SCR ELEKTRONIKS

SALES PRESENTATION ON

CURRENT SOURCE & INJECTION TESTING EQUIPMENTS





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LIST OF TEST EQUIPMENT

1. PRIMARY CURRENT INJECTION TEST TROLLEY
2. SECONDARY CURRENT INJECTION TEST TROLLEY
3. DC CONSTANT CURRENT SOURCE
4. TEMPERATURE RISE TEST PANEL 25kA
5. TEMPERATURE RISE TEST PANEL 2000A
6. PC Based High Current Test Set for Circuit Breakers and Temperature Rise Test Equipment

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1. PRIMARY CURRENT INJECTION TEST TROLLEY

- **What It Is?**
  - SCR ELEKTRONIKS have developed PRIMARY CURRENT INJECTION TEST TROLLEY for Switchgear items, CT manufacturer and where three phase current application is called for.
  - It is low Voltage, 3 phase Current source with control circuitry, digital read out for test current and trip time measurement. We can select different CT ranges for each phase independently and adjust the current as per the required test Current.
- **Models Available :**
  - The system can be customized for typical continuous duty and short time current values at a customized output voltage for 1 / 2 / 3 phases.
  - Temperature rise test can be clubbed with the system with user defined channels of temperature measurement.
  - The system can together be clubbed with secondary injection system also. Also, AC / DC injection kits are available

Key Benefits :

- Primary current injection trolleys are used for high current testing of ACBs, SF6 CBs, VCBs and cable testing.
- They are also used to check the switchboards and current feeders, often in coherence with temperature rise measurement Primary current injection trolleys are used for high current testing of ACBs, SF6 CBs, VCBs and cable testing.
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Features :

- User defined continuous and short time duty cycle
- Single / 3 phase operation possible
- Test time indicator and controller
- Portable (with lockable castor wheels) allows movement accross factory floors
- Combined AC / DC operation possible as per customer specs
- Can integrate temperature rise and measurement system
- PC based operation possible as per customer specifications

Specifications:

- Input supply: 415V two phase with MCB protection.
- Digital Voltmeter: 3-1/2 digit (0 – 500 V AC).
- Digital Ammeter : 3-1/2 digit (0 – 100%)
- Variac for Current adjustment .
- Test time indicator with four ranges .
- Five CT ranges for selecting the test Current.
- Indicator lamps : Power ON , Output ON , Overload.

- **Key Photos :**

Primary Current Injection Test Trolley

2. SECONDARY CURRENT INJECTION TEST TROLLEY

- **What It Is?**
  - SCR ELEKTRONIKS have developed SECONDARY CURRENT INJECTION TEST TROLLEY for Switchgear items, CT manufacturer and where three phase current application is called for.
  - It is low Voltage, 3 phase Current source with control circuitry, digital read out for test current and trip time measurement. We can select different CT ranges for each phase independently and adjust the current as per the required test Current.
- **Models Available :**
  - The test bench can be customized w r t the CT secondary current aimed to replace and the output voltage corresponding to the CT burden.
  - Also the system can be clubbed with a primary injection test kit.

Features :

- Fully customized design
- In built current and voltage meter for accurate measurement and display of current and voltage
- Can be servo controlled for accurate voltage output
- AC / DC output
- Single, two phase and three phase operation possible - can be customized

Specifications :

- Input supply: 415 V three phase with MCB protection.
- Output: Switches selectable for each phase.
- Digital Ammeter: 3-1/2 digit (0 – 1.000 Count) one for each phase.
- Output ranges:
  - 15V/1A, 5V/5A, 2V/10A
  - 20V/1A , 10V/5A , 5V /10A
  - 40V /1A ,15V/5A,10V/10A
- Variac for Current adjustment is provided one for each phase.
- Test time indicator with four ranges. (0-99.999 sec, 999.99sec, 9999.9sec,99999sec)
- CT ranges for selecting the test Current. They are 1A, 5A and 10A.
- Power ON indicator lamp
- Protection: MCB for Input supply.

Key Benefits :

- The secondary injection trolley is user to test the secondary circuit that follows a CT secondary.
- Typically, the CT measures a high current in the order of 2000 or 5000 A or so, but the secondary of the CT is at 1 or 5 A.
- The tester is nothing but a current source of 1 / 5 A and relevant measurement can be customized

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- **Key Photos :**

Secondary Current Injection Test Trolley

3. DC CONSTANT CURRENT SOURCE

- **What It Is?**
  - SCR ELEKTRONIKS have developed equipment namely “DC CONSTANT CURRENT SOURCE”. The system comprises of Constant Current Sources having ranges: 900A continues & 3000A short time at 8V maximum.
- **Models Available :**
  - The system can be customized as per short time and continuous current ratings.
  - Also, additional test modules like temperature rise, millivolt drop, etc. can be integrated.

