



# Circuit Breaker Test System

## CBTS



### Key Features

- Stationary circuit breaker test system
- The 19" housing installation in a system cabinet
- Complete routine and type testing of the circuit breaker
- Fully automatic measurement and breaker operation
- Detailed acquisition and analysis of the test results
- Database of circuit breakers test plans

### Description

Circuit breaker test system is PC-controlled digital instrument designed for routine, endurance and type testing. Consisting of circuit breaker analyzer and variable power supply unit (based on CAT and SAT series models), it operates and collects all relevant circuit breaker data.

During manufacturing process, every circuit breaker is exposed to different type of tests in order to ensure their functionality as well as to comply with established standards and customer demands. The circuit breaker test system needs to fulfil the following:

- Customised to manufacture production process
- Creating automated test sequences
- Reliable hardware and software
- Designed according to existing standards
- Easy adaptation for new standards
- Creating reports
- Acquisition and analysis of the test results



**CBTS Hardware** consists of separate acquisition units - circuit breaker analyzer and variable power supply unit - mounted into a standard 19" control cubical. Technical capabilities of mounted units depend on the requirements and type of breakers are going to be tested.

The system is expandable in terms of timing channels, coil and motor drive outputs, number of micro-ohmmeters and is subject to easy functionality adaptation.

Industrial panel PC featuring rigorous industrial protections, wide range operating temperature, is appropriate for harsh environments and critical applications.

**CBTS Software application** provides control of the CBTS as well as acquisition and analysis of the test results from a PC. It supports creating different test sequences, measurements process and step by step guidance through the entire test procedure, providing faster, easier and safer testing. Results are automatically stored and organized in the database on CBTS and are available for analysis and reporting.

Each test can be automatically assessed according to manufacturer specifications or based on your individual limit values. CBTS software automatically generates reports including all asset-related information and performed tests. This gives you a comprehensive overview of the test object, test results and assessment. Also, you can easily adapt test reports.

## Technical Data

### Main Contact Inputs

- Number of main contact channels: 3
- Number of pre-insertion resistor channels: 3
- Closed main contact:  $\leq 10 \Omega$
- Pre-insertion resistor (PIR) measuring range:  $10 \Omega \dots 5 \text{ k}\Omega$
- Open main contact (with PIR present):  $\geq 5 \text{ k}\Omega$
- Open circuit voltage:  $20 \text{ V DC} \pm 10 \%$

### Static Resistance Measurement

- Number of voltage outputs: 3
- Number of current outputs: 3
- Test current range:  $5 - 100 \text{ A DC}$
- Resistance range:  $0,1 \mu\Omega - 999,9 \text{ m}\Omega$
- Accuracy:  $\pm (0,2 \% \text{ rdg} + 0,2 \% \text{ FS})$  or better
- Resolution:  $0,1 \mu\Omega$  (the best)
- Power consumption (max):  $1500 \text{ VA}$

### Time Recording Measurement

- Sampling rate (time resolution):  $40 \text{ kHz}$  ( $0,025 \text{ ms}$ ) or better
- Recording time at best sampling rate:  $1 \text{ s}$  or more at  $40 \text{ kHz}$
- Accuracy:  $\pm (0,05 \% \text{ rdg} + \text{resolution})$  or better

### Auxiliary Contact Inputs

- Number of channels: 6 channels (galvanically isolated)
- Contact condition: wet and dry
- Dry contact channel: Open circuit voltage  $24 \text{ V DC} \pm 10 \%$
- Wet contact channel: Working voltage up to  $300 \text{ V DC}$ ,  $250 \text{ V AC}$
- Built-in overcurrent and overvoltage protection

### Motion Transducer Inputs

- Number of channels: 3 channels
- Supported transducer type: digital rotary encoder and analog linear potentiometer

### Coil and Motor Power Source

- Number of motor outputs: 1
- Number of coil outputs: 2 (Close and Open)
- Coils DC output voltage:  $10 \text{ V}$  to  $300 \text{ V DC}$
- Coils AC output voltage:  $10 \text{ V}$  to  $250 \text{ V AC}$ ;  $50 / 60 \text{ Hz}$
- Motor DC / AC output voltage:  $10 \text{ V}$  to  $250 \text{ V DC / AC}$ ;  $50 / 60 \text{ Hz}$
- Voltage step:  $1 \text{ V}$
- Motor output max current (inrush):  $40 \text{ A}$
- Power consumption (max):  $4000 \text{ VA}$

### Coil Control Drivers

- Number of close coil channels: 3 channels
- Number of open coil channels: 3 channels
- Driver voltage: up to  $300 \text{ V DC / ACmax}$
- Driver current: up to  $35 \text{ A DC / ACmax}$
- Built-in overcurrent and overvoltage protection
- Range :  $\pm 35 \text{ A DC}$  to  $5 \text{ kHz AC}$
- Guaranteed accuracy:  $\pm (1 \% \text{ rdg} + 0,2 \% \text{ FS})$  or better

### Coil Resistance Measurement

- Number of close coil channels: 3 channels
- Number of open coil channels: 3 channels
- Measuring range / resolution:  $1 \Omega - 99,9 \Omega / 0,1 \Omega$  and  $100 \Omega - 999 \Omega / 1 \Omega$
- Guaranteed accuracy:  $\pm (1 \% \text{ rdg} + 0,5 \% \text{ FS})$

\* All specifications herein are valid at ambient temperature of  $+25^\circ\text{C}$  and standard accessories. Specifications are subject to change without notice.