

CBA 1000



Circuit Breaker Analyzer and MicroOhmmeter

- Circuit Breaker timing test set.
- 16 timing channels.
- Up to 4 trip/close coils control.
- Motion and speed analyzer.
- Suitable for EHV, HV and MV circuit breakers.
- Stand alone functionality - no PC connection is required.
- Large graphical high brightness sunlight display.
- Analysis and result evaluation directly on the display.
- Internal memory for up to 250 test results and 64 pre-defined test plans.
- Cross trigger for the synchronization of up to 4 CBA 1000.
- TDMS software for test results analysis and reporting.

A P P L I C A T I O N

CBA 1000 is a unique tool for the complete test of all circuit breakers.

CBA 1000 is a stand alone unit with a large graphical display. The unit is supplied with TDMS analysis software. TDMS performs test results analysis and creates test reports; it allows also to pre-define test plans. TDMS is also a powerful Test and Data Management software, compatible with all ISA Test Sets.

All CBA 1000 circuits have been designed to ensure safe and reliable operations in the noisy environment of HV / MV substations and power plants.

CHARACTERISTICS

Coil operation

- Number of circuits: 2 (1 Open and 1 Close coils); optional 4 (3 Open and 1 Close coils).
- Type of driver: electronic; it ensures superior timing control.
- Driver characteristic: 300 V DC max; 25 A DC max.
- Operating time accuracy: 50 μ s.
- Measurement of the coil current: one per channel; the waveform is displayed on the dedicated channels.



- Coil current ranges: 2.5; 10; 25 A full scale, user selectable.
- In case of 4 coils option, it is possible to select the single or multiple phase opening.
- Coil current measurement accuracy: 0.5% of the reading $\pm$ 0.1% of the selected range.
- Outputs are isolated between them.

Main contact inputs

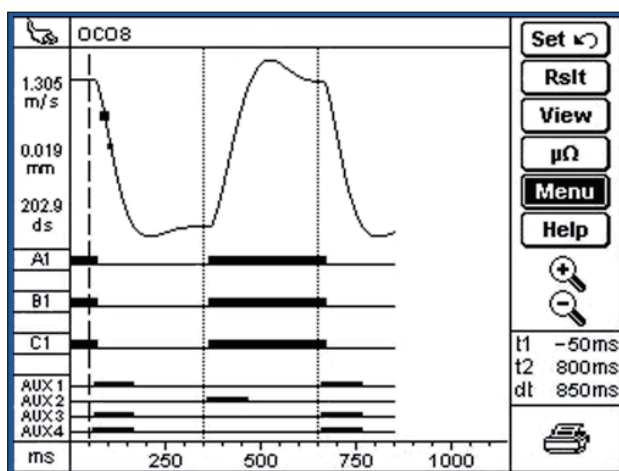
- Number of contact inputs: 6 Main contacts (2 break per phase) plus 6 Resistor contacts (2 break per phase).
- Resistor contact ranges: from 25 Ohm to 10 kOhm.
- Contact test voltage: 24 V. Main contact test current: 50 mA.
- Each input group is isolated with respect to the others.

Event inputs

- Number of auxiliary event inputs: 4, divided in 2 groups of 2 each.
- Capability of testing dry (24 V) or wet contacts (20 to 300 V). Test current: 2 mA.

Sample rates:

20 kHz - 10 kHz - 5 kHz - 2 kHz - 1 kHz - 500 Hz - 200 Hz - 100 Hz, user selectable.



CBA 1000 test result display

Timing accuracy:

100 μ s $\pm$ 0.025% of the time range.

Maximum record length:

200 s.

Analog inputs

- Number of analog inputs: 4 (6 Optional).
 - 2 (4 optional) dedicated to Open and Close coil currents.
 - 1 dedicated to Dynamic and Static Resistance Measurement.
- Input voltage range: $\pm$ 5 V.
- 1 dedicated to travel, velocity, station battery voltage, etc.
- Input voltage range: $\pm$ 5 V.; $\pm$ 50 V; $\pm$ 500 V, user selectable.
- Analog inputs are isolated with respect to all other circuits.
 - Analog input measurement resolution: 16 bit.

Programmable sequences

The user can select the following Open and Close sequences: Open; Close; Open-Close; Close-Open; Open-Close-Open.

Microohmmeter --> static

Nominal test current

☒ 200A
 ☐ 100A
 ☐ 20A

Resistance range

☒ 200 μ Ω
☐ 1 m Ω

Test mode

☒ Single test
 ☐ Test on breaker phase
 ☐ Y2 hybrid breaker test

Test number

1

I dc

A

V dc

mV

Label

Res.

m Ω

PRESS START FOR TESTING

SAVE

Microohmmeter display

Test set control

- The control is local, via graphical display, keypad and pushbutton for menu selection: no PC control is necessary.

Display

Large graphical high brightness sunlight display (viewing area 115 x 88 mm).

Test results are displayed graphically and in table format.

Zoom functions and cursors for test data analysis are directly available on the CBA 1000 display.

Interfaces to PC:

2 available interfaces: USB and RS232.

