



CATALOG

Power System / Relay Lab Trainers



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Power System / Relay Lab Trainers

ME 2465 - Transmission Line Trainer (ABCD, T & Pi parameters, Ferranti effect Load test)

Objective:

- "Control Panel To Study The Characteristic of A Transmission Line (Combined for ABCD Parameter & T And Pie Network" has been designed to study the ABCD Parameter of Transmission Line By T and Pie Network.

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Terminals : 4mm Terminals for Voltmeter, Ammeter, Input Power supply & Load
- Meters (Digital) : 2 Nos. Current Meter 0 – 10Amps
: 2 Nos. Voltmeter 0 – 300V
- Variac for output voltage source provided with input terminal : 1 No.
- Resistive load for ferranti effect provided with input terminals. : 1No.
- Miniture Circuit Breaker of range 10Amp.(MCB/DP) Provided on the input side : 1 No.
- Circuit Diagram : Screen Printed on front panel
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.

ME 2471R - IDMT Over Current Relay Testing Kit (Electromechanical Type)

Objective:

- To study the construction of relay
- Test an induction disc relay in over current protection scheme for operating characteristic using current injection
- To obtain the time & current characteristics of a over current induction disc type relay

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values

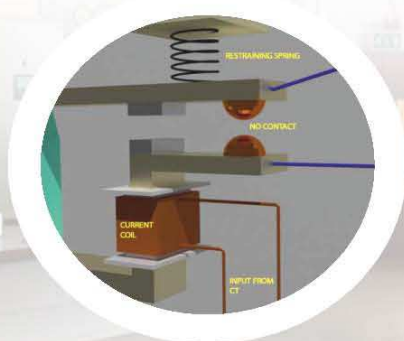


Technical Specifications:

- Relay Type : Over Current Relay IDMT (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.



Power System / Relay Lab Trainers

ME 2472R - Earth Fault Relay Testing Kit (Electromechanical Type)

Objective:

- To study the construction of relay
- Test an induction disc relay in residual earth fault protection scheme for operating characteristic and setting using current injection
- To obtain the time & current characteristics of a earth fault relay induction disc type relay

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Relay Type : Earth Fault Relay IDMT (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.

ME 2473R - Percentage Based Differential Relay Testing Kit

Objective:

- To study the construction of relay
- To check connections on biased differential protection scheme of transformer
- Test the scheme for operation and setting values on interval faults using current injection
- To obtain the current characteristics of a percentage biased differential relay induction disc type

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specification:

- Relay Type : Percentage Biased Differential Relay (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Rheostats to set the biased Current & to vary the Differential Current
- Meters (Digital) : 3Nos. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- 2 Nos. Rheostats, Power Cords, Patch Cords & Instruction Manual.



Power System / Relay Lab Trainers

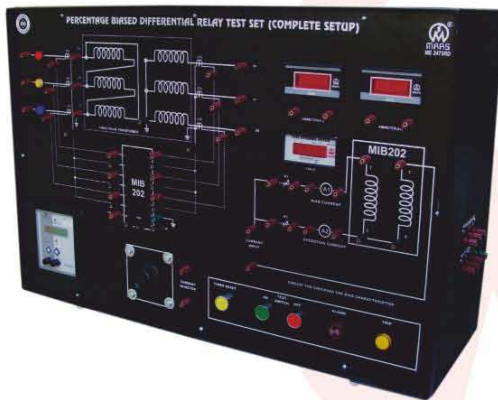
ME 2473RD - Transformer Protection using Percentage Biased Differential Relay (Microprocessor Type)

Objective:

- To study the construction of relay
- To check connections on biased differential protection scheme of transformer
- Test the scheme for operation and setting values on interval faults using current injection
- To obtain the current characteristics of a percentage biased differential relay Micro controller Based

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Relay Type : Percentage Biased Differential MIB 202 Relay
- Terminals : 4mm Terminals for Rheostats to set the biased Current & to vary the Differential Current
- Meters (Digital) : 2Nos. AC Current Meter 0-20Amps, & 1 No. Digital Timer .0001sec. to 9999sec.(Auto) (96mmx48mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Timer Reset, Test Switch (ON/OFF) & Power supply (ON/OFF) through MCB
- Relay Circuit Diagram: Screen Printed on front panel size 900mm x 600mm
- Dimensions : 900mm x 600mm x 350mm
- Weight : 75 Kgs Approx.
- Power Requirement : 415VAC $\pm 10\%$, 50Hz

Standard Accessories:

- 2Nos. Rheostats, Resistive Load 1.5KW of 3 Phase, Power Cords, Patch Cords, Instruction Manual.

