



SCR ELEKTRONIKS

SALES PRESENTATION FOR MCB TESTING EQUIPMENTS





LIST OF TEST EQUIPMENT

- **Lab (Type) Test:**

1. MCB TRIPPING CHARACTERISTIC TEST BENCH
2. MCB 28 DAYS & TEMPERATURE RISE TEST BENCH
3. MCB ENDURANCE TEST BENCH
4. MCB INSTANTANEOUS TRIP AT RATED VOLTAGE TEST BENCH
5. MCB TEMPERATURE RISE AND POWER LOSS TEST BENCH
6. MCB THERMAL MAGNETIC CHARACTERISTIC TEST BENCH

- **Routine Test:**

1. MCB THERMAL TRIP CALIBRATION TEST BENCH
2. MCB MAGNETIC TRIP TEST BENCH
3. MCB MULTIPOLE THERMAL VERIFICATION TEST BENCH
4. MCB 20 STATION HIGH VOLTAGE TESTER WITH JIG

- **Demonstration Briefcase:**

1. MCB MAGNETIC BRIEFCASE
2. MCB THERMAL BRIEFCASE



1. TWELVE STATION MCB TRIPPING CHARACTERISTICS TEST BENCH

- **What It Is ?**

- 12 station MCB Tripping Characteristics Test Bench is optimally designed to verify the Thermal Tripping Characteristic of MCBs as per clause 9.10.1 of IEC 60898 (Also mentioned in Indian Standards IS 8828).

- **Model Available and Customizing:**

- The product can be customized as per the MCB range desired by the user, in addition, the user may opt for number of stations. Also the bench comes with the option of an integrated temperature chamber.
- Plus, PC based option is provided (as an alternative variant) for automatic operation. Some MCB manufacturers opt to club the temperature rise test with this tester so as to measure the temperature of the internal parts of the MCB when subjected to testing inside a temperature chamber



• Basic Specifications :

- **Input Supply:** 230 V +/- 10%, 35 Amps AC, 50 / 60 Hz (O/P Frequency Same As I/P Frequency)
- Available **Test Stations** On The Panel: 6 Or 12 Stations
- **Output Current:** 0.5 A To 145 A
- **Ratings Of MCB's Covered:** 0.5a, 1a, 1.6A, 2A, 3A, 4A, 6A, 8A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 45A, 50A, 63A, 80A, 100A - Also 125 A rating available on customer wish (Max Rating Of MCB Can Be Customized Such As 32, 63, 100 A)
- **Mode Of Operation:** Manual Mode And Auto Mode
- **Heating Chamber** Of Size 1200 Mm, 1000 Mm, 300 Mm (Approximate: Different For 6 Stations) Provided With Bus Bar To Accommodate Lugs Of Different Sizes For Each Station With Precise Temperature Controller (Programmed From Front Panel) To Maintain Temperature +/- 2 ° C (Range: 30 ° C To 60 ° C).
- Twelve Samples Can Be Tested For No Trip /Trip Test Simultaneously (6 Samples On 6 Station Bench)



• Salient Features :

- Completely stand-alone unit after initial configuration of test parameters
- Change of test current (from 1.13 In to 1.45 In) after set time (usually 1 hour) is automatic
- Chart provided on the panel for using the right CT links and Voltage Taps for required test currents (1.13 In and 1.45 In)
- Individual test time measurement for each station
- Arrangement to connect lugs of various sizes inside the heating chamber
- Instantaneous Bypass arrangement on each station in the event of MCB trip to maintain uninterrupted current
- Graded inductors to maintain required OCV at the source output in order to prevent current error when some MCBs in the series circuit trip
- MCB Range Selection: Through neatly labelled shorting links
- User friendly digital interface to input test parameters
- The user may simultaneously test MCBs of different brands and compare the test results (Ideal Application for Test Labs and Certification Agencies)
- 2.55 test on reduced number of stations (usually 1) by user setting
- PC Based Option Available (additional variant) for control and data keeping on a PC (SCADA) with customized software.



● Key Benefits :

- Servo Controlled mechanism to set and maintain desired current.
- Master controller unit is based on Micro Controller (Also available with Siemens PLC). It makes it a reliable stand alone unit.
- More breakers are tested simultaneously – The product can be used on a daily basis to test samples in every production batch – say 10 MCBs per 1000 produced





2. MCB 28 DAYS & TEMPERATURE RISE TEST

- **What It Is ?**

- 3 station MCB 28 days & temp rise test bench is economically designed to verify the 28 days test (21 hrs ON, 3 hrs OFF).
- As per clause 9.9 of IEC 60898-1 and temp rise of the parts of a circuit breaker specified in table 6 of clause 8.4.1 measured under the conditions specified in clause 9.8.2 of IEC 60898-1.

- **Model Available :**

- The product can be customized as a PC based variant or a non PC based (micro-controller based, low cost). In addition, the product comes in 3,6 and 9 stations as desired by the user.
- A temperature chamber can be optionally integrated. Temperature rise test (Cl 8.4.1 with data logging for PC based variant) can be integrated.
- Another test, measurement of power loss, as per Cl 9.8.5, can be additionally integrated.



• **Basic Specifications :**

- **Total Current Range : 0 To 200 A**
- **0.5A To 125A At 30V Open Circuit Voltage CT Range 2A, 5A, 10A, 25A, 50A, 100A, 200A**
- **Operation As Per Incoming Line Frequency : 50 / 60 Hz**
- **Overall Accuracy Of The Panel Is Better Than Class 1.0**
- **Digital Temperature Indicator** With Input From Thermocouple
- **Digital Volt Meter** With 5 Ranges (200mv, 2V, 20V, 200V, 250V) To Measure Open Circuit Voltage & Mv Drop Across MCB
- **Digital Ammeter** With CT (Indication On Servo Controller)



• Salient Features :

- Stand alone unit after initial configuration of test parameters: The panel is capable to generate accurate test results for a continuous period of 28 days as required in the 28 days test.
- Cooling shall be provided by means of optimally placed Exhaust fans distributed all over to remove the hot air generated inside the panel cabinet
- Power Loss Measurement available as an extra feature.
- Single / Three Phase operation possible
- Servo controlled mechanism to control current (+/- 1%) against incoming fluctuations.
- Microcontroller based timer unit for quick and easy user interface and automated operation.
- Inductors with tapping for each range will be provided for maintaining the open circuit voltage to 30V. This eliminates energy wastage during test.
- User may opt for test bench with heating chamber for testing at 60°C



● Key Benefits :

- The 28 Days Test and Temperature Rise Measurement are carried out simultaneously by the micro controller based timer unit and the digital temperature data logger measures the temperature at the locations where thermal measurement probes are placed.
- Another feature, viz. Power loss measurement across a closed MCB can be made available as per customized need. Thus the user may pin point (in conjunction with the temperature rise test) the exact location where power loss occurs
- The microcontroller based timer unit has a unique feature in it such that in diagnostic mode the panel can be run in fast mode, where in the entire test cycle is programmed (by the user on the micro controller based timer) and carried out in accelerated mode (10 minutes) to check the functioning of the test bench at rated currents. (A process that otherwise would have taken 28 days).