Salient Features :

- This test bench will enable the user to carryout Short Time Current Test up to 3000 Amp for short time. This test will conducted for a time period ranging from 0.1Sec to 5Sec depending of customer specification. The equipment will be designed to control the timing precisely.
- Panel will built in M.S. Fabricated trolley with powder coating of minimum 80 micron thickness. Four inch Nylon wheels will be provided for easy movement of trolley.
- The panel will be operate in manual as well as in auto mode.

Key Benefits :

- The system typically comes with a continuous rating and a short time rating, thus making it suitable to test DC breakers, HVDC panels and components as well as cables.
- Additional tests that can be carried out include temperature rise, millivlot drop, trip time-current analysis, etc.

- **Basic Specifications :**
  - Input Supply 415V AC 28A for Three Phases.
  - Output – Adjustable in steps with Transformers and Switches i.e. 0 to 4V, 0 to 8V.
  - Output DC Current – a) 100A to 900A continues @ 8V DC
    b) 100A to 3000A short time @12V DC.
    c) Ripple : Less than 4%.
  - Control – True RMS Sensing Servo Controller will be used to keep the current within +/- 1% of set value.
  - Current Measurement – There will be two Shunts. Shunt 1 with 0 to 900A and Shunt 2 with 3000A. Taps will be provided to measure & control the current accurately. The selection of shunt will be with link.
  - Test ON/OFF, Reset, Emergency OFF Push Buttons. Protection : Over Current trip with 10sec. Delay.
  - Controls & Indication :

a)Digital Voltmeter : For variac position 0 to 500V AC Accuracy Class 1.Digital Servo

b)Controller : For test current which reads the value in terms of shunt Range. 0 to 1.000 count. Accuracy Class 1.

c)Transient Recording Meter : This records the current value even if it is flowing for short time (100msec.) This is used for adjusting the Test current Value (fault current) with the help of other arrangement so that the cables and other accessories do not get heated up during setting the test current. This also monitors the current value an d continues to display the same even if the current ceases to flow after the set time.

d)ON/OFF Cyclic Timer : ON/OFF Cyclic Timer Unit will be provided to log ON/OFF cycles. This'll enable recording test cycles for long test durations and also in case of power failure (UPS to be provided by you).Shunt 1 with 900A-200mV and Shunt 2 with 3000A - 200mV for current measurement with Accuracy Class 0.5.

- **Key Photos :**

Dc Constant Current Source

4. TEMPERATURE RISE TEST PANEL 25kA

- **What It Is?**
  - SCR ELEKTRONIKS have developed “PC BASED TEMPERATURE RISE TEST BENCH 25kA” to measure rise in temperature at various points as mentioned in standard at junctions.
  - The set-up consists of a True RMS Constant Current Source (to maintain the Current within + / - 1 % of set value with Digital Indication), PC based control system, Temperature data logging on PC, Servo-Controller and other indications. Digital voltmeter Primary Voltage indicates the position of auto transformer (variac).
  - Servo controlled mechanism is used to maintain constant current throughout the test in manual mode. CR/AL('K' type) type thermocouples are used for temperature sensing.
- **Models Available :**
  - The maximum current rating, output voltage and number of temperature channels can be customized.
  - Also the system is available with PC / PLC / manual operation

Salient Features :

- It has automatic test procedure, user access control, secured database, maintenance mode & most importantly an elaborate module for report generation & test-data analysis.
- Output: Current Source 50A to 10KA Cont. & 25KA 5Sec
- CT range selections: 200, 500, 1KA, 2KA, 5KA, 10KA, 20KA, 25KA.
- Selection of output voltages, the ranges are 1.25V, 2.5V,3.75V, 5.0V, 6V, 7.5V selection through switches.
- Two operating modes are provided: PC & MANUAL.
- 12 Channels, Cr/Al type Thermocouple sensor for temperature sensing with PC data logging.
- Servo controlled mechanism for maintaining the Test Current at preset value in manual mode.
- With PC Based Temperature Data logger:
  i)Isolation Amplifiers – For 12 Channels
  ii)Thermocouple Sensor – 12 Nos.
  iii)Data Loading Facility on PC with USB Port.