ME 2474R - Thermal Over Load Relay Testing Kit

Objective:

- To study the operating characteristics of relay
- To study the time – current characteristics of the Thermal Overload Relay

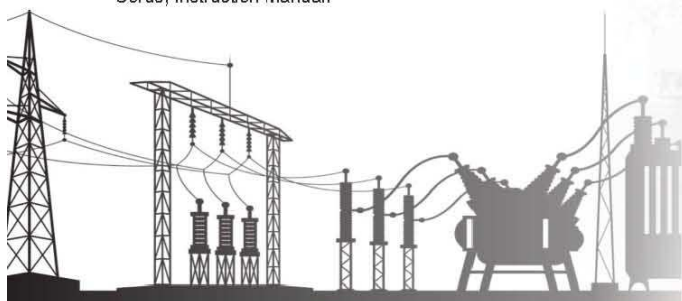


Technical Specifications:

- Relay Type : Thermal Relay
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.



Power System / Relay Lab Trainers

ME 2475R – Buchholz Relay Testing Kit (with Compressor & Oil)

Objective:

- To study the alarm & trip function of buchholz relay

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values

Technical Specifications:

Part A (Testing Setup)

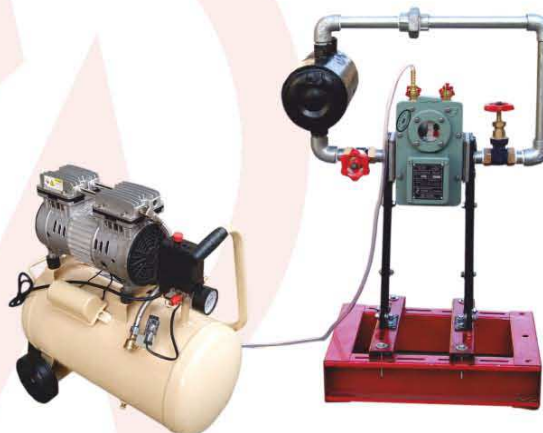
- Relay Type : Buchholz Relay
- Fittings : GI Pipe used for closed circuit operation
- Oil Tank : 2Ltrs
- Control Valves : 2Nos. for level control
- Mounting : Setup mounted on strong MS base and frame
- Air Inlet : Provided with flexible pipe
- Air Pump : Compressor pressure upto 115psi for Air Injection (220VAC Operated)

Part B (Control Panel)

- Terminals : 4mm Terminals for Mains, Trip, Alarm, Pump
- Protection : 1Nos. MCB / DP
- Meters (Digital) : 1No. AC Current Meter 0 – 10Amps & 1 No. AC Voltmeter 0-220VAC
- Indicators : Provided on front panel for Mains, Trip and Alarm
- Dimensions : 600mm x 600mm x 160mm
- Weight : 10Kgs Approx.
- Power Requirement : 220VAC \pm 10%, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual



ME 2476 - Current Transformer Test Set

Objective:

- To study the current rating and accuracy of CT's under test
- To study the efficiency of CT under test
- To compare CT under test w.r.t. standard CT
- To study the Phase angle error, Percentage Ratio error, Time difference & Time period

Features:

- Separate terminals to connect standard C.T. and Test C.T. Secondaries.
- Ratio error and phase angle error display
- Range selecting Switch
- Polarity check indicator
- Ammeter to measure current injected in percentage
- Null detector with sensitivity control
- Terminals to connect burden box on both std. & under test
- Aux. power supply to energise electronic null detector
- Secondary current selector 1A. or 5A



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Technical Specifications:

CT Test Set

- LCD Display.
- LED Indication.
- Aux. ON/OFF Switch.
- Current Range Selection - 1A & 5AAC.
- Hold Key.
- Standard CT & Burden Terminals.
- 'X' CT & Burden Terminals.
 - A) Percentage Ratio Error : 0 to 50%
 - B) Phase Ratio Error : 0-1000 Minutes
 - C) Input Current : 0.05A to 7.5A AC
 - D) Accuracy : + 1% of reading
 - E) Indication : a) Reverse Polarity
: b) 'Std' C.T. Sec. open
: c) 'X' C.T. Sec. Open
: d) Difference Ratios of 'Std' & 'X' CT Hi-imbalance
: e) Over Current
: f) Ratio Error Polarity
: g) Phase lag-lead
: h) Phase Error Over Range

Burden Box

- On Standard Transformer 1.5VA at U.P.F.,
- On 'X' Transformer same as connected
- Externally at 'X' Burden terminal +1.5 VA

Current Injection Set

- Output Variable Current 100Amps
- Provided with Digital Current Meter & Timer
- Kit Type : Manual operated
- Terminals : Terminals for current output.
- Switches : Main, On and Off Switches, Timer start and stop Switch & Overload reset switch.