- **Key Photos :**



MCB 28 Days & Temperature Rise Test



3. MCB ENDURANCE TEST BENCH

- **What It Is ?**

- The MCB Endurance Test Bench is designed for electrical & mechanical endurance as per clause 9.11 of IEC 60898-1.
- Separate source & load is designed for general test conditions specified in Cl 9.11.1.
- Microcontroller based timer unit or Siemens PLC can be configured to follow test summarized in Cl 9.11.2

- **Models Available :**

- The bench can be customised in to 0.5- 63, 6- 63, 0.5 – 32, 0.5 – 125 A current range.
- Further, the user may choose if he wants a micro-controller based control or a PC / PLC based control.
- The fixture is designed as per the MCB samples provided.



● Basic Specifications :

- Input 380 / 415 / 440 V, 50 / 60 Hz (User Specified), 3 phase, 100 A continuous
- Load Current: 0.5 A to 100 A
- Pneumatic Pressure required: 6 Bar
- Micro-Controller based Programmable Timer
- 3 phase digital ammeter
- 3 phase digital voltmeter
- 3 phase digital power factor meter
- Electro Magnetic Counter: To count the number of operations
- Ratings of MCB covered: 0.5, 1, 1.6, 2, 3, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 45, 50, 63A, 80A, 100A , 125A selectable with Shorting Links



● Salient Features :

- Completely stand alone unit after initial configuration of test parameters.
- Smartly designed pneumatic fixture to accommodate more type of MCBs.
- Safety / Diagnostic Feature: Contact Weld / Contact Open indication for opening or welding of current carrying contacts inside the panel.
- Micro controller based operation enables input settings as per IEC as well as user configurable for other settings.
- Graded inductors for accurate power factor output.
- Industrial grade wire wound resistors enable continuous operation without overheating of the load bank.
- MCB Range Selection: Through neatly labelled shorting links.
- User friendly digital interface to input test parameters.
- The user may simultaneously test MCBs of different brands and compare the test results (Ideal Application for Test Labs and Certification Agencies)



• Key Benefits :

- The test bench tests mechanical and electrical endurance characteristics of MCB for quality assessment purposes.
- Micro controller based operation enables pre-configurable settings which makes it completely stand alone unit.
- Modular design makes the tester maintenance friendly, especially for fixture also

- **Key Photos :**



MCB Endurance Test Bench



4. MCB INSTANTANEOUS TRIP AT RATED VOLTAGE TEST BENCH

- **What It Is ?**

- MCB Instantaneous Trip Test Bench is designed for Testing of MCB to carry out “Test of Instantaneous Tripping and of correct opening of the Contacts”
- As per IEC: 60898-1:2002 Clause 9.10.2 at rated voltage.
- This test is carried out with power factor between 0.95 and 1 with the sequence operation being O-t-CO-t-CO-t-CO with timings as specified in 9.12.11.1.

- **Model Available :**

- The product can be customized as per the MCB range (upto 63 A or 125 A) and as per the MCB curve.
- The PC based variant is not very popular, but the users can opt for the same if the voltage and current waveforms are desired to be plotted on a PC



• **Basic Specifications :**

- **Input:** 415V, 2 phase with neutral.
- **Supply Required :** a) Phase I Short Time 240V@700A
b) Phase II 240V@ 5A
- **Rating of MCBs:** 0.5A to 63A.
- **Curve:** B, C & D Short time.
- **Test Current:** 1.5A to 1500A.
- **Load:** Distributed Resistive Load Bank 0.01 Ω to 100 Ω .
- **Selection of Load:** By shorting link as per chart.
- **CT Ranges :** 2.5A, 5A, 10A, 25A, 50A, 100A, 250A, 500A, 750A, 1500A
(Selected through shorting link).
- **Time Measured:** 0.1msec to 200msec.



- **Salient Features :**

- Completely stand alone test bench after initial configuration of parameters
Hold function on transient recording meter ensures holding the transient current value.
- Sequence: By sequencing unit to get O-t-CO-t-CO-t-CO automatic.
- Necessary lamps for quick indication on the front panel.
- Microcontroller based timer to program test sequences.
- Easy Serviceability due to smart internal wiring pattern.
- Current Measurement: Transient Recording Meter to hold the current.
- Fixture: Electro-pneumatic Fixture with Protected compartment.
- Output terminals for displaying current on an oscilloscope



- **Key Benefits :**

- Completely stand alone test bench with Electro-pneumatic fixture with protected compartment.
- Micro controller based operation enables pre-configurable settings.
- Modular design makes the tester maintenance friendly and User-safety is ensured.

- **Key Photos :**



MCB Instantaneous Trip Test Bench



5. MCB TEMPERATURE RISE & POWER LOSS TEST BENCH

- **What It Is?**

- 3 station MCB Temperature Rise and Power Loss Test Bench is economically designed to verify temperature rise and measure power loss as per clause 9.8 of IEC 60898 with the circuit designed to follow test procedure as per Cl 9.8.2.
- The temperature rise is measured in accordance with Cl 9.8.3 and 9.8.4 while power loss is measured and verified as per Table 15 of Cl 9.8.5.

- **Model Available :**

- The tester can be customized as per the desired range of currents and curves (B,C,D).
- In addition, where PC based testing is desired, the user may opt for online time vs temperature curves and data logging at a particular current rating.
- Also, this test can be clubbed in the 28 days test bench for improved economic feasibility.



• Basic Specifications :

- 50 / 60 Hz operation as per incoming line frequency.
- Overall accuracy of the panel is better than class 1.0.
- Digital Temperature Indicator with input from thermocouple.
- Digital Volt Meter with 5 ranges (200mV, 2V, 20V, 200V, 250V) to measure open circuit voltage & mV drop across MCB.
- Digital Ammeter with CT (Indication on servo controller).
- Class 1 Accuracy



