

# SCOPE

## CBSCOPE LOCO VCB TEST SYSTEM



Unique solution for testing all types of Loco VCBs  
... CB SCOPE

## The Product

### CBscope Loco VCB Test System

SCOPE introduces CB SCOPE – Loco Vacuum Circuit Breaker Test System; the ultimate solution for testing Loco Circuit Breakers of all types. CB SCOPE is the most complete analyzer for checking the dynamic performance of LOCO VCB's.

The portable analyser has intelligent measuring modules controlled by an external laptop through an Ethernet link. CB SCOPE actually gives you the power to design your own condition based maintenance strategy and obtain optimum breaker performance with minimum maintenance shutdowns.

CB SCOPE Measures timings, bounce, and simultaneity of contacts. Analyses contact travel characteristics for speed, contact gap, over-travel and rebound. Records trip and close coil current characteristics.



- ① Power Supply
- ② ON / OFF Switch
- ③ Ethernet Port
- ④ Master Earthing
- ⑤ Breaker Control
- ⑥ Contact Travel & Coil Current
- ⑦ Contact Timing

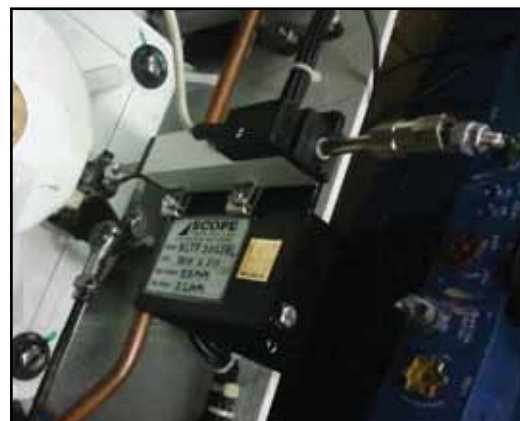
## Measurement

The instrument operates Loco Vacuum Circuit Breaker through two solid state contacts rated at 35A, 300V AC/DC (Close, Trip). Travel and coil current characteristics are measured and analysed by an intelligent Travel and coil current section in the instrument.

For evaluating travel characteristics of operating mechanisms, SCOPE offers rotary and linear resistive travel transducers of standard make as per the requirement described in order with universal / specially designed fixtures to assemble it on variety of Loco CBs available. Also SCOPE has capability to design special fixtures for any new CB on request!

These transducers are directly coupled to the breaker moving mechanism and the dynamic plot of travel characteristics is plotted in the software. This plot directly correlates to the actual travel of the circuit breaker contacts.

For measurement of contact timings, specially designed module having in built voltage source is used which is directly connected to the terminals of the circuit breaker and the timings of the contacts are measured by operating the circuit breaker through the instrument breaker control module and the results are plotted in the windows based software.

