



# SCR ELEKTRONIKS

## SALES PRESENTATION ON ENGINEERING COLLEGE DEMO PANELS





## *LIST OF TEST EQUIPMENT*

1. DEMONSTRATION UNIT FOR DIFFERENTIAL OVER CURRENT RELAY
2. DEMONSTRATION UNIT FOR DIRECTIONAL OVER CURRENT RELAY
3. DEMONSTRATION UNIT FOR DISTANCE RELAY
4. DEMONSTRATION UNIT FOR MOTOR PROTECTION RELAY
5. DEMONSTRATION UNIT FOR MOTOR WINDING TEMPERATURE RELAY
6. DEMONSTRATION UNIT FOR TIME DELAY RELAY
7. DEMONSTRATION UNIT FOR UNDER / OVER VOLTAGE RELAY
8. TESTING SET-UP FOR AC CONTACTORS & AC-DC ELECTROMAGNETIC RELAYS
9. TESTING & DEMONSTRATION SETUP FOR MCB, ELCB, THERMAL OVERLOAD RELAY



# 1. DEMONSTRATION UNIT FOR DIFFERENTIAL OVER CURRENT RELAY

- **What It Is ?**

- This is a demonstration panel to show the working of “DIFFERENTIAL OVER CURRENT OVER CURRENT RELAY”. A protective relay is a device designed to trip a circuit breaker when a fault is detected.
- The distance current protection relay is a type of relay which functions depending upon the distance of fault in the line.
- More specifically, the relay operates depending upon the impedance between the point of fault and the point where relay is installed. These relays are known as distance relay or impedance relay.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## ● **Features :**

- Measurement accuracy (current): 1%
- Rating and trip delay programmable through keypad provided on logic controller.
- LED's to indicate area of fault.

## ● **Specifications :**

- Single Phase Variable Voltage Source 0-230V @ 1.5Amp.
- Input supply : ac 230v 50/60 hz +/-10%
- CT to monitor the current.
- PF to monitor the voltage.
- Simulation of Impedance of Transmission Line with different tapings.
- Impedance Sensing and measuring Micro Controller based Unit.
- Digital Voltmeter.
- Digital Ammeter.
- Loading Arrangement.
- MCB Protection, Lamp Indicators etc.
- Impedance Relay (Simulated) with setting Arrangement.
- Arrangement to create fault.

- **Key Benefits :**

- The test bench is made to demonstrate the working of a Differential Overcurrent relay by simulating a differential current in an actual relay

- **Key Photos :**



Demonstration Unit For Differential Over Current Relay



## 2. DEMONSTRATION UNIT FOR DIRECTIONAL OVER CURRENT RELAY

- **What It Is ?**

- This is a demonstration panel to show the working of “DIRECTIONAL OVER CURRENT RELAY”. A protective relay is a device designed to trip a circuit breaker when a fault is detected.
- A directional relay uses an additional polarizing source of voltage or current to determine the direction of a fault. The fault can be located upstream or downstream of the relay's location, allowing appropriate protective devices to be operated inside or outside of the zone of protection.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



- **Features :**

- Measurement accuracy (voltage & current): 1%
- Rating and trip delay programmable through keypad provided on logic controller.
- Sequence of LED's to indicate direction of current flow.

- **Specifications :**

- Single Phase Variable Current Source 0-10V at 20 Amps.
- Input supply : ac 230v 50/60 hz +/-10%
- Simulated 2 feeder arrangement two for two limbs.
- Arrangement to mount two number Directional Over Current Relay
- 2 MCBs (with slow response) one in each feeder.
- Digital Ammeter 2 No. to indicate feeder current and one DAM to indicate 'FAULT' current.
- Universal Digital Time Interval meter to measure Trip Time.
- Arrangement to create fault in both the feeder with LED indications of flow Directions.