- **Salient Features :**

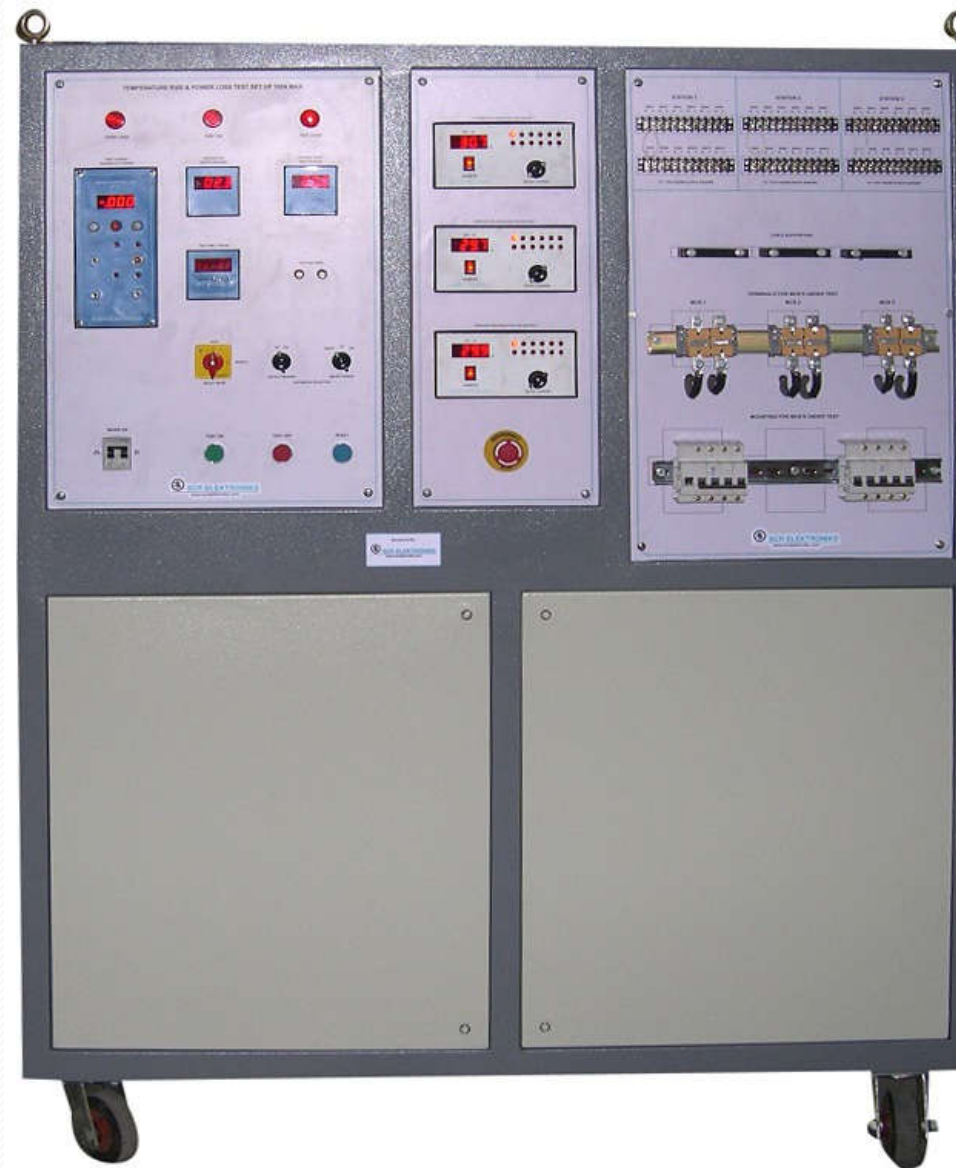
- Stand-alone unit after initial configuration of test parameters.
- 28 Days test module can be included as per customer demand.
- Cooling shall be provided by means of optimally placed Exhaust fans distributed all over to remove the hot air generated inside the panel cabinet.
- Easy Serviceability due to smart internal wiring pattern.
- Servo controlled mechanism to control current (+/- 1%) against incoming fluctuations.
- Microcontroller based timer unit for quick and easy user interface and automated operation.
- User may opt for test bench with heating chamber for testing at 60 o C



• Key Benefits :

- The product is designed to test the power loss per pole of the breaker under test.
- Thus, it checks indirectly if the breaker consumes more units of energy than what the standard allows.
- Additionally, temperature probes (of temperature rise test) pinpoint those areas in the breaker that are actually responsible for active power loss, thus a key input is provided to the MCB designer

- **Key Photos :**



MCB Temperature Rise And Power Loss Test Bench



6. MCB THERMAL + MAGNETIC CHARACTERISTIC TEST BENCH

- **What It Is?**

- The test system is a special version of the thermal + Magnetic test system.
- The single power source able to deliver either thermal or magnetic test parameters set on the PC by the user.

- **Model Available :**

- The product can be customized as per the number of stations: 1 (stand alone), 2, 4, 6, 8, 10 and 12 stations.
- Additionally, the product can be microcontroller based with each microcontroller controlling an individual station, or a PC based wherein the PC controls all the stations simultaneously and independently of each other.
- The product is available as a standalone module with micro controller based control – without the use of PC as a low cost alternative with features as scalability and accuracy intact.



• Basic Specifications :

- Transient Recording Meter reads the instantaneous current and Trip time
- Current Transformer ranges – 1A, 2A, 5A, 10A, 25A, 50A, 100A, 200A , 500A , 1000A, 2000A & 3000A – selected automatically by the software on basis of chosen MCB rating
- Output Current
 - Continuous rating between 1 A to 600 Amps
 - Short time up to 3000 Amps
- Micro Controller based unit & software controls the sequence of operation and measures time with 1 msec resolution (for magnetic / instantaneous tripping).
- Heavy Duty Contactors for internal switching as per PC based test sequence
- Separate three TIME INTERVAL METERS for each station.
- Swamping inductors/resistors for stable current.



• Salient Features :

- Input 415 V, 30 A (max), 3 phase, 50 Hz.
- Covers the entire range of MCB from 0.5 A to 125 A: B, C, D curve
- Thermal Test: User can set up to 4 times the rated current of MCB which includes 1.13 times rated current, 1.45 times rated current and 2.55 times rated current.
- Magnetic Test: 0.5 – 125 A MCB: B,C,D curve Short time duty (about 100 mS) is 3000 A, which covers the max 2500 A (125 A MCB: 20 times rated current for D curve MCB). The Test is done at low voltage.



● Key Benefits :

- This product enables the user to plot a time current characteristic curve
- Also, more than one curve can be compared thus enabling quality assessment of two or more MCBs

- **Key Photos :**



MCB Thermal + Magnetic Characteristic Test Bench



1. MCB THERMAL TRIP CALIBRATION TEST BENCH

- **What It Is?**

- The test system is designed and customized to carry out $2.55 \cdot I_n$ test as per Table 7 (test c) of IEC 60898 Cl 9.10.1.2, Annex I.1, IS (also mentioned for routine testing of MCBs).
- The test is done at dc current to exactly analyse and correct the bimetallic properties of the MCB as far as thermal tripping is concerned.

- **Model Available :**

- The unit comes with a pneumatically operated test fixture with in-built dc stepper motor that is controlled by a micro controller / PC to calibrate the breaker into a narrow tripping band programmed by the user.
- The product can be customized as per the number of stations: 1 (stand alone), 2, 4, 6, 8, 10 and 12 stations.
- Additionally, the product can be microcontroller based with each microcontroller controlling an individual station, or a PC based wherein the PC controls all the stations simultaneously and independently of each other.
- The product is available as a standalone module with micro controller based control – without the use of PC as a low cost alternative with features as scalability and accuracy intact.



