



Sudharsan Insulations

PRODUCT CATALOG

PRODUCT	Page
Secondary Injection - Over Current Relay Test Kits CV 50 & CV100	1
C50, C100 & CV30	2
Heavy Current Injection Sources	3
Primary Injection Test Kits	4
3 Phase Injection Current Source	5
Loading Transformers- Window model, Wound secondary	6
Static Phase Shifter	7
MCB / Bimetal Overload Relays Test Kit	8
MCCB Test Kit	8
MCB / MCCB Test Kit	9
ELCB / RCD / RCCB Test Kit	10
Digital Phase Angle Meter	11
Digi - Phase Analyser	11
Time Interval Meter	12
Electrical Test Bench Trolley	13
H.V. AC / DC Source	14

SECONDARY INJECTION - OVER CURRENT RELAY TEST KIT

(I) TYPE : SI / CV – 50 & SI / CV – 100

Features:

- Undistorted Sine wave Injection Current.
- Performance comparable to Alstom's CFB Test kit.
- Simultaneous availability of AC Injection Current and auxiliary AC / DC outputs.
- Digital Panel meters for Volt / Amp / Timer.
- Suitable for both NO / NC trip contacts of Relays under test.
- Input overload protection with MCB for Current Injection and 0.5A glass fuse for Auxiliary AC/DC outputs.
- Powder coated ms enclosure, portable with lifting handles and front panel protection with a lockable hinged cover.



Size:

425 x 390 x 280 mm Wt 28 Kg for CV - 50
 560 x 450 x 300 mm Wt 42 Kg for CV - 100

Applications:

Secondary Injection Testing of Static-Over current/Earth fault relays,/Electromagnet (CDG) relays

Specification:

Input : 220V 50Hz , 1Ph

Output : **--- for Type SI / CV – 50:**

1. AC Injection Current - Isolated from mains (90 sec rating), continuously adjustable from 0.01 to 50A on 3VA burden relay.
2. Auxiliary Output –continuously rated, non isolated from mains
 0 – 250V, 0.75 A AC
 0 – 300V, 0.5 A DC

--- for Type: SI / CV – 100:

1. AC Injection Current : 0.01 to 100Amp
2. Auxiliary output - continuously rated, non isolated from mains
 0 – 250V, 0.75 A AC
 0 – 300V, 0.5 A DC

SECONDARY INJECTION - OVER CURRENT RELAY TEST KIT

TYPE : SI / C – 50 & SI / C – 100

Features and performance similar to the types SI / CV- 50 and CV – 100, except that there is no provision of Auxiliary AC / DC outputs.

Size :

- | | | |
|----|--------------------|--------------------------|
| 1) | 425 x 390 x 280 mm | Wt. 28 Kg for SI / C-50 |
| 2) | 495 x 450 x 300 mm | Wt. 35 Kg for SI / C-100 |

SECONDARY INJECTION - OVER CURRENT RELAY TEST KIT

(Brief Case model) Type SI / CV - 30

Features:

- Assembled in VIP brief case.
- Sine wave Injection current.
- Selection of either Current Injection or Auxiliary AC / DC output .
- Digital ammeter and timer but no provision of AC / DC Voltmeter, which is to be measured externally.

Size : 610 x 420 x 185 mm Wt 25 Kg



Specification:

Input : 230V, 50Hz
Output : AC Injection Current : 0.01 - 30 Amps (90 Secs)
(or)
Aux. AC / DC Output : 0 – 250v AC, 2A
0 – 300v DC, 2A

HEAVY AC CURRENT INJECTION SOURCE – 5V / 4000A

Type: SI / PIK-20

Features:

- Continuous or short time rating with timer.
- Digital panel meters for incoming volts / Output Volts / Amps.
- Input protection by MCB
- P.B. operated contactor.
- Rotary switch selection of 1st stage fine adjustment with 2 phase variac a addition of stepped voltage.
- Copper or Aluminum heavy duty busbars.
- Forced air cooling with fans
- Dual or multiratio current transformer.
- Front and Rear panel protection by hinged lockable doors.
- Assembled in a prefabricated enclosure on castor wheels.



Size: 1050mm x 800mm x 930mm **Wt.** 350 Kg.

Application:

- Primary injection test.
- Temperature rise tests on bus bars.