- **Key Benefits :**

- The test bench simulates the direction with respect to the relay by dictating the polarities of the voltage and the current and demonstrates the working of the directional overcurrent relay

- **Key Photos :**



Demonstration Unit For Directional Over Current Relay





## 3. DEMONSTRATION UNIT FOR DISTANCE RELAY

- **What It Is ?**

- This is a demonstration panel to show the working of “DISTANCE OVER CURRENT RELAY”. A protective relay is a device designed to trip a circuit breaker when a fault is detected.
- The distance current protection relay is a type of relay which functions depending upon the distance of fault in the line.
- More specifically, the relay operates depending upon the impedance between the point of fault and the point where relay is installed. These relays are known as distance relay or impedance relay.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## ● **Features :**

- Measurement accuracy (current): 1%
- Rating and trip delay programmable through keypad provided on logic controller.
- Sequence of LED's to indicate direction of current flow.

## ● **Specifications :**

- Single Phase Variable Voltage Source 0-230V @ 1.5Amp.
- Input supply : ac 230v 50/60 Hz +/-10%
- CT to monitor the current.
- PF to monitor the voltage.
- Simulation of Impedance of Transmission Line with different tappings.
- Impedance Sensing and measuring Micro Controller based Unit.
- Digital Voltmeter.
- Digital Ammeter.
- Loading Arrangement.
- MCB Protection, Lamp Indicators etc.
- Impedance Relay (Simulated) with setting Arrangement.
- Arrangement to create fault.

- **Key Benefits :**

- The test bench simulates the distance in the form of impedance and demonstrates the working of a distance relay

- **Key Photos :**



Demonstration Unit For Distance Relay



## 4. DEMONSTRATION UNIT FOR MOTOR PROTECTION RELAY

- **What It Is?**

- Protection has assumed a large importance in the power industry in the recent years. This protection involves the use of relays on a large scale.
- Relays are basically used to give commands to circuit breakers, contactors, etc by sensing different parameters like current, voltage, etc. Just as electrical circuits may range from a few watts to 100 megawatts, the size and rating of the relays vary considerably.
- Study of relays is now being included in the engineering curriculum. M/S SCR Elektroniks have developed demonstration units for different types of relays such as under protection/over protection relay, temperature protection relay, motor protection relays, AC/DC relays and contactors keeping the engineering curriculum in view.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## • Features / Specifications :

### Module 1 -

- Motor protection relay : MPRD2, Minilec make with mounting arrangement with stand, supply voltage 415V, auxiliary supply voltage 240 V AC.

### Module 2 -

- Phase reversal switch at the input supply.
- Isolator (on/off) switch for each phase.
- Digital Voltmeter (0-500V) with selector switch for 3phase.
- Input supply cable 5 meters, 3ph, 4core.
- 16 A contactor, 240V AC, to be operated by relay.
- 3 phase variable load. Each phase voltage = 240V current 10A, Variation should be smooth (min.10 steps) separate from the main unit.
- Output terminus for motor connection with change over switch for motor or internal load.
- Arrangement for mounting CT's (including CT'S) CTS 05, CTS 10, CTS 40.
- Digital Time Interval Meter 4 digits (SCR /scot ut make) range 0-999.9 sec & wired between relay & contactor with reset push button.
- Digital Current Meter with Selector Switch. Suitable enclosure with stand and complete wiring.



- **Salient Features :**

- Output terminus for motor connection with change over switch for motor or internal load.
- Arrangement for mounting CT's (including CT'S) CTS 05, CTS 10, CTS 40.
- Suitable enclosure with stand and work space

● Key Photos :



Demonstration Unit For Motor Protection Relay



## 5. DEMONSTRATION UNIT FOR MOTOR WINDING TEMPERATURE RELAY

- **What It Is ?**

- Protection has assumed a large importance in the power industry in the recent years. This protection involves the use of relays on a large scale.
- Relays are basically used to give commands to circuit breakers, contactors, etc by sensing different parameters like current, voltage, etc. Just as electrical circuits may range from a few watts to 100 megawatts, the size and rating of the relays vary considerably.
- Study of relays is now being included in the engineering curriculum. M/S SCR Elektronik have developed demonstration units for different types of relays such as under protection/over protection relay, temperature protection relay, motor protection relays, AC/DC relays and contactors keeping the engineering curriculum in view.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs





- **Features / Specifications :**

- Neatly designed with testing space
- Digital Temperature indicator.
- Single channel winding temperature relay WTRD1 : Minilec make Aux supply voltage 240 V AC with suitable mounting arrangement.
- PTC 80 Deg.C, 90 Deg.C, 100 Deg.C transducers.
- Suitable heating arrangement.
- Contactor for 16A with suitable indication.