• **Basic Specifications :**

- **I/p voltage :** 230V AC +/-10 %
- **I/p frequency :** 50Hz
- **O/p voltage :** 10V for 10A, 5V for 20A, 2V for 100 & 200A
- **O/p current :** (programmable)
- **Line Regulation :** 0.20%
- **Load Regulation :** 0.50%
- **Scalable up to :** 12 stations
- **MCB Ratings covered for 2.55 test :** 0.5, 1, 2, 4, 6, 10, 13, 16, 20, 25, 32, 40, 63, 80, 100 and 125 A (depending upon the range of the current source chosen)



• Salient Features :

- Fully Automatic 'Stand Alone' Option (i.e. with or without PC).
- ON line Loading of MCBs.
- Can test MCBs ranging from 0.5 Amp to 120 Amp with suitable model.
- Individual DC Constant Current Source with Fine Regulation; Multiplied Reliability and Graceful Degradation.
- Current setting: Automatic within $\pm 0.3\%$ of set value.
- Pneumatically operated electro-mechanical fixtures with stepper motor for calibration of the MCB.
- PC based operation; Selection of MCB its parameters from PC and/or MTCM for stand alone option.
- Early, OK, Late indication on each Individual Display Unit as well as on PC at same time.
- Data Acquisition on PC by Windows based Software for traceability and statistical analysis.



● Key Benefits :

- This product is used by leading MCB manufacturers on their production floor to test and calibrate the thermal tripping (upto 60 seconds) for $2.55 \cdot I_n$.
- Completely stand alone test bench with pneumatic fixture with protected compartment.
- Since each station has its own DC SMPS source, the stations can perform simultaneously and independent of each other thus adding reliability quotient – there is no bypass arrangement requirement (which may be prone to continuous maintenance)
- Also, the user may customize the bench with different SMPS source current ranges to test a wide range of MCB ratings
- The fixture design is done in such a way that user safety is achieved.

- **Key Photos :**



MCB Thermal Trip Calibration Test Bench



2. MCB MAGNETIC TRIP TEST BENCH

- **What It Is?**

- The test bench is specially built for low voltage- B, C & D curve MCBs.
- Decades of experience has helped us to design current source (transformer) in a special way such that good current regulation and high accuracy is ensured with a variable range without the use of any variable transformer in the system (by optimal tap selection – a rare technology application).
- It is mentioned in IEC 60898 Clause 9.10 and test d and e in Table 7 of IEC 60898 clause 8.6.1. IS 8828

- **Model Available :**

- MCB Rating : 0.5 to 63 A
- Curve : B, C, D, 0.5 to 125 A
- Curve: B and C only.
- Even smaller variants such as 1 to 630 A can be designed for a limited range of MCBs. The product can further be customised as a microcontroller based semi automatic version (cost effective) or a PC based fully automatic (sophisticated with latest software).
- The fixtures designed will be specially made with respect to the size, shape and dimensions of the MCB (1-4 pole) provided. Another customized variant includes an R&D based variant wherein the tripping current is gradually increased and the exact tripping level is sensed
- Another non PC based low cost variant available



• Basic Specifications :

- Output current programmable from 0.5 A to 1250 A for magnetic trip testing of MCB (Automatic Selection via software)
- Can test 4 MCBs of single pole OR 2 MCBs of double pole OR 1 MCB of 3 or 4 pole simultaneously for magnetic trip
- Test Procedure (IEC 60898 9.10.2):
 - 1. Continuity Test - To check for correct electrical closing in the event of MCB being made ON externally by a pneumatic ON mechanism
 - 2. Hold Test (No Trip Test) - To check for holding mechanism for at least 0.1 s after passing current of 3 In for B curve, 5 In for C curve, 10 In for D curve MCB
 - 3. Trip Test - To check for tripping mechanism for less than 0.1 s after passing current of 5 In for B curve, 10 In for C curve, 20 In for D curve MCB
- Pressure Required for pneumatic handling: Approximately 6 Bar
- PC provided: IBM PC / compatible make with NI LabVIEW based Testware™
- 500 VA branded UPS



• Salient Features :

- The cycle time is around 7 seconds for 4 pole MCB (less than 2 seconds per pole)
- Can be used for both production and R&D purpose with report generation and statistical analysis (Gives a glimpse of the test results instantaneously)
- Current setting is instant without any auto transformer movement (Saves time and error due to human handling)
- Current, Type of Curve, CT Range, Number of poles are set automatically by the software as per the selected setting: User does not have to configure the above settings
- Drop down menu in the software to once select the type (rating or calibre) of MCB: Rest of the test parameters get selected automatically (User can simply jump from one type of MCB to other instantaneously)
- Software: NI LabVIEW based for user interface, password protection and user hierarchy, settings selection, automatic testing process control & report generation exported to MS-Excel
- Line Voltage variation has no effect on actual test current
- Test results are displayed on monitor and stored against serial number or a bar code
- Generation of Reports in MS Excel format or to Print
- Exact trip current wave-form (and not a vague band) and trip time are captured, displayed & recorded on PC



● Key Benefits :

- The product is used to conduct test d and e as per table 7, IEC 60898. The test is intended to check the instantaneous trip (magnetic trip mechanism) characteristics of an MCB as per its rating and curve at a conveniently low voltage.
- Specially designed custom built jigs are able to accommodate single, double, three and four pole MCBs.
- Customised current source (transformer) which helps us to get good current regulation and high accuracy with a variable range without the use of any variable transformer – the user doesn't have to continuously vary the voltage output to get the desired current.

- **Key Photos :**



PC Based Fully Automatic MCB Magnetic Trip Test
Bench



3. MCB THERMAL VERIFICATION TEST BENCH

- **What It Is?**

- The test system is a special version of the thermal test system in the sense that the test jig is primarily designed to hold and connect multi pole MCBs for thermal verification so that each pole can be verified to trip within the IEC time band after the MCB has been riveted.
- This test ensures the trip verification of MCB so as to trip all the 4 poles at once when overload is detected in one single pole. In short, this is a verification-only bench.

- **Model Available :**

- The product can be customized as per the number of stations: 1 (stand alone), 2, 4, 6, 8, 10 and 12 stations.
- Additionally, the product can be microcontroller based with each microcontroller controlling an individual station, or a PC based wherein the PC controls all the stations simultaneously and independently of each other.
- The product is available as a standalone module with micro controller based control – without the use of PC as a low cost alternative with features as scalability and accuracy intact.



• Basic Specifications :

- PC based Panel equipped with Barcode scanner will be used for Verification of 100% Thermal characteristics of MCBs.
- DC Constant Current source 0.5A – 200A for individual station with fine Regulation at suitable voltage will be used (Dual Current source will be used). Accuracy of the system to be better than Class 0.2.
- Bench will be used for verification of MCBs of the current rating (maximum 200A) 0.5A, 1A, 1.6A, 2A, 3A, 4A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, & 63A at 2.55/3 times the rated current.
- Panel will be able to test 5 MCB poles at a time with independent test fixture and control.
- Each station will be provided with one Display Unit for controlling test result and the sequence of operation. Each station module will measure the trip time of MCB under test, and will also indicate the result as Early, OK, Late and No Trip & same data will be transferred to PC immediately.
- The type of MCB under test & its related parameters like time band, Current will be linked with the MCB Cat number and will be selectable through PC.
- Pneumatically operated mechanical fixtures will be used to connect the MCB.
- Fixture will be suitable for testing of Single, Double, Three & Four pole MCB.