Specification:

- Input : 440V , 50Hz TPN
- Output : Stage 1. 0 – 1.25V / 4000A continuously adjustable
Additional steps of 1.25 / 2.5 / 3.75, 4000Amps
for subsequent stages 2 to 4.
- Rating : Continuous or Short time rating with timer as specified.
15 minutes rating unless otherwise specified.



PRIMARY INJECTION TEST KIT

Type : SI / PIK – 15

Features:

- Self contained fully integrated unit comprising MCB, Variac, Isolated wound Secondary Injection Transformer, Dual ratio C.T., and Ammeter.
- Input with 3 pin metal clad plug and socket.
- Copper Busbar output.
- Push button operated contactor with optional timer
- Powder coated ms enclosure with front panel protection by a lockable cover.
- Transportable on castor wheels.

Size: 720mm X 625mm X 690mm **Wt:** 96 kg.

Specification:

Input : 220V or 440Volts 50Hz

Output : 0 – 5V max (on open circuit)
0 – 2500A Max at shorted output terminals
(60 sec. Rating)



Type : SI / PIK – 5 & SI / PIK – 10

Size:

450 x 420 x 345 mm. 32 Kg. For 5 kVA unit
580 x 590 x 420 mm. 66 Kg. For 10kVA unit

Application:

- CT ratio testing
- Primary injection relay testing

Specification:

Input : 220V to 240V, 50Hz , 1Ph

Output : 0 – 5V / 1000A (90 sec. Rating) for 5 KVA unit
0 – 5V / 2000A (90 sec. Rating) for 10 KVA unit

3 PHASE INJECTION CURRENT SOURCE

Type : SI / PIK - 3Ø

Features:

- Mains isolated Sine wave Injection current.
- Twin unit (Main control unit and Injection transformer unit) design or Alternatively single unit of modular Design.
- Independent phase ammeters with C.T. range selector switch.
- Single 3 Phase Variac for balanced 3 Phase mains supply source or optionally three independent single phase Variac for marginally unbalanced mains supply source.
- Range of 25 / 50 / 100A per Phase on common output terminals with current range selector switch.
- Range of 200 / 400 / 600A on individual output busbar TIs.

Size:

Main control Unit :xxmm / WtKg
Transformer Unit :xxmm / WtKg

Specification:

Input : 400 – 440V, TPN, 50Hz
Output : 25 / 50 / 100 / 200 / 400 / 600 Amp. / Ph.
Burden : To be specified.



Main control unit



Injection Transformer Unit

LOADING TRANSFORMER – (Window Model)

Type : SI / LTR – (w)

Features:

- Light weight - Easily portable with lifting handles.
- Enclosed in 5mm thick Hylam sheets.
- Wound primary only without secondary windings.
- The output secondary winding to be wound at site through centre hole with adequately rated flexible copper cables.

Size : 320 x 250 x 135 mm. Wt 33 Kg.

Applications: Site testing of C.T. Ratios

Specifications:

Input : 220V, 50Hz
 Output : 1 Volt / Turn , 2000Amp max.
 Rating : 90 Secs.



LOADING TRANSFORMER – (Wound Secondary)

Type : SI / LTR – 5 to 15

Features:

- Easily transportable with lifting handles.
- Enclosed in 5mm thick Bakelite Hylam enclosure.
- Wound secondary with brought out Copper Bus bars as output terminals.
- AC 230 V input for range up to LTR – 10 and 440 V input for range LTR – 15

Size:

290 x 260 x 150 mm Wt 16 Kg for LTR – 5
 290 x 310 x 220 mm Wt 29 Kg for LTR – 10

Application: Site testing of C.T. Ratios.

Specifications:

(A) Input : 230V, 50Hz
 Output : 0 – 5V, 1000 Amp max. at TLS. for Type LTR 5
 0 – 5V, 2000 Amp max. at TLS.. for Type LTR 10

(B) Input : 440V, 50Hz
 Output : 0 – 5V, 3000 Amp max. at TLS for Type LTR 15



STATIC PHASE SHIFTER

Type : SI / PS-1 (Single phase)

Features:

- Current as Reference phase and voltage vector phase shiftable.
- Range of phase shift (voltage phase) 0 - 360°.
- Digital phase angle meter.
- Analogue ammeter and Voltmeter.

Size: 315 x 475 x 330 mm Wt 22Kg.

Application:

- Distance scheme protection testing
- Directional relay testing
- Generator transformer reverse power relays.