● Key Photos :



Demonstration Unit For Motor Winding Temperature Relay



## 6. DEMONSTRATION UNIT FOR TIME DELAY RELAY

- **What It Is ?**

- Protection has assumed a large importance in the power industry in the recent years. This protection involves the use of relays on a large scale.
- Relays are basically used to give commands to circuit breakers, contactors, etc by sensing different parameters like current, voltage, etc. Just as electrical circuits may range from a few watts to 100 megawatts, the size and rating of the relays vary considerably.
- Study of relays is now being included in the engineering curriculum. M/S SCR Elektronik have developed demonstration units for different types of relays such as under protection/over protection relay, temperature protection relay, motor protection relays, AC/DC relays and contactors keeping the engineering curriculum in view.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## • Features / Specifications :

- Time delay relay ETODI : Minilec make : Aux. Supply 240 V AC.
- Single phase supply cable, suitable MCB.
- Time Interval Meter; (SCR /scot ut make) 4 digits, 0-999.9 sec, with reset button.
- Suitable 3p, 240 V AC coil, suitable 16A contactor interfaced with time delay relay.
- Suitable indication of output with terminals for connection of CRO.
- Enclosure with stand.

- **Key Photos :**



Demonstration Unit For Time Delay Relay



## 7. DEMONSTRATION UNIT FOR UNDER / OVER VOLTAGE RELAY

- **What It Is ?**

- Protection has assumed a large importance in the power industry in the recent years. This protection involves the use of relays on a large scale.
- Relays are basically used to give commands to circuit breakers, contactors, etc by sensing different parameters like current, voltage, etc. Just as electrical circuits may range from a few watts to 100 megawatts, the size and rating of the relays vary considerably.
- Study of relays is now being included in the engineering curriculum. M/S SCR Elektronik have developed demonstration units for different types of relays such as under protection/over protection relay, temperature protection relay, motor protection relays, AC/DC relays and contactors keeping the engineering curriculum in view.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## ● Specifications :

### Module I -

- Under / Over voltage : HLVD2 Minilec relay, with mounting arrangement with stand supply voltage 415 V; Aux. Supply voltage 220 V AC.

### Module II -

- Three Phase variable voltage source each phase adjustable from 0 to 270 (4A max)
- Phase reversal switch.
- ON/OFF switch for each phase.
- 3 & 1/2 digit Voltmeter (0-500 V) with selector switch for 3 phase.
- Relay will operate a contactor of 12A, 220V AC.
- Input supply cable of 5 meters 3 ph, 4 core, 12 A capacity.
- Input protection by MCB of 15 A rating.
- Demonstrative enclosure with stand.
- Digital time interval 4 digits (SCR/scot ut make), with reset switch wired with relay & contactor.
- Three Phase, 2 HP, 1450 RPM Inductor Motor.



- **Salient Features :**

- Suitable enclosure with stand and work space
- Can test two types of relays in a single system
- Neat display with lamps and metering

- **Key Benefits :**

- The under / overvoltage condition is simulated using a simple variable transformer and under voltage and overvoltage relay functionality and working is demonstrated



● Key Photos :



Demonstration Unit For Under / Over Voltage Relay



## 8. TESTING SET-UP FOR AC CONTACTORS & AC-DC ELECTROMAGNETIC RELAYS

- **What It Is?**

- Protection has assumed a large importance in the power industry in the recent years. This protection involves the use of relays on a large scale. Relays are basically used to give commands to circuit breakers, contactors, etc by sensing different parameters like current, voltage, etc.
- Just as electrical circuits may range from a few watts to 100 megawatts, the size and rating of the relays vary considerably.
- Study of relays is now being included in the engineering curriculum. M/S SCR Elektronik have developed demonstration units for different types of relays such as under protection/over protection relay, temperature protection relay, motor protection relays, AC/DC relays and contactors keeping the engineering curriculum in view.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## ● Specifications :