• Salient Features :

- Fully Automatic 'Stand Alone' Option (i.e. with or without PC).
- ON line Loading of MCBs.
- Individual DC Constant Current Source with Fine Regulation; Multiplied Reliability and Graceful Degradation.
- Current setting: Automatic within $\pm 0.3\%$ of set value.
- PC based operation; Selection of MCB its parameters from PC and/or MTCM for stand alone option.
- Early, OK Late indication on each Individual Display Unit as well as on PC at same time.
- Data Acquisition on PC by Windows based Software for traceability and statistical analysis.



● Key Benefits :

- The product gives the user the capability to test any pole / poles at random out a 4 pole breaker
- Plus, the software has the facility to test all 4 poles, one by one (and not all in series) such that the pole not complying to thermal tripping standards can be pin pointed in a breaker

- **Key Photos :**



MCB Thermal Verification Test Bench



4. MCB 20 STATION HIGH VOLTAGE TESTER

• What It Is?

- The High voltage tester for routine testing of MCBs combines a conventional high voltage tester with a specially designed robust fixture to hold 20 single pole MCBs at a time.
- The solution comes as a single trolley with easy-to-set test parameters with safety interlocks designed for user safety with respect to electric shock and mechanical fixturing.
- An advantage of the system is – it gives a high yield (20 MCBs are tested in about one minute) thus yielding user safety at a high value for money.

• Model Available :

1. HVT - 3 - 3 KV/100mA
2. HVT - 5 - 5 KV/100mA (500 SC)
3. HVT - 10 - 10 KV/200mA
4. HVT - 25 - 25 KV/50 mA
5. HVT - 50 - 50 KV/50 mA
6. HVT - 75 - 75 KV/50 mA
7. HVT - 100 - 100 KV/50 mA.

- Other than those mentioned above, the kilovolt and mA level can be custom-made. In case of routine testing solution employing mechanical test jigs, the number of MCBs (to be tested simultaneously) can be customized as 1, 4 and 20.
- Another sophisticated variant employing Siemens PLC + touchscreen can be offered for completely automated test sequence to carry out pole – adjacent pole, poles – body dielectric tests



• Basic Specifications :

- Input Supply : 230 V AC, +/- 10 %.
- Test Voltage : 0 - 5 KV AC
- Tripping : 5 mA, 10 mA, 25 mA, 50 mA, 100 mA, 200mA.
- Time Setting : 0 - 60 Sec.
- Voltage Indication : Digital LED, 0 - 5 KV.
- Current Indication : Digital LED, 0 - 200 mA
- Lamp Indication :
 - a) HT On.
 - b) OK
 - c) NOT OK (fault)



• **Salient Features :**

- Specially Designed probes provided for user safety
- Safety factors : Zero Interlock bypass facility, timer bypass facility
- Speciality Transformer Type: Epoxy cast HV Transformer for user safety



● Key Benefits :

- The product is used to test 1-4 pole MCBs as per Cl 9.7.5, IEC 60898.
- The test bench tests the di-electric withstand capability of the product with settable high voltage and allowable leakage current

- **Key Photos :**



MCB 20 Station High Voltage Tster With Jig



1. MCB MAGNETIC BRIEFCASE

- **What It Is?**

- SCR Elektronik presents you a unique, compact product which carries out magnetic trip verification of MCB's in portable briefcase.
- It is a small briefcase weighting around 12 kilos encompasses a short time current source of 400A, making it ideal for MCB testing floors; plus its portability and light weight is an added asset for flexibility of location anywhere on the field-such as substations.
- The briefcase is designed mainly to perform instantaneous trip test at a conveniently low voltage as per table 7 of IEC 60898.
- The user friendly micro controller based interface module along with a smartly designed short time AC source makes it a state of an art product for precision testing and demonstration of low voltage MCB's.

• Features & Specifications :

- 2 tests i.e., Tripping and No Tripping Tests for B and C curve MCB's (curve setting settable) are performed according to IEC 60898 Table 7.

d	B	$3 I_n$	Cold ^a	$t \leq 0,1 \text{ s}$	No tripping	Current established by closing an auxiliary switch
	C	$5 I_n$				
	D	$10 I_n$				
e	B	$5 I_n$	Cold ^a	$t < 0,1 \text{ s}$	Tripping	Current established by closing an auxiliary switch
	C	$10 I_n$				
	D	$20 I_n$ ^b				

- Settings for MCB, Curve Selection(Either B or C), Holding Current (3 times for B curve , and 5 times for C curve according to the IEC standards), Tripping Current (5 times for B curve and 10 times for C curve according to IEC standards)
- Required Current is set instantly and the trip time is caught in milli second range.
- During No Trip test, the MCB should not trip with 100 milli second while during Tripping test the MCB should tri p within 100 milli second.
- MCB is tested for both ' No Tripping' and 'Tripping current '.
- This system is easily portable and light weight . Comes with a handle. The user can easily carry it from one place to another.
- Test results are stored and can be viewed after every test.

- **Key Photos :**



MCB Magnetic Briefcase



2. MCB THERMAL BRIEFCASE

- **What It Is?**

- SCR Elektronik presents you a briefcase enclosed setup for thermal trip of low voltage single or multi pole MCB's that is lighter, more compact and portable than ever before.
- The briefcase setup weights about a mere 7 kilos, making it ideal for sales engineers willing to demonstrate their MCB trip characteristics to their deals and customers.
- It is designed mainly to perform $2.55 \cdot I_n$ test as per table 7 (test c) of IEC 60898. In addition, test a & test b of table 7, popularly known as the $1.13 \cdot I_n$ (No Trip) and $1.45 \cdot I_n$ (Trip) test, is included to be demonstrated in DC current mode for the respective currents.



- **Basic Specifications :**

Model #	MCB BC10	MCB BC 20	MCB BC 100	MCB BC 200
Specification				
Default I/p voltage	Default is 230V AC +/- 10%. Please specify your input specification with order.			
Default I/p frequency	Default is 50Hz . Please specify your input specification with order.			
O/p voltage	10V	5V	2V	2V
O/p current (programmable)	0.5 to 10A	1 to 20A	5 to 100A	10 to 200A
Line Regulation	0.20%	0.20%	0.20%	0.20%
Load Regulation	0.50%	0.50%	0.50%	0.50%
MCB Ratings covered for 2.55 test	0.5, 1, 2, 3A	0.5, 1, 2, 3, 4, 6A	2, 3, 4, 6, 8, 10, 13, 16, 20, 25, 32 A	4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 45, 50, 63A
MCB Ratings covered for 1.13 and 1.45 test	0.5, 1, 2, 3, 4, 6 A	1, 2, 3, 4, 6, 10, 13, A	4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 45, 50, 63 A	10, 13, 16, 20, 25, 32, 40, 45, 50, 63, 80, 100, 125A
Approximate Weight in kg	6	6.5	7	8.5
Approximate Dimensions: Width X Depth X Height mm	430 x 120 x 140	430 x 320 x 140	430 x 320 x 140	500 x 380 x 180



• Salient Features :

- Quick test mode to test as per $2.55 \cdot I_n$: Trip Time and Test Current gets adjusted automatically on selection of MCB rating.
- Enclosed in briefcase for easy carrying (with a handle) and safety small in size, weight and portable than most of the conventional trip verification and demonstration units.
- SMPS current source ensures fine line and load regulation can test 1,2,3,4 poles MCB on a single DIN rail mount: Instant mounting and dislodging.
- Single microcontroller unit for user interface with keypad current and trip and hold time is programmed digitally without the use of variable /auto transformer.
- Desired current is achieved quickly without time delay irrespective of mains fluctuations.
- $1.13 \cdot I_n$, $1.45 \cdot I_n$ and $2.55 \cdot I_n$ test in a single portable unit.
- 4 models for the vast range of MCB current ratings: 10A, 20A, 100A and 200A max DC: user can selectively buy the model most suitable for the rating of MCBs to be produced / promoted.