Specification:

Input : 400V – 440V TPN, 50Hz

Output : 1) Reference Phase (current) – 0-5Amp Continuously adjustable
(current extension unit) (Additional CT: 5A / 1 – 10A)

2) Phase shifted voltage 0 – 120V continuously adjustable with phase angle shift
0 to $\pm 180^\circ$ with reference to current reference phase.



MCB / BIMETAL OVERLOAD RELAYS TEST KIT

Type : SI / MCB – 200 & SI / MCB – 100

Features:

- Mains isolated, distortion less sine wave AC injection current
- Light weight and easily portable for “ ON – site” testing.
- Compatible for NO / NC auxiliary trip contact selection.
- Front panel equipment protected against mechanical damage with lockable cover.
- 4 digit auto ranging Time Interval meter.

Size: 560mm X 450mm X 400mm Wt.: 60 Kg for MCB-200
450mm X 450mm X 400mm Wt.: 50 Kg for MCB -100



Specifications :

For MCB-200

Input : 230V / 50Hz

Output : mains isolated A.C. Injection current continuously adjustable from 0.01 Amp to 200 Amps (90 sec. rating)

For MCB-100

Input : 230V / 50Hz

Output : mains isolated A.C. Injection current continuously adjustable from 0.01 Amp to 100 Amps (3 minutes rating)

MCCB TEST KIT:

Type : SI / MCCB – 1000

Features:

- Variant of Primary Injection kit SI / PIK but with provision for 4 digit auto ranging digital time interval meter.

Size: 500 x 440 x 380 mm Wt.: 52Kg

Specification:

Input : 230V, 50Hz

Output : 3V / 1000Amp or as specified (3 min. rating.)



MCB / MCCB Test Kit:

Type : SI / MCB (2 in 1) – 100 / 1000

Features:

- Mains Isolated AC Injection Currents.
- 2 in one test kit to test miniature circuit breaker (MCB) / Bimetal O/L relays up to 63A as well as molded case circuit breakers (MCCB) of upto 500 Amps.
- Mode selector switch for MCB or MCCB testing.
- Auto ranging digital Time Interval meter.
- Compatible for NO / NC auxiliary trip contact selection.

Size: 500 x 440 x 380 mm Wt.: 52Kg.

Application:

On- Line Production / Field or site testing of

- a) Miniature Circuit breakers (MCB).
- b) Bimetal Overload relays.
- c) Moulded case circuit breakers (MCCB).

Specifications:

Input : 230V , 50Hz

Output : Mode 1 : 0.01 to 100 Amp AC for MCBs.

Mode 2 : 100 to 1000 Amp AC for MCCBs.



ELCB / RCD / RCCB TEST KIT:

Type : SI / RCCB

Features:

- Ideal for both Domestic and Industrial types.
- Not suitable for DC systems and unearthed networks.
- mA Current Display with DPM – modules.
- Range selection for 10 – 60mA / 100 – 500mA residual current.
- Inexpensive, light weight, handy.

Size: 230 x 315 x 95 mm **Wt:** 7Kg

Application:

Testing of ELCB / RCD / RCCB
ELCB – Earth Leakage Circuit Breaker.
RCD - Residual Current Device.
RCCB – Residual current circuit breaker.

Specification :

Input : 230V, 50Hz

Output : Mode 1) 10 – 60mA for Domestic range.
Mode 2) 100 – 500mA for Industrial range.



DIGITAL PHASE ANGLE METER

Type : SI / DPA

Features:

- Handy single phase table top device.
- Built in PT / CT for Voltage and Current ranges.
- LED display.

Size: 300 x 100 x 150 mm Wt : 3 Kg

Specification:

Input : Auxiliary supply. 230V, 50Hz
 Potential circuit 110 / 440V AC.
 Current circuit 1A / 5Amps AC.

Display : 0 to $\pm 180^\circ$ (accuracy < 2 degrees)



DIGI – PHASE ANALYSER

Type : SI / PHA

Features:

- VIP Brief case assembled for easy portability.
- To measure phase Voltage / Current and Phase angles between Voltage to Voltage, Voltage to Current and between Current to Current.
- LED indication of mode selection by Rotary wafer switch for Voltage / Current /Phase angle measurement mode.
- Front panel R, Y, B terminals for “Current in” / “Current out” & Potential terminals RN / YN / BN.

Size: 460 x 380 x 140 mm Wt 15 Kg.

Specifications:

Input :

1. Auxiliary input mains supply 230V, 50Hz
2. A.C. Potential source Terminals RN / YN / BN.
3. A.C. Current “IN” and Current “OUT” terminals for R, Y, B Phases.