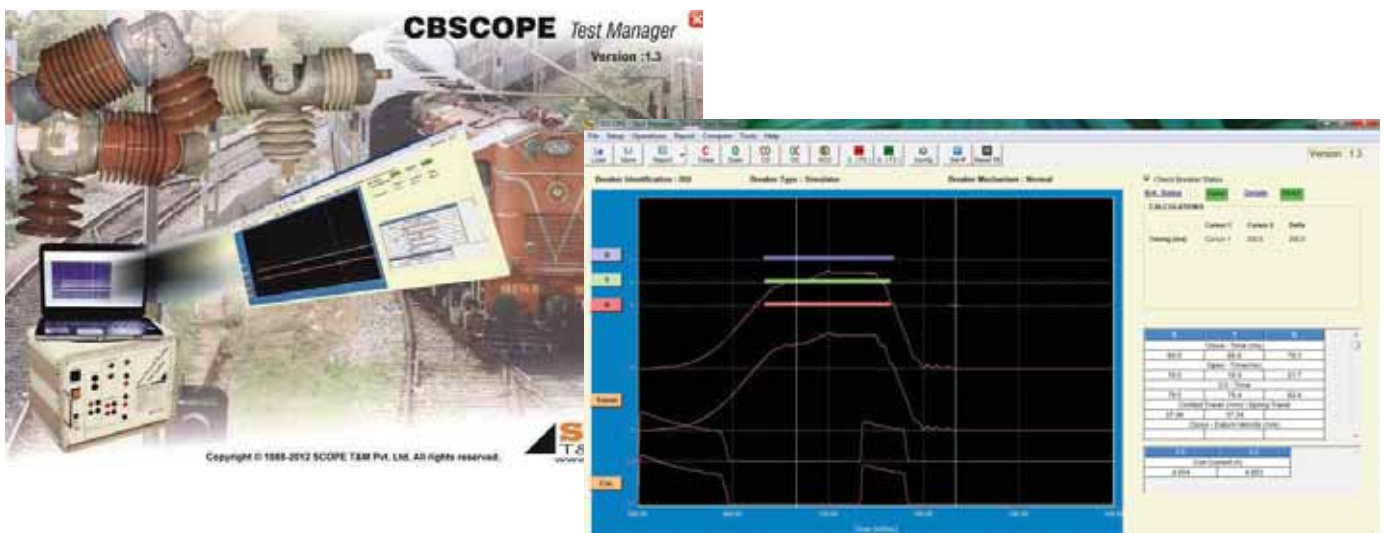


## Features

- Tests all types of Loco VCBs for all critical performance parameters of Loco VCB.
- Measures timings, contact, bounce, simultaneity of contacts.
- Analyses contact travel characteristics for speed, contact gap, over-travel and rebound.
- Records trip / close & holding coil current characteristics.
- Displays settings, graphical natures and tabulated test results in software generated test report.
- Prints test report in graphical format with test header and calculation footer, on external printer optional.
- Incorporates powerful and practical Windows™ based Test Manager Software to control & operate instrument; also to view, analyse and handle graphical test data on a laptop at high resolution.
- Selects pre-programmed setup parameters and pass/fail limits through software.
- Connects to VCB with wear resistant test leads of sufficient length, having quick-fit connectors, suitable for Loco VCBs.
- Transport instrument over long distance in rugged industrial aluminium case.

## CB SCOPE Test Manager: PC Control and Downloading Analysis Software

- Controls the operation of CB SCOPE through laptop
- Pre-programmable Test Plans facilitate creation of Test Setup library which is very easy to use & time saving during testing.
- User defined, structured storage of test data for easy future retrieval. Dynamic calculations on graphical information with cursor movement facilitating easy on-screen analysis.
- Comparison of test results with Manufacturer's test certificate using programmable limit checks.
- Assessment of present condition & prediction of future performance by multiple signature comparison and Trend Analysis.
- Comprehensive report generation including graphs and numerical results for all important parameters.
- Back up & restoration of test data
- Save graphs as bitmap images for incorporating in user reports
- Special Designed testing command for all Loco CB testing
- Facility to export test report to pdf & excel format.



## Benefits

Analysis of test results provides inputs to assess and correct:

- settings for contact timings
- closing and opening speeds, over-travel, rebound and contact wipe
- trip/close release mechanism settings

## Specification

Channels	Configuration	Range	Resolution	Accuracy
Contact Timing	3: 2 for Double Bottle Loco VCB, 1 Spare	Measurement duration 1 mS to 40 Sec at 1 kC, 0.05 mS to 2 Sec at 20 kC	1 mS at 1 kC 0.05 mS at 20 kC	Value $\pm$ 0.05% $\pm$ 1 resolution
Coil Current	2: Closing / Tripping or Holding coil current	1, 2, 5, 10, 25 A DC	0.1% of range	Value $\pm$ 0.5% $\pm$ 1 resolution
Voltage (Travel)	2:Travel characteristics	0-5 V DC	1.2 mV	Value $\pm$ 0.5% $\pm$ 1 resolution

- Breaker Control: Two solid state contacts rated at 35A, 300V AC/DC for breaker operation (Close & Trip).
- Trigger Options: Open Close, C-O, O-C, O-C-O, and delay between operations configurable.
- Sampling Speed: 20kC, 10kC, 5kC, 2kC, 1kC selectable.
- Plot Length : 2Sec at 20kC, 4Sec at 10kC, 8Sec at 5kC, 20Sec at 2kC & 40Sec at 1kC
- Travel Channels: For linear / rotary resistive transducers. 0-5V DC excitation source in-built.
- Test Report : Clear graphical result with test header and computation footer
- Communication Port : Ethernet port for communication between laptop and instrument
- Power supply: 230V AC + 15%, 50Hz + 10%, 70VA Approx
- Dimensions: CB SCOPE Rack: 365 x 290 x 260 mm.

## Standard Accessories

CB SCOPE Rack with Standard Configuration is supplied with following Standard Accessories

Description	Quantity
Contact Cables for R R', Y Y', B B' of 7m	3 Nos.
Current Cables for CH1, CH2 of 5m	2 Nos.
Travel Cables for T1, T2 of 7m	2 Nos.
Breaker Control Cable CLS, TRIP of 5m	2Nos.
AC Mains Cord of 3m, Master Earthing Cable of 7m & Ethernet Cable of 1.5m	1 No. Each
Spare Fuses	10 Nos.
Aluminium Carrying Case for Instrument	1 No.
Carrying Case for Test Lead Set	1 No.
(CB SCOPE Test Manager) Software on CD	1 No.
Instruction Manual & Test & Calibration Report	1 Set Each

## Optional Accessories

Description	Quantity
Laptop (Standard)	1 No.
Transducer	As per requirement
Printer	1No.

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