- Variable AC Voltage Source 0 - 250 V / 4 Amp. max. with Isolation Transformer having Tapping 0-50 V, 0-100 V, 0-250 V( Tapping will be selected with switch). Digital Voltmeter will be provided to monitor the output voltage & Digital Ammeter will be provided to monitor the current.
- Variable DC Source 0 - 30 Volt 2 Amp Max. Digital Voltmeter will be provided to monitor the output voltage & Digital Ammeter will be provided to monitor the current.
- Digital Time Interval Meter for Time Measurement on 4 Digit Display with 4 Ranges viz.-
  - a) 0 - 9.999 Sec.
  - b) 0 - 99.99 Sec.
  - c) 0 - 999.9 Sec.
  - d) 0 - 9999 Sec.

It will accept START & STOP commands either NO or NC with switch selection.
- Mounting Panel with 1 No. Contactor, 1 No. AC Relay, 1 No. DC Relay, etc.



- **Salient Features :**

- Required switchgear items will be provided
- Panel with neat metering and lamps
- Enclosure with storage stand
- Table with drawer as an extra storage space

- **Key Photos :**



Testing Set-up For Ac Contactors & Ac-dc Electromagnetic Relays

## 9. TESTING & DEMONSTRATION SETUP FOR MCB, ELCB, THERMAL OVERLOAD RELAY

- **What It Is ?**

- SCR ELEKTRONIKS have designed MCB TEST BENCH i.e Miniature Circuit Breaker Test Bench to provide MCB manufacturers and users a simple steady method of Testing their MCBs, ELCB, Thermal Overload Relays for thermal overload test & Magnetic Trip test for MCBs.
- It provides a Constant Current Source. The range and the test current can be set depending upon the range of the MCB. The Tripping time is indicated on Digital Time Interval Meter which stores the information till we reset the system.
- Provision is also made in this panel to carry out demonstration of Instantaneous Operation of Short Circuit Protection.

- **Models Available :**

- The test bench is generally offered as a standard issue, but can be designed as per the customer specs



## ● Features / Specifications :

- Input Voltage : 230 V AC.
- Output Current : Selectable with selecting the links.
- VOLTAGE SELECTION : (For Single Station)
  - 1A-10A / 25V,
  - 10A-100A/ 4V,
  - 50 A-400A/4V,
- C.T. RANGE : 10A, 20A, 200A, 400A.
- Current Regulation : +/- 0.5% of Setting.
- Current Meter : Digital Meter with 3 1/2 Digit Display Indicating True RMS Value. (Provided On Servo Controller Unit)
- Transient Recording Meter : 0 to 1A track and Hold Digital Current Indicator
- Time Measurement : 4 Digit Display with 4 Ranges viz.-
  - a) 0 - 9.999 Sec.
  - b) 0 - 99.99 Sec.
  - c) 0 - 999.9 Sec.
  - d) 0 - 9999 Sec.
- Provision for Leakage Current Introduction will be provided for ELCB Testing.



## ● Key Benefits :

- The test bench demonstrates the working of MCB, ELCB and relays by subjecting the devices to typically occurring real world situations like overload, short circuit and leakage current
- All in one test bench for different circuit breakers
- Control panel is mounted on a stand for ease of operation and demonstration



- Key Photos :



Testing & Demonstration Setup For MCB, ELCB, Relay



- **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 :**

Sr. No.	Customer
1	IIT College
2	VJTI College
3	Lokmanya Tilak College
4	SSPM College
5	MGM College
6	Anjuman Islam College
7	VIVA College
8	SSGM College
9	AC Patil Engg College
10	ARMIT College

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*THANK YOU*