Display :

1. Voltage up to 200 V A.C.
2. Current up to 10 Amp A.C.
3. Phase Angle :0 to $\pm 180^\circ$.



TIME INTERVAL METER

Type : SI / T -

Features:

- Panel mounting type for 90 x 90 mm cutout size.
- Auto ranging Digital display (4 digits LED)
- Potential free contacts for “close to start” / “open to stop”.
- Microcontroller based.

Specification:

- Input : 230V, 50Hz Auxiliary supply.
- Display : 0.000 to 9999 Secs.



CURRENT OPERATED TIME INTERVAL METER

Type : SI / TC -

Features:

- Current sensing type. (Typical 50mA to 1Amp as current sensing)
- External C.T. with 1 Amp secondary for higher current ranges.
- Microcontroller based.
- Panel mounting type for 90 x 90 mm cutout size

Specification:

- Input : a) 230V, 50Hz Auxiliary supply.
b) Current sensing input less than 1 Amp.
- Display : 0.000 to 9999 sec.



ELECTRICAL TEST BENCH TROLLERY

Type : SI / ETB

Features:

- As per customer's specifications.
- Continuously variable AC / DC Power Sources.
- All controls, Indications and Output Terminals from the front panel.
- Easy accessibility of components for maintenance.
- Transportable with heavy duty castor wheels and Top lifting hooks.
- Built in pre fabricated steel enclosure system (eg. President Rack / Ultima etc.)
- Louvered and lockable - side panels, front and rear panel.

Size : 1366 x 800 x 800 mm Wt: 350Kg.

Application:

Routine tests of Control / Switch gear panel.

Specifications: (Typical)

Input : 440V, TPN , 50Hz

Output :

- Continuously adjustable AC source 0 – 470V TPN / 10 – 15 Amp
- Continuously adjustable Unregulated DC source 0 – 300V DC / 10A.
- Regulated fixed DC / AC Voltages.
- High Voltage test with timer – 3kV / 1minute.
- Optional secondary Injection – Relay Test Facility.
- 230V Single Phase 3 Pin / 5 Pin Socket outlets.



H.V. AC / DC SOURCE

Type : SI / HV – AC/DC

Features:

- Air cooled transformer for upto 10kV and Transformer Oil cooled for 10 – 35kV.
- Add on- extension unit for DC outputs.
- Output volt and Amp measurement with digital panel meters.
- P.B. operated contactor and zero start H.V. “ ON” interlock.
- Overload alarm and trip facility.
- Separate control unit and H.V. unit



Size:

- 1) Control Unit : 350 x 450 x 300 mm Wt.: 15 Kg
- 2) H.V unit : 500 x 350 x 350 mm Wt.:30 Kg

Application:

- Hi POT – High Voltage testing of Electrical insulation.
- Energy storage capacitor charging.

Specification:

Input : 230V, 50Hz
Output : 10kV to 35kV / 50mA or as specified.

ABOUT US

The company is managed by professionals who have specialized in the fields of Electrical, Mechanical and Production Engineering with more than three decades of experience in Design, Manufacture and testing of Electrical equipment in pioneering establishments in the country like Council of Scientific and Industrial Research (CSIR), Bharat Heavy Electricals (BHEL), Alstom (erstwhile EECO) etc.

The company has supplied many custom built control panels and test equipment to

Domestic Customers

- English Electric Co. now called Alstom India.
- Neyveli Lignite Corporation (NLC)
- Asea Brown Boveri
- Larsen and Toubro
- State Electricity Boards etc.
- GE Power controls
- SPIC, Tuticorin
- Gujarat Ambuja Cements, HP
- University of Madras & other educational institutions
- ISRO, Sriharikota
- Kappa Exports
- Blue Star Exports

Overseas Customers

- Al-Ahleia Switchgear co., Kuwait
- National Contracting Company Limited, Al-Khobar, Kingdom of Saudi Arabia
- Middle East Electric Power Projects, Riyadh, Kingdom of Saudi Arabia
- Qatar Switchgears, Qatar
- Electrical Lighting Co., LLC, Abu Dhabi
- Power Economy Middle East Co. WLC, Abu Dhabi

The company offers high quality products with a high degree of reliability and aesthetic looks. Most of the metallic parts are powder coated or electroplated. Electrical parts and other instruments are from most reliable suppliers in the country.

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