- **Key Photos :**



MCB Thermal Briefcase



● Test It With Testware :

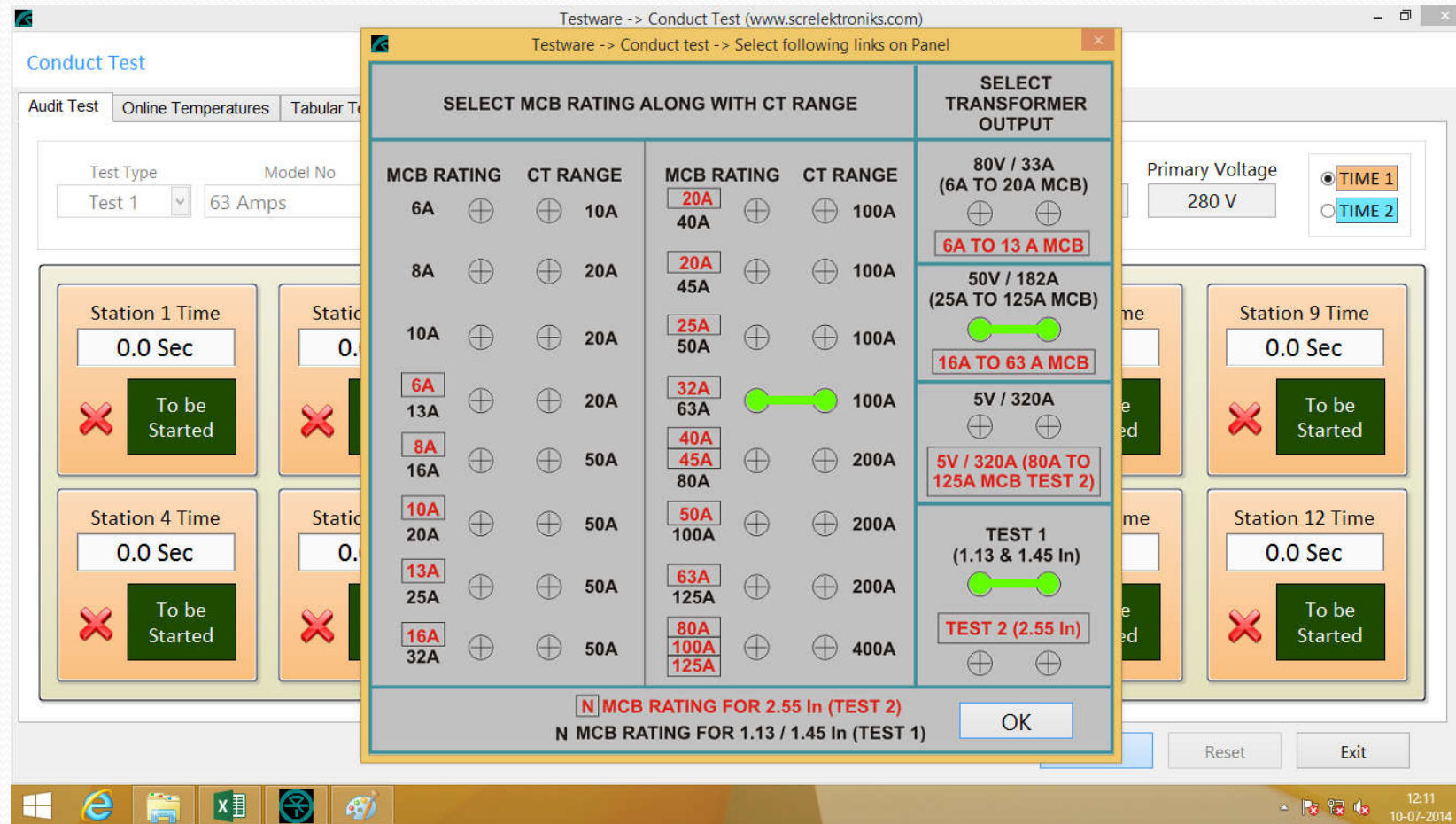
- SCR ELEKTRONIKS Testware enable you to automate the testing process, eliminates any room for human error and make automated testing, monitoring & reporting a breeze.
- Testware has all facilities like data logging, report generation, setting parameters for test through entering of some values, generation of graphs plotted against various factors. Generation of current and voltage waveforms are also possible
- Testware also has user hierarchy and password protection, diagnostic and calibration software modules, recipe configuration techniques and smart and friendly user interfaces
- We also boast of an in-house team of talented LabVIEW engineers being trained continuously

- Some Typical Software Screenshot :