Memory size:

64 Mbytes (approx. 250 results).

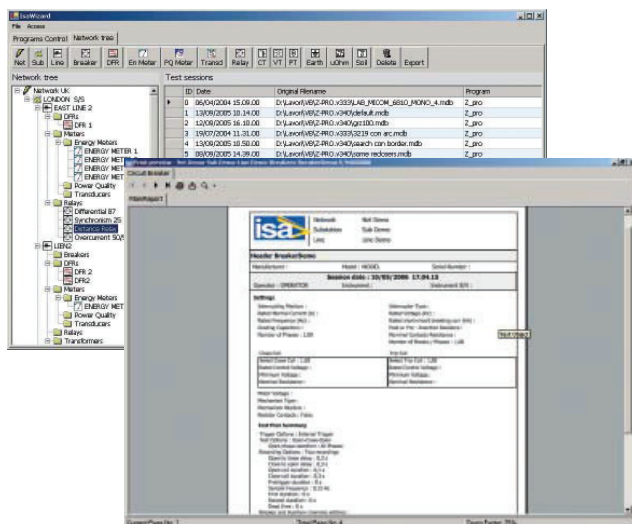
TDMS software

TDMS is a powerful software package, providing data management for commissioning and maintenance testing activities.

Circuit breaker data and test results are saved in the TDMS database for historical results analysis.

TDMS software has the following main features.

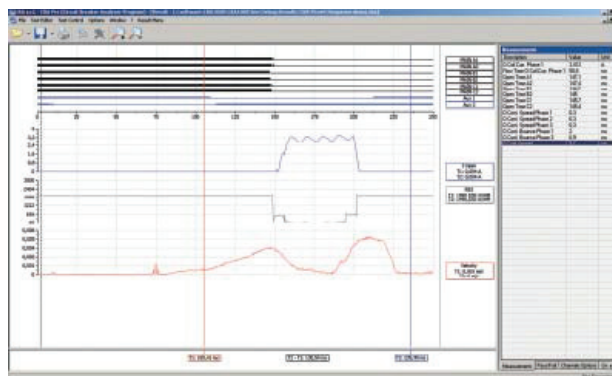
- Full control of CBA 1000 functions from PC.



Test & Data Management Software

- Download of test plans.
- Download of test results.
- Test plans and test results can be viewed, edited in the missing descriptions, saved, printed, exported.
- Possibility of viewing, overlaying and gluing more results, for an easy test result comparison.
- Possibility to pre-set test plans and to upload them into the test set.
- Two cursors select measurement points and intervals.
- Zoom in and out feature.
- Enhanced measurement features for movement - speed - acceleration control.

ISA software updating policy allows all users to update their software from the ISA WEB site (www.isatest.com), at no additional cost.



Test result analysis

Other characteristics

CBA 1000 can operate both from mains (AC or DC) and from an internal rechargeable battery:

- Mains supply:
 - From 85 to 265 V AC; 50-60 Hz.
 - From 100 to 350 V DC.
- Internal battery. Battery type: NiMH.
- Case: aluminium, with hinged removable cover and handle.
- Dimensions: 400(W) * 300(D) * 240(H) mm. Weight: 10 kg basic unit; 11 kg with Microhmmeter module.

Standard accessories:

The following accessories are supplied with the unit:

- Mains cable;
- User's manual for hardware and software;
- Serial cable;

- . Grounding cable;
- . USB cable;
- . Spare fuses;
- . Software TDMS.

Options available:

The following options are available upon request:

- . **Test cable kit.** The connection cables set includes:
 - . Two (four optional) cables with two conductors each, for the connection to the Circuit Breaker coils. Cable length: 10 m;
 - . Three cables with three conductor each for the connection to the main contacts. Cable length: 16 m;
 - . Two cables with three conductors each for the connection to the Event inputs. Cable length: 6 m.
- . **Transport Plastic bag.**
- . **Additional 2 Open Driving Coils Module.** This module increases to 3 the number of Open Coils.
- . **CBA plastic soft bag.**

B) Low Voltage Directive:

Directive 2006/95/EC (CE conform).

. Applicable standards, for a class I instrument, pollution degree 2, Installation category II: CEI EN 61010-1.

In particular:

- . Inputs/outputs protection: IP 2X - CEI EN 60529.
- . Operating temperature: -10°C to 55 °C;
storage: -20°C to 70 °C.
- . Relative humidity: 10 - 80% without condensing.

APPLICABLE STANDARD

The test set conforms to the EEC directives regarding Electromagnetic Compatibility and Low Voltage instruments.

A) Electromagnetic Compatibility:

Directive 2004/108/EC (CE conform). Applicable standard: EN 61326:2006.



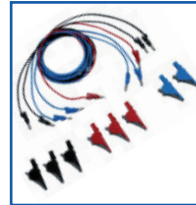
CBA 1000 - Transport Case



CBA 1000 - Cable Transport Case



CBA 1000 - Soft Bag



CBA 1000 - Test cable kit



Transducer case



Transducers Mounting Kit



Current Clamp



LWG Linear Transducer



TLH Linear Transducer



Rotary Transducer