- **Key Benefits :**

  - The system is used to measure the temperature rise values of current carrying and other parts in switchboards, breaker panels and high current circuit breakers as also fuse liks and holders that handle high current switching and distribution.

Basic Specifications :

- Input Supply 415V AC 200A for two phases & 16A for Third phase.
- Output – Single Phase 8V adjustable in steps with 3 Power Transformer and contactors.
- Output Current – 100A to 10kA @ 8V and 25kA Short time
- Constant current with the help of Servo Control – True RMS Sensing Servo Controller will be used to keep the current within +/- 1% of set value.
- Current Measurement – Wound type bar primary CT with 200A, 500A, 1kA, 2kA, 5kA, 10kA, 20kA & 25A. Taps will be provided to measure & control the current accurately. The selection of CT range will be with Rotary Selector Switch and contactors.
- Indication :
  - a) Digital Voltmeter : For variac position 0 to 500V AC Accuracy Class 1.
  - b) Digital Servo Controller : For test current which reads the value in terms of CT Range. 0 to 1.000 count of CT Range Accuracy Class 1.
  - c) CT for current measurement with Accuracy Class 0.5, Burden 5VA.
  - d) Shunt : 0.1 Ohms/50W for measurement of current on C.R.O.
- Test ON/OFF, Reset, Emergency OFF Push Buttons. Protection : Over Current trip with 10sec. Delay. Mains ON/OFF with MCCB.
- Panel will built in M.S. Fabricated trolley with powder coating of minimum 80 micron thickness. Suitable Nylon wheels will be provided for easy movement of trolley.
- Digital Timer to Set ON time 0 to 99 Hours with alarm after end of test time
- All the controls will be through PC. In PC mode & with switches in manual mode.

- **Key Photos :**

Temperature Rise Test Panel 25kA

5. TEMPERATURE RISE TEST PANEL 2000A

- **What It Is?**
  - SCR ELEKTRONIKS have developed “TEMPERATURE RISE TEST BENCH FOR MEDIUM VOLTAGE SWITCH BOARDS” to measure rise in temperature at various points as mentioned in standard at junctions.
  - The set-up consists of a True RMS Constant Current Source (to maintain the Current within + / - 1 % of set value with Digital Indication), PC based control system, Temperature data logging on PC, Servo-Controller and other indications. Digital voltmeter Primary Voltage) indicates the position of auto transformer (variac).
- **Models Available :**
  - The maximum current rating, output voltage and number of temperature channels can be customized.
  - Also the system is available with PC / PLC / manual operation

Salient Features :

- CT range selections: 100 A, 200 A, 400 A, 800 A, 1200 A, 1600 A, 2000A @10.5V.
- Two operating modes are provided: PC & MANUAL.
- 12 Channels, Cr/Al type Thermocouple sensor for temperature sensing with PC data logging.
- Panel is provided with Two test modes namely as following i) MANUAL ii) AUTO
- Servo controlled mechanism for maintaining the Test Current at pre-set value in manual mode.
- PC Based Temperature Data logger with

  i)Isolation Amplifiers – For 12 Channels
  ii)Thermocouple Sensor – 12 Nos.
  iii) Data Loading Facility on PC with USB Port.

Key Benefits :

- The system is used to measure the temperature rise values of current carrying and other parts in switchboards that handle high current switching and distribution.

Basic Specifications :

- Input Supply: Two Phase 415 VAC, 50Amps,50 Hz Max.
- Output – Single Phase 10.5V adjustable in steps with 3 Power Transformer and contactors.
- Output Current – 100A to 2000A @ 10.5V constant current with the help of Servo Control – True RMS Sensing Servo Controller will be used to keep the current within +/-1% of set value.
- Current Measurement – Wound type bar primary CT with 100, 200A, 400A, 800, 1200A, 1600 & 2000A. Taps will be provided to measure & control the current accurately. The selection of CT range will be with Rotary Selector Switch and contactors.
- Indication :

  a) Digital Voltmeter : For variac position 0 to 500V AC Accuracy Class 1.

  b) Digital Servo Controller : For test current which reads the value in terms of CT Range. 0 to 1.000 count of CT Range Accuracy Class 1.

  c) CT with 100, 200A, 400A, 800, 1200A, 1600 & 2000A for current measurement with Accuracy Class 0.5, Burden 5VA.

  d) Shunt : 0.1 Ohms/50W for measurement of current on C.R.O.
- Test ON/OFF, Reset, Emergency OFF Push Buttons. Protection : Over Current trip with 10sec. Delay. Mains ON/OFF with MCCB.
- Panel will built in M.S. Fabricated trolley with powder coating of minimum 80 micron thickness. Suitable Nylon wheels will be provided for easy movement of trolley.
- Digital Timer to Set ON time 0 to 99 Hours with alarm after end of test time.

