

Double Bus Bar Trainer

(Model: TMS-PET/DBB)



SALIENT FEATURES

- ◆ Facilitates study of bus bar operation in 3 and 4 bus load flow study, ring, radial bus study.
- ◆ Table top modular double bus bar switching station with 9 switching bays. It is equipped in such a way that the requirements of the both the grid and the power station operation are dealt in practice oriented way. Two bus bar segments are represented. Here the interlocking conditions in a switching station can be learned in order to conduct safe switching operations, as the situation requires, on the grid and power plant.
- ◆ Employs 2 nos of 3 phase board supply using EMT1 panel consisting of protection MCB + O/L relay to simulate 2 generators to simulate interconnected distribution system.
- ◆ Optionally PC based SCADA software (XPO-VWB) provided for online graph plotting & data acquisition mode, 16 nos. of DPM screen to display numerical values for voltage, current, watt VAR etc.
- ◆ 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 screwless overlays showing circuits diagrams & its connection tag numbers for easy understanding and connection
- ◆ Set of Instructor Guide & Student Workbook.

Technical Specifications

◆ **Input 3 phase DOL Starter panel (EMT1) X 2 Nos**

- 4 pole MCB of 415 V/20A.
- DOL 16A Contactor with 24DCV / 11VAC COIL
- Bimetallic thermal O/L relay with range 9A- 15A
- RYB inputs indicators.
- Manual start / stop with local trip contact
- Power ON LED indicator
- Green SBS5 socket is provided for extend earth.

◆ **3 Phase Bidirectional Power cum Energy meter panel (EMT 34) X 8 Nos.**

- Bidirectional Multifunction
- 3 phase 3/4 wire, 415VAC, CT Input 5A
- LCD/LED display, Aux. supply 230V, 45-65Hz, 5W
- Measure V. I., Hz, Pf, KVA, KW, KWH
- Green SBS5 socket is provided for extend earth
- ◆ **Aux. power supply distribution panel (EMT 62A) X 1 No.**
- 24V/3A power supply
- 9 pin D type female connectors 9 nos. to supply Aux power to respective switching bays.
- Power ON LED.

◆ **In feeder Panel (EMT41A) X 4 Nos.**

- Consisting of 3-isolator switches,
- Circuit breaker, Main bus, Reserve bus, Feeder.
- 9 pin D connector to supply 24V Aux power for CB operation.
- Manual start / stop with local trip contact.

◆ **Bus Coupler Panel (EMT41B) X 2 Nos.**

- Consisting of Circuit breaker, Main bus, Reserve bus.
- 9 pin D connector to supply 24V Aux power for CB operation.
- Manual start / stop with local trip contact

◆ **Out feeder Panel (EMT41C) X 2 Nos.**

- Consisting of 4-isolator switches,
- Circuit breaker, Main bus, Reserve bus, Transfer bus/Earth switch, Feeder.
- 9 pin D connector to supply 24V Aux power for CB operation.
- Manual start / stop with local trip contact

◆ **Section Coupler Panel (EMT41D) X 1 No.**

- Consisting of 2 Circuit breakers, Main bus, Reserve bus.
- Supply 24VAux power for CB operation.
- Manual start / stop with local trip contact

Table top panels

◆ **Transmission line panel TL2 (EMT38A/B/C) x 1No.**

- 3 Mw scaled down by (1000:1) TLS, 5Amax. rated.
- Consisting of 5 numbers of transmission lines of different lengths.
- 0.3pu Transmission lines of 125km each 2 nos.

- 0.2pu Transmission lines of 75km each 2 nos.
- 0.13pu Transmission line of 50Kmeach 1 no.

◆ **RLC load Panel (EMT42A/B/C) X 1 No.**

- 3 nos of 600W resistors with switch selectable 6 nos of taps at 100, 112, 150, 175, 200 & 225 ohm.
- 3 nos of inductor 1.5H/1A with switch selectable 6 nos of taps at 0.3, 0.6, 0.75, 0.9, 1.2 & 1.5H.
- Capacitors 440VAC rating (3 nos, one per phase) with switch selectable 7 nos of value of 2, 5, 10, 15, 20, 30 & 50 μ F.

◆ **Accessories:**

Cables:

- i) 9 pin D male to 9 pin D female with 9 core cable, length up to 6 meter - 9 nos.

List of experiments

- i) Single busbar operation with two incoming feeders.
- ii) Double busbar operation with two incoming feeders.
- iii) Busbar operation without interruption.
- iv) 3 bus load flow study.
- v) 4 bus load flow study.
- vi) Optionally SCADA software for DAQ

◆ **Mechanical Dimension (mm) / Wt. (Kg):**

- **Rack:** 1165(L) x 300(W) x 990(H) / **Net Wt.:** 65, **Gross Wt.:** 73.
- **TL2:** 600(L) x 385(W) x 500(H) / **Net Wt.:** 103
- **RLC Load panel:** 600(L) x 275(W) x 500(H) / **Net Wt.:** 60