Current Transformer

- Range : 100 : 5 Amps (2Nos)

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual

ME 2479R – Under Voltage / Over Voltage Relay Testing Kit (Static Type)

Objective:

- To study the construction of relay
- Test an relay in over / under voltage protection scheme for operating characteristic using voltage injection
- To obtain the time & current characteristics of a over / under voltage type relay (Static)

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Relay Type : Over / Under Voltage Relay (Static Type)
- Terminals : 4mm Terminals for Trip, Voltage Output and Input
- Meters (Digital) : 1No. AC Voltmeter Meter 0 – 220V & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Voltage Injector : Inbuilt variable voltage injector 220V to create Fault Voltage
- Indicators : Provided on front panel for Mains, Voltage, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC \pm 10%, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual



Power System / Relay Lab Trainers

ME 2481R - Instantaneous Earth Fault Relay Testing Kit (Electromechanical Type)

Objective:

- To study the construction of relay
- Test an relay in instantaneous protection scheme for operating characteristic using current injection

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values

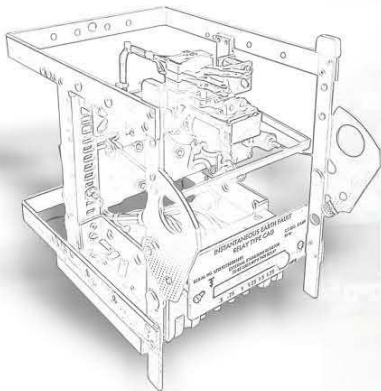


Technical Specifications:

- Relay Type : Instantaneous Earth Fault Relay (Electromechanical)
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector Amps 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual



ME 2482R – Under / Over Frequency Relay Testing Kit with MG set Shunt Motor 1HP coupled with 0.5KVA Alternator for frequency variation

Objective:

- To study the construction of relay
- Test an relay in frequency protection scheme for operating characteristic using control frequency

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Relay Type : Under / Over Frequency Relay
- Terminals : 4mm Terminals for Trip
- Meters (Digital) : Frequency Meter
- Frequency Source : Motor Generator set consisting of 1HP DC Shunt Motor coupled with 0.5KVA alternator
- Indicators : Provided on front panel for Mains, Trip and Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

DC Shunt Motor 1HP coupleld with AC Alternator 0.5KVA

DC Shunt Motor (Prime Mover) 1HP

- Cage : Steel body
- RPM : 2000 approx.
- Shaft : Single
- Current : 4 Amp Max.
- Winding : Armature (A1, A2), Field (F1, F2)

AC Alternator 0.5KVA

- Cage : Steel body
- RPM : 1500 approx.
- Shaft : Single
- Current : 1 Amp Max.
- Output Terminal : R, Y, B and Neutra with F1 and F2 (Field Terminal)

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual & Motor Generator set consisting of 1HP DC Shunt Motor coupled with 0.5KVA alternator

Power System / Relay Lab Trainers

ME 2483R – Over Voltage Relay Testing Kit (Electromechanical Type)

Objective:

- To study the construction of relay
- Test an relay in over voltage protection scheme for operating characteristic using voltage injection
- To obtain the time & voltage characteristics of a over voltage induction disc type relay

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values



Technical Specifications:

- Relay Type : Over Voltage Relay (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Trip, Voltage Output and Input
- Meters (Digital) : 1No. AC Voltmeter Meter 0 – 300V & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Voltage Injector : Inbuilt variable voltage injector 250V to create Fault Voltage
- Indicators : Provided on front panel for Mains, Voltage, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual

ME 2484R - Under Voltage Relay Testing Kit (Electromechanical Type)

Objective:

- To study the construction of relay
- Test an relay in under voltage protection scheme for operating characteristic using voltage injection
- To obtain the time & voltage characteristics of a under voltage induction disc type relay

Features:

- Compact and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values

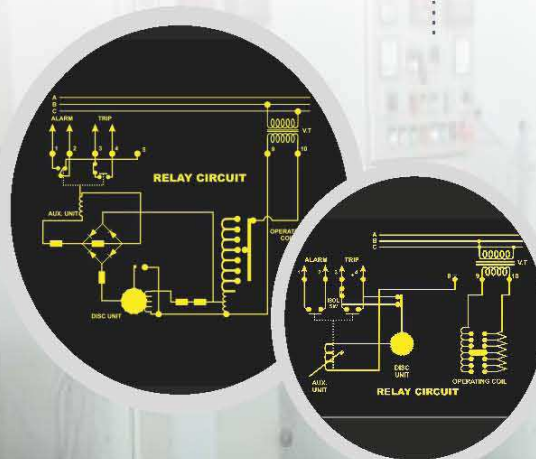


Technical Specifications:

- Relay Type : Under Voltage Relay (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Trip, Voltage Output and Input
- Meters (Digital) : 1No. AC Voltmeter Meter 0 – 300V & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Voltage Injector : Inbuilt variable voltage injector 250V to create Fault Voltage
- Indicators : Provided on front panel for Mains, Voltage, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual



Power System / Relay Lab Trainers

ME 2485R - Over Current & Earth Fault Relay Testing Kit (Three Phase Static Type)

Objective:

- To study the construction of relay
- Test an static relay in over current & earth protection scheme for operating characteristic using current injection



Technical Specifications:

- Relay Type : Over Current & Earth Fault Relay Testing Kit (Three Phase Static Type)
- Terminals : 4mm Terminals for Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC \pm 10%, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.

ME 2486R – Over Current Relay (Directional Type) Testing Kit (Electromechanical Type with Rheostat)

Objective:

- To study the construction of relay
- Test an induction disc relay in directional over current protection scheme for operating characteristic using current injection
- To obtain the time & current characteristics of a directional over current induction disc type relay



Technical Specifications:

- Relay Type : Directional Over Current Relay (Electromechanical Induction Disc Type)
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Reversing Switch : To reverse the direction of current
- Relay Circuit Diagram: Screen Printed on front panel
- Weight : 40Kgs Approx.
- Power Requirement : 220VAC \pm 10%, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.



Power System / Relay Lab Trainers

ME 2487R - Over Current Relay Testing Kit (Static Type)

Objective:

- To study the construction of relay
- Test an Over Current Relay (Static Type) in over current protection scheme for operating characteristic using current injection
- To obtain the time & current characteristics of an Over Current Relay (Static Type)

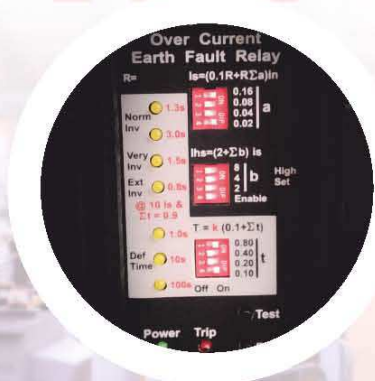


Technical Specifications:

- Relay Type : Over Current Relay (Static Type)
- Terminals : 4mm Terminals for Trip, Current Output and Input
- Meters (Digital) : 1No. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Mains, Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.



ME 2488R - Negative Sequence Relay Testing Kit (with Three Phase 3HP Induction Motor)

Objective:

- To study the construction of relay
- To obtain the characteristics of negative Sequence Relay



Technical Specifications:

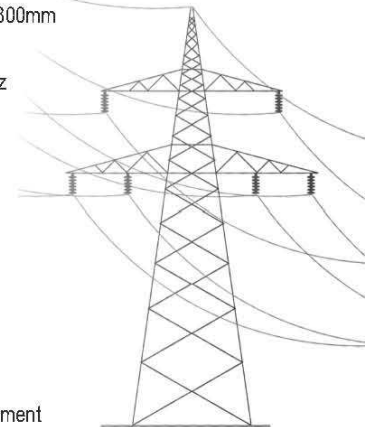
- Relay Type : Negative Sequence Relay (Static Type)
- Terminals : 4mm Terminals for Input & output Supply
- Meters (Digital) : 3Nos. AC Current Meter 0 – 20Amps & 1 No. Digital Timer .0001sec. To 9999sec. (Auto) (96mm x 48 mm)
- Indicators : Provided on front panel for Mains, Current, Trip, Alarm & motor on
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF) & Fault Switch.
- Relay Circuit Diagram: Screen Printed on front panel size 700mm x 400mm
- Dimensions : 700mm x 400mm x 300mm
- Weight : 30Kgs Approx.
- Power Requirement : 440VAC $\pm 10\%$, 50Hz

3 phase Induction Motor 3 HP

- Capacity : 3HP
- Cage : Steel body
- Class : E Class
- RPM : 1500 approx.
- Shaft : Single
- Current : 5 Amp Max.
- Winding : Stator Winding
- Input Terminal : 3
- Mounting : Foot Mounted Agreement
- Power requirement : 415VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual & Induction Motor 3HP.

