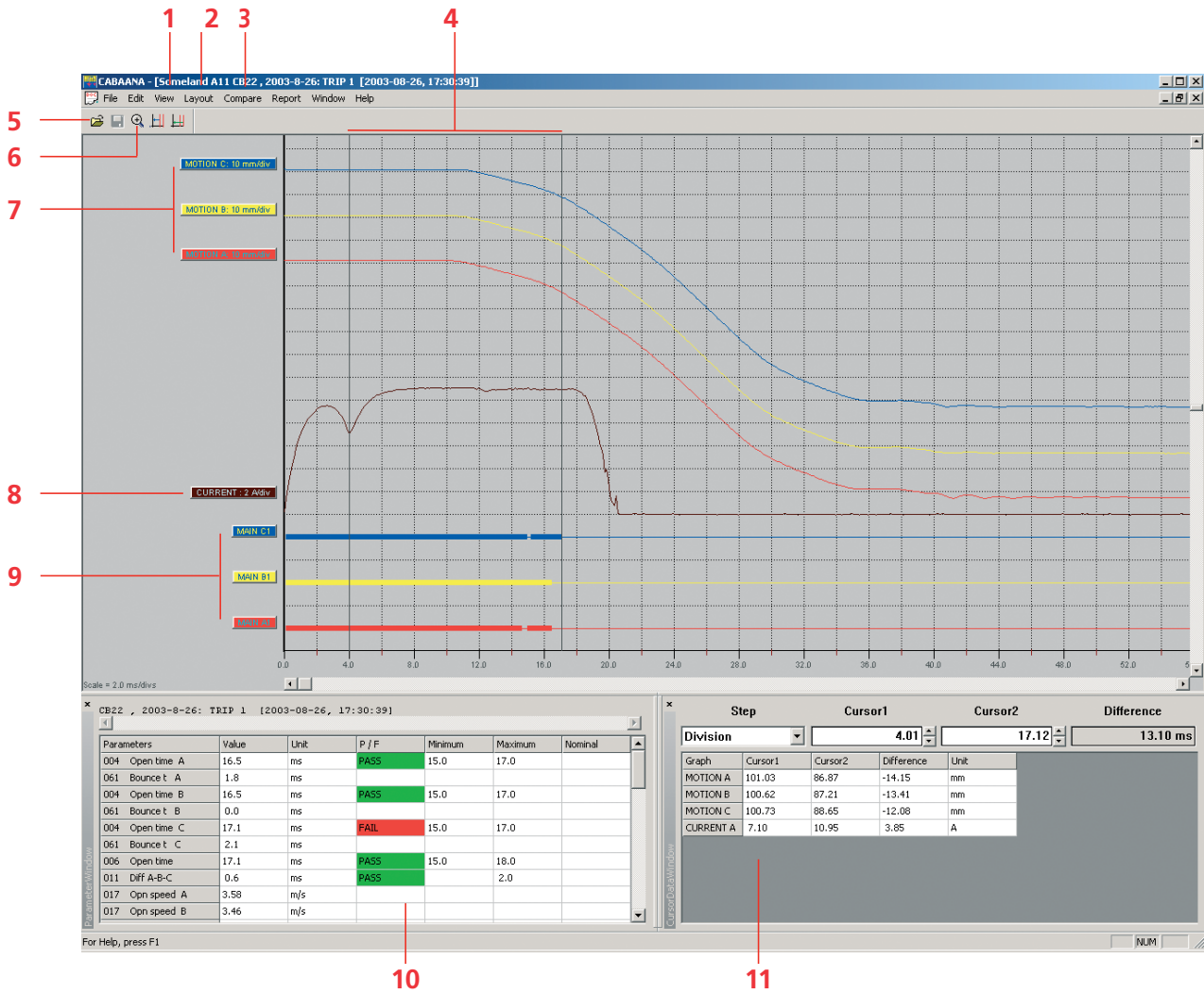


Define the breaker and motion preferences.



Design your own test menu.



Settings for breaker operations and measurement calculations.

**FEATURES**

1. Test ID with information about the selected circuit breaker under analysis and measurement

2. Design/change analysis window, test curves, colors, scales and positioning

3. Compare with other tests

4. Cursors for detailed analysis

5. Display additional tests

6. Zoom

7. Motion traces

8. Coil current trace

9. Time measurements

10. Calculated parameters for the actual operation and pass/fail evaluation

11. Cursor values

| ORDERING INFORMATION | |
|---|---|
| **Item** | **Art. No.** |
| **CABA Win** | |
| For TM1800 and TM1700-series Incl. Ethernet cross-over cable | CG-8000X |
| For TM1600 Incl. fiberoptics and USB interface | BL-8203X |
| For EGIL Incl. USB cable | BL-8206X |
| **CABA Win upgrade** | |
| Upgrade from R04 and earlier to latest version. including Test Plan Editor (TPE) | CG-8040X |

## Megger.