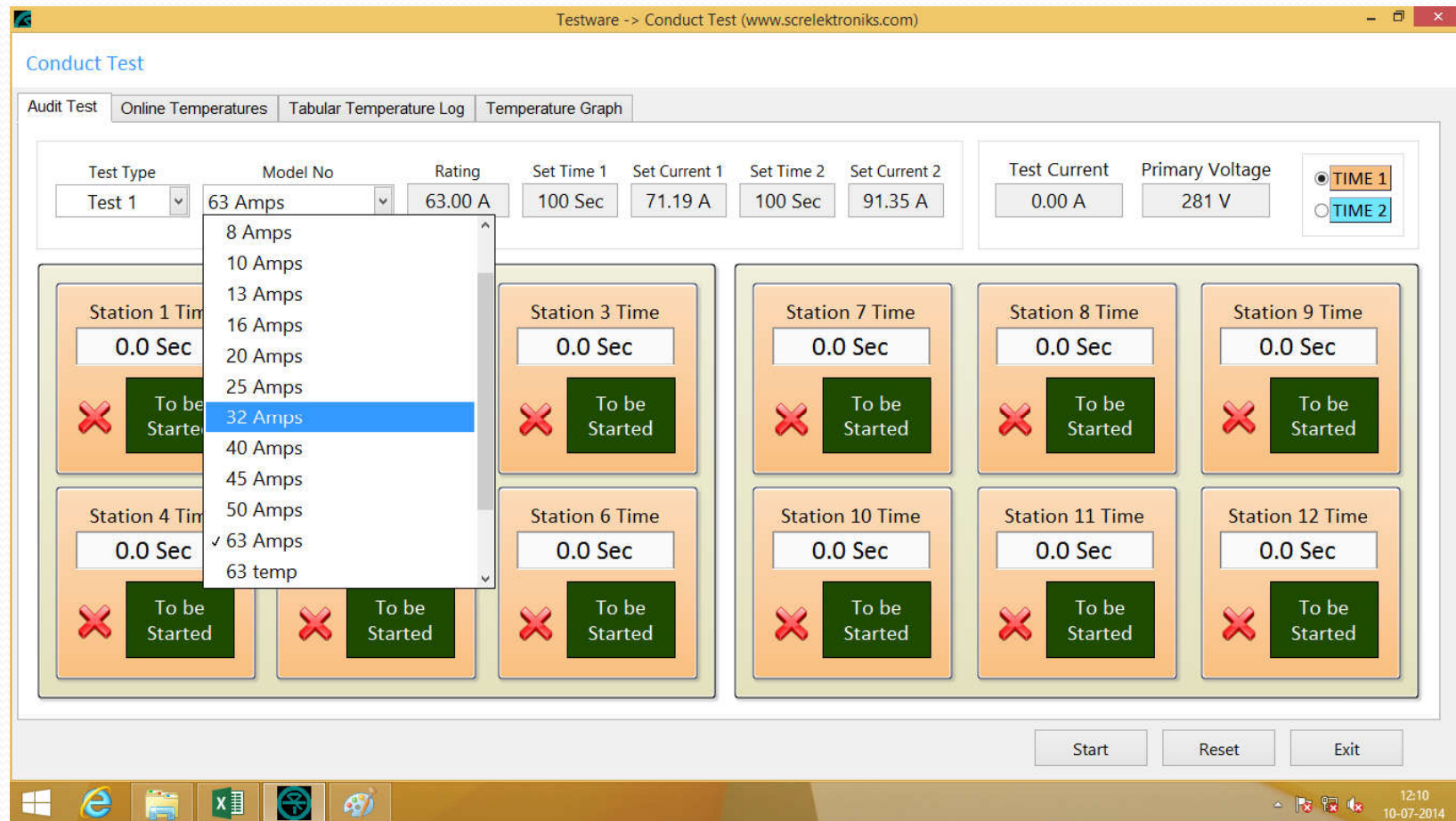
Main Window

- Some Typical Software Screenshot :



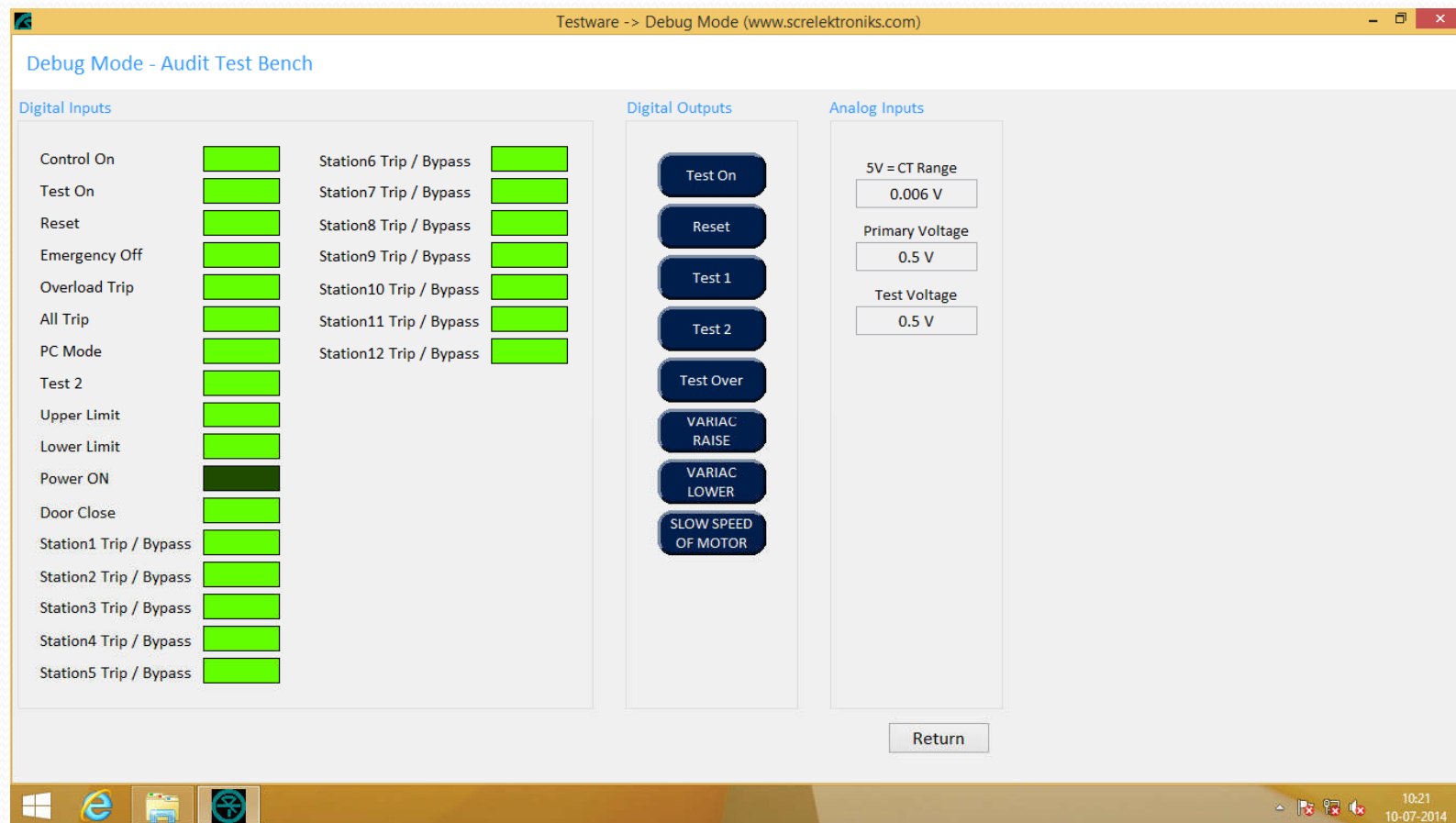
Testing Window

- Some Typical Software Screenshot :