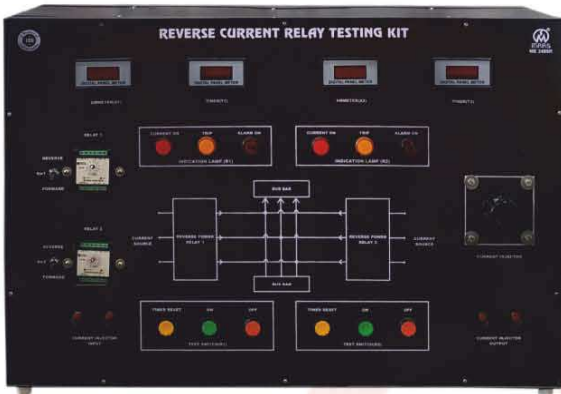


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ME 2489R - Reverse Power Relay Testing Kit (Static Type)

Objective:

- To study the construction of relay

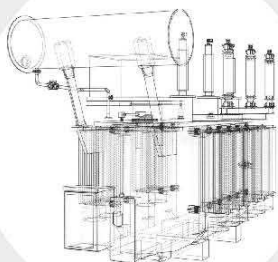


Technical Specifications:

- Relay Type : Reverse Power Relay (Static Type)- 2 Nos.
- Meters (Digital) : 2Nos. AC Current Meter 0 – 20Amps & 2 No. Digital Timer .0001sec. to 9999sec. (Auto) (96mm x 48 mm)
- Terminals : 4mm Terminals for Current Output and Input
- Current Injector : Inbuilt variable current injector 20Amps to create Phantom Fault Current
- Indicators : Provided on front panel for Current, Trip & Alarm
- Switches : Provided on front panel for Mains, Timer Reset, Test Switch (ON/OFF)
- Relay Circuit Diagram: Screen Printed on front panel
- Dimensions : 900mm x 650mm x 250mm
- Weight : 22 Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual



Mars - Oil Testing Kit

Objective:

- To study & measurement of dielectric strength of Transformer oil.



Technical Specifications:

- Kit Type : Manual operated
- Switches : Main, H.T on & off switches.
- Meters (Analog) : 1No. AC Volt Meter 0 – 60 KV
- Indicators : Provided on front panel for Mains on, Variac Min. & H.T. On.
- Testing Electrode : Two nos of Testing Electrode with adjustable gap, Dia 2.5mm, Mushroom Type
- Power Requirement : 220VAC $\pm 10\%$, 50Hz

Mars - Current Injector



Technical Specifications:

- Output Variable Current 100Amps / 200Amps
- Meters : Provided with Digital Current Meter & Timer
- Kit Type : Manual operated
- Terminals : Terminals for current output.
- Switches : Main, On and Off Switches, Timer start and stop Switch & Overload reset switch.

Other Electrical Lab Products

- Electrical Bridges
- Experimental Control Panel
- Isolation Transformer
- Rheostat & Loading Rheostats
- Variable Auto Transformer (Variac)
- Motors & MG Set

Power System / Relay Lab Trainers

ME 2495R - Relay Lab Trainers (Advance Model)



Features:

- Modular and easy to use in electrical laboratories
- Equipped with high safety features
- Portable and easy to install
- Elaborated instruction manual with calculated values
- Supplied with patch cords for interconnections & experimental work book

Experiment List:

- To obtain the time and current characteristics of an over current static/numeric and electro-mechanical relays
- Test a relay in over current protection scheme for operating characteristics using current injection in static/numeric and electro-mechanical relays
- To obtain the time and current characteristics of an earth fault electro-mechanical relays
- Test a relay in over current protection scheme for operating characteristics using current injection in earth fault static / numeric and electro-mechanical relays
- To obtain the current characteristics of a percentage biased differential numeric and electro-mechanical relay
- Transformer protection using percentage biased differential static/numeric and electro-mechanical relay
- Test a relay in over load protection scheme for operating characteristics using current injection in thermal over load static relays
- To study the alarm/trip function and operating characteristics of buchholz relay
- Test a relay in over/under voltage protection scheme for operating characteristics using voltage injection in static/numeric and electro-mechanical relays
- Test a relay in over current protection scheme for operating characteristics using current injection in instantaneous type electro-mechanical relays
- Test a relay in frequency protection scheme for operating characteristics using control frequency in static type under/over frequency protection relays
- Test an induction type electro-mechanical disc and Static/numeric type relay in directional over current protection scheme for operating characteristics using current injection

- To study the operational char. of a static type negative sequence relay
- To study the operational characteristics of a static type reverse power relay
- Operating characteristic using current and voltage injection to numerical type Distance relay in distance fault scheme
- Zonal Distance Protection in Phase to Ground fault conditions by using Distance Protection relay
- Zonal Distance Protection in 3 Phase fault conditions by using Distance Protection relay

Technical Specifications:

Modular Control Panel

- Aluminium profile (45mm x 45mm) structure will accommodate different unique interchangeable modules
- Power Requirement: 440VAC, 50Hz, 3 Phase
- MT-E02: Power Supply Module (Three Phase Input)
- MT-E03: Digital Power Analysis Meter Module
- MT-E05: System Control Module
- MT-E06: DC Drive Module (Thyristorized 0~230VDC)
- MT-E07: AC Drive Module 3 Phase(10~440 VAC)
- MT-E09: Variable $\sqrt{3}$ Voltage Source Module (Independent Phase Voltage Control)
- MT-E12: Variable $\sqrt{3}$ Current Source Module (Independent Phase Current Control)
- MT-E20: Digital AC Voltmeter Module (0~300VAC)
- MT-E27: Digital AC Ammeter Module (0~10A AC)
- MT-E30: IM Control Module (OV/UV)
- MT-E31: IM Control Module (OC)
- MT-E34: Frequency Meter Module
- MT-E36: Rheostat Module (300ohm / 2Amps)
- MT-E37: Resistive Load Module
- MT-E42: Current Transformer Module
- MT-E75: Three Phase Transformer Module
- MT-E76: Single Phase Transformer Module
- MT-E48: Over Voltage Relay Module (Electro-Mechanical)
- MT-E49: Under Voltage Relay Module (Electro-Mechanical)
- MT-E51: Over Current Protection Relay Module (Electro-Mechanical)
- MT-E52: Earth Fault Protection Relay Module (Electro-Mechanical)
- MT-E54: Directional Over Current Relay Module (Electro-mechanical)
- MT-E56: Instantaneous Earth Fault Relay Module (Electro-Mechanical)
- MT-E57: Thermal Overload Relay Module (Electro-Mechanical)
- MT-E58: Buchholz Relay Module (Electro-Mechanical)
- MT-E59: Reverse Power Relay Module (Static/Numeric)
- MT-E60: Percentage Biased Differential Relay Module (Static/Numeric)
- MT-E61: Percentage Biased Differential Relay Module (Electro-Mechanical)
- MT-E62: Negative Sequence Relay Module (Static/Numeric)
- MT-E63: Under/Over Frequency Relay Module (Static/Numeric)
- MT-E80: Distance Protection Relay Module (Static/Numeric)
- Under / Over voltage static relay operation provided
- Under / Over current static relay operation provided (Single/ Three Phase)
- Directional over current relay operation provided

Supplied with Standard Accessories:

DC Shunt Motor

- Capacity : 1HP
- Cage : Steel Body
- RPM : 1500 Approx
- Shaft : Single
- Current : 4 Amp Approx.
- Winding : Armature (A1, A2), Field (F1, F2)

Induction Motor (3 Phase)

- Capacity : 3HP
- Cage : Steel Body
- Class : E Class
- RPM : 1500 Approx
- Shaft : Single
- Current : 5 Amp Approx.
- Winding : Stator winding
- Input Terminal : 3
- Mounting : Foot Mounted arrangement
- Power requirement : 415VAC \pm 10%, 50Hz

AC Alternator

- Capacity : 500VA / 1HP
- Cage : Steel Body
- RPM : 1500 Approx.
- Shaft : Single
- Current : 2 Amp Approx.
- Input/ Output : R, Y, B and neutral with F1 and F2 Terminal (field Terminal)
- Output Voltage : 415VAC \pm 10%, 50Hz