



### SALIENT FEATURES

- Facilitates differential protection of transformer or using differential relay & characterization of different relay.
- Each of above trainer has built in requisite relay testing kit typically consisting of voltage injector, current injector, elapsed time counter (1 msec resolution), trip relay logic etc.
- The Trainer need a few set of associated relay testing (current / voltage injection etc.) panels (7-8 nos. typically) which are mounted in a light weight sturdy aluminum profile flat demo panel system. Do not need any separate testing kit.

### Technical Specifications

- Input 3 phase DOL Starter panel (EMT1)**
  - 4 pole MCB of 415 V/2A.
  - DOL 9A Contactor with 230V / 50 Hz / 11VA Coil .
  - Bimetallic thermal O/L relay with range 1.4A - 2.3A
  - R-Y-B Input Indicators.
  - Green SBS5 socket is provided for extend earth.
- 1 phase AC Input supply panel ( EMT16A)**
  - 1ph. MCBs of 4A/1.6A - 2nos.
  - Bulb Load.
- Variable voltage & current injector panel (EMT23A) x 2 Nos.**
  - Consist of 1 phase dimmer 230VAC/1A
  - Short circuit transformer with primary 230VAC/1A, secondary 0-2-8V/12A taps
- 3 Phase Bidirectional Power cum Energy meter panel ( EMT 34) x 2 Nos.**
  - Bidirectional Multifunction
  - 3 phase 3/4 wire, 415VAC, CT Input 5A
  - LCD/LED display, Aux. supply 230V, 45-65Hz, 5W
  - V, I, Hz, Pf, KVA, KW, KWH
  - Modbus RTU RS 485 (optional)
  - Green SBS5 socket is provided for extend earth.
- Overcurrent & elapsed time measurement panel ( EMT 39) x 2 Nos.**
  - Consists of AC ammeter of 20A
  - Elapsed time counter range 999.001 sec, resolution 1msec.
- Differential Relay Panel (EMT44/47)**
  - All connection of relay are brought out on this panel
  - 2 NO Trip contacts
  - Aux. Supply 110VDC/230VAC
- CT panel (EMT48)**
  - Consist of 5/5 Amp. CT 6 Nos.

Note: Specifications are subject to change.

- Facilitates easy and safe wiring by students due to use of 4mm sturdy Shrouded banana patch cords and shrouded socket arrangements for high voltage circuits
- Each panel has ABS molded plastic sturdy enclosure, and colorful screw less overlays showing circuits diagrams & its connection tag numbers for easy understanding and connection
- Useful for Post Graduate projects and research purpose.
- Set of Instructor Guide & Student Workbook

- Primary side of CTs are brought on 3 x 2 x 2 SBS-5 sockets.
- Secondary side of CTs are Star connect in group of 3 & brought out on 4 x 2 SBS-5 sockets.
- 415/230VAC, 1KVA, Star/Delta Transformer Panel (EMT49)**
  - This is table top panel consisting of 415/230VAC, 1KVA, Star/Delta transformer Panel
  - All the connections of transformer primary & secondary are brought on SBS5 on the top of panel.
- Resistor Load (EMT14B) (Table Top panel)**
  - AC/DC Resistors 750E/600E/300E/212E/162E/ 125E/ 112E/100E/400W /8 taps + OFF + separate 60E tap for DC series Gen.
- Resistive Load panel (EMT 42A/14B) (Table Top panel)**
  - 3 nos of 600W resistors with switch selectable 7 nos of taps at 100, 112, 125, 150, 175, 200 & 225 Ohm

### Protection relay type (EM/Static /Num) :

Electromechanical / Numerical type High speed biased differential relay, current rating 1A, with biased setting of 15%, 30% and 45% by plugboard taps, Aux. supply 110VDC

### List of Experiments :

- To plot characteristics of % biased differential relay (Merz price Method)
- Pick up test for differential relay.
- Transformer protection for in zone trips faults.
- Transformer out zone or non trip faults.

### Accessories :

- 3 Phase variac 3Amp [Optional]

### Mechanical Dimension (mm) / Weight of Trainer :

- 1165(L) x 300(W) x 990(H)
- Net Wt. : 20 Kg. Gross Wt. : 31 kg.**
- Load Panel : Net Wt. : 20 Kg. Gross Wt. : 41 kg.**

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