- **Key Photos :**

Temperature Rise Test Panel 2000A

6. PC Based High Current Test Set for Circuit Breakers and Temperature Rise Test Equipment

- **What It Is?**
  - This equipment comprises of high current source for testing of circuit breakers with additional facility for temperature rise testing (thus incorporating testing for moulded case, vacuum & air circuit breakers as per IEC 60947-2).
  - The system integrates a servo controlled source with closed loop current feedback to maintain the current constant.
  - It has the necessary instrumentation for maintaining current at full load & other conditions arising in testing at high current.
  - The bench has a PC based control system with temperature data logger (24 channel with ch-ch isolation amplifiers). The data logger displays as well as stores a set of temperature values with time.
- **Models Available :**
  - The system usually comes in two current ranges - 4000 A and 7500 A aximum. However, more user defined current values are available as per the customer specifications

Software Features :

- Fully automatic testing with pre-programmed test sequence for Overload Test, Short-circuit Test & Temperature Rise Test (additional option: current cycling test)
- Available in multi-pole testing options
- Drop down menu in the software to once select the type (rating or calibre) of Circuit Breaker: Rest of the test parameters get selected automatically (User can simply jump from one type of test model to other instantly)
- User can define test parameters for any circuit breaker under test. The test sequence is carried out automatically with full control of supervisor. By default, IEC based test parameters & sequence is automatically configured (Referred standard is 60947-2). Two clauses, viz. 7.2.1.2.4 and 8.3.3.7 are chosen as a base for software.
- TestWare Software: NI LabVIEW based for user interface, settings selection, process control & report generation
- Temperature Rise software module
- Temperature Curves
- Printer configurable

Hardware Features :

- Servo Controlled Regulation ensures stable voltage at the output (with in-built instrumentation for current regulation at any load for testing circuit breakers).
- 24 temperature sensors with ch-ch isolation with PC interface
- Calibrated high end CTs for measurement accuracy
- Point on Wave Firing system for accurate phase angle
- Transient Recording facility for current
- Can test relays, heavy duty switches, circuit breakers, transformers (The high current source can be used for any other application wherein a constant current is required to be sourced)
- PC Interface module specially selected for this application
- Castor Wheels
- Output on copper bus-bars
- Emergency OFF Push Button
- Protection & Safety features

Key Benefits :

- The system is used to test the time - current tripping and non tripping characteristics with fully automatic operation on PC with temperature, current and time curves for graphical analysis

Basic Specifications :

Specifications of 4000 A continuous current model:

- 440 V, 3 phase, 50 Hz input
- Open Circuit output voltage: 0.2/0.4 to 10 V
- Output current programmable up to 4000 A continuous; 6000 A for 30 min ON and 30 min OFF; 9000 A for 1 min ON and 10 min OFF; 40000 A for 1 sec ON and 2 min OFF
- Temperature rise as per IEC conformance / customized
- PC provided: IBM or Dell or HP or Lenovo PC with NI LabVIEW based Testware
- 500 VA branded UPS (optional)

Specifications of 7500 A continuous current model:

- 440 V, 3 phase, 50 Hz input
- Open Circuit output voltage: 13.3 V
- Output current programmable up to 7500 A continuous; 10000 A for 30 min ON and 30 min OFF; 15000 A for 1 min ON and 10 min OFF; 75000 A for 1 sec ON and 2 min OFF
- Temperature rise as per IEC conformance / customized
- PC provided: IBM or Dell or HP or Lenovo PC with NI LabVIEW based TestwareTM
  6.500 VA branded UPS (optional)

- **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)

SCR ELEKTRONIKS

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

- **Our Recent Clients :**

Sr. No.	Customer Name
1	Shivalik Bimetal
2	Garg Associates
3	IDEMI
4	Raychem RPG
5	Larsen & Toubro Ltd.
6	UL India

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THANK YOU