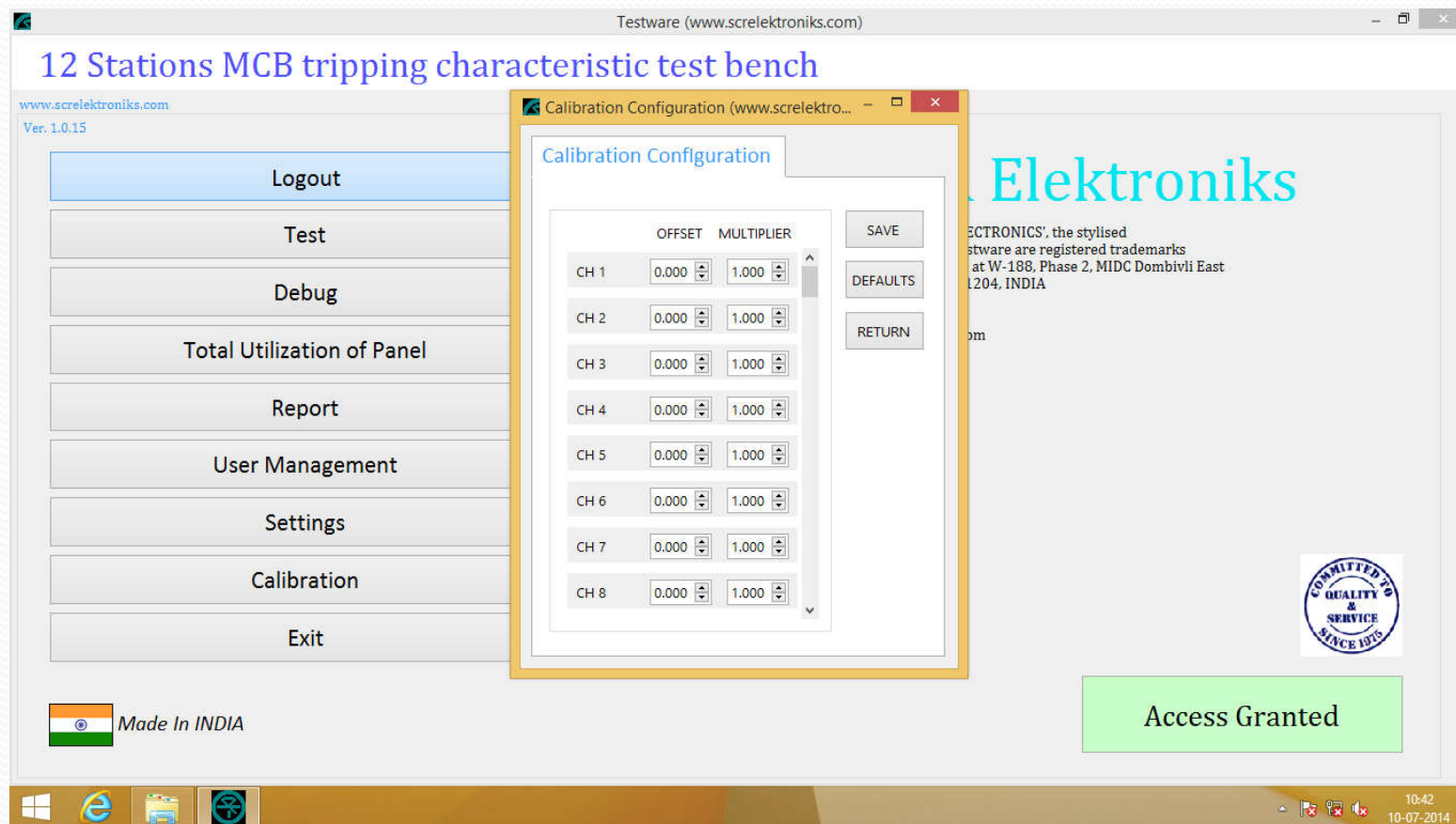
Testing Window

- Some Typical Software Screenshot :



Debug Window

- Some Typical Software Screenshot :



Calibration Window



- **Documentation That Will Be Provided With Product :**

- Layout (dimensions, etc.)
- Metering and PCB termination diagram
- Power wiring diagram
- Control wiring diagram
- User manual
- Data acquisition module details (for PC based variants)
- Signed warranty certificate
- Calibration certificates (NABL optional)



• **Why SCR Elektroniks ?**

- Since 1975: Rich Experience In Test And Measurement
- Customized Solution
- Dedicated After Sales Support Team
- Designed More Than 100 Different Products
- In- House Team Of Micro-controller Design, Electrical And Electronic Design, Micro Controller Development, Labview (PC) Software And PLC Logic, Production, Testing And Commissioning And Support
- In-house Development Of Critical Electronic And Electrical Meters, Modules And Components
- ISO 9001 : 2015 Certified By Bureau Veritas – Maintaining High Quality In Our Internal Process
- Listed By IEC In The Past
- Fair And Consistent Pricing
- Our Ultimate Prize: Customer Delight



- List Of Our Recent Clients For MCB Testing:**

Sr. No.	Customer Name	Destination
1	M/s. Wipro Ltd	Haridwar
2	M/s. Siemens Ltd.	Mumbai, Aurangabad
3	M/s. ABB Ltd.	Bangalore, Haridwar
4	M/s. Schneider Electrical India Pvt.Ltd.	Bangalore
5	M/s. Indoasian Fuse Gear Ltd.	Noida, Solan, Haridwar
6	M/s. Havell's India Ltd.	Badli, Solan, Faridabad
7	M/s. Legrand (India) Pvt.Ltd.	Nasik, Jalgaon
8	M/s. Larsen & Toubro Ltd.	Mumbai, Ahmednagar
9	M/s. Teknic Electromeconics Pvt.Ltd.	Bangalore
10	M/s. GE India Technology Centre Pvt.Ltd.	Bangalore, Hyderabad

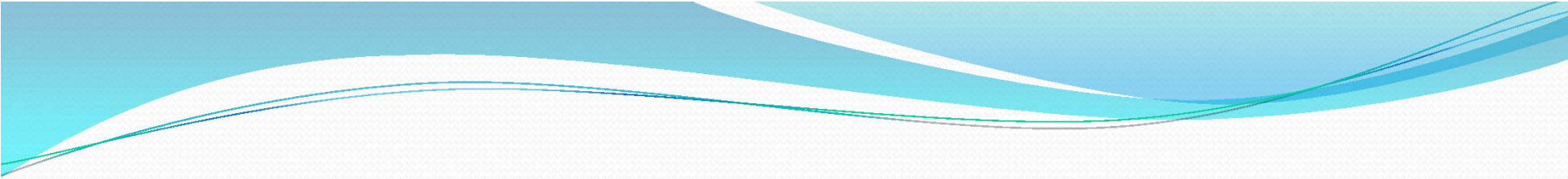
11	M/s. Anchor Electricals Pvt. Ltd	Daman, Haridwar
12	M/s. Middle East Electric Meter Factory Company	Saudi Arabia
13	M/s. Polycab Wires Pvt. Ltd	Nashik
14	M/s. C & S Electric Pvt. Ltd	Haridwar
15	M/s. BCH Electric Pvt. Ltd	Rudrapur
16	M/s. HPL Electric & Power Pvt. Ltd	Solan
17	M/s. Hager Electro Pvt. Ltd	Pune
18	M/s. ENAMC	Algeria
19	M/s. Honeywell Electrical Appliances	Dehradun
20	M/s. Alfamar Electrical Systems	Riyadh
21	M/s. Sun Niroo	Iran
22	M/s. Arthur C Clarke Institute for Modern Technologies	Sri Lanka
23	M/s. Al-motawaset Factory	Riyadh
24	M/s. Finolex Cables	Roorkee
25	M/s. Guts Electromech Ltd	Hyderabad
26	M/s. G Nine Moduler Pvt. Ltd	Vasai

SCR ELEKTRONIKS

- For More Details Contact:

SCR ELEKTRONIKS

- Address: W 188, MIDC Phase 2, Dombivli (E),
Pin:421204 India
- Phone: +91 251 2871778
- Email: auto@screlektroniks.com
- Website: www.screlektroniks.com



THANK YOU