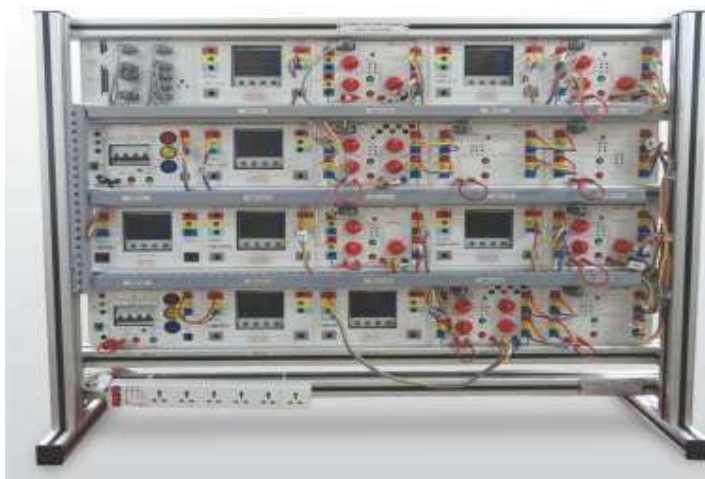


SMART ENERGY METER TRAINER

(Model : TMS-SEM)

Trinity



SALIENT FEATURES

- ◆ Training setup to demonstrate prepaid smart energy meters based on M2M/ IOT communication technologies & impart training in AMI similar to prepaid mobile or D2H TV applications.
- ◆ Supports a communication protocols RS485 for meter data acquisition & Wi-Fi, GSM (optionally PLCC) for SCADA.
- ◆ 4 nos. of energy meters, single or three phase, talking to SCADA with built in remote cut off relay
- ◆ Optionally cyber security in smartgrid is illustrated while prediction of outages & restoration offered as part of AMI
- ◆ GUI s/w package for DAQ provided, PC WIN 10/11 with internet needed but PC is not in scope of supply.
- ◆ Easy and safe wiring by students due to 4mm sturdy Shrouded banana patch cords to handle AC high voltage circuits.
- ◆ Aluminum profile Sturdy (5x4) Modular Flat Panel system, carrying various components housed in plastic enclosures (panels) with colorful screwless overlays showing circuit schematic & its connection tag numbers for easy understanding and connection.
- ◆ Set of Instructor Guide & Student Workbook

Technical Specifications :

◆ Input 3 phase DOL Starter panel (EMT1)

[11 Shrouded Banana]

- 4 pole MCB of 415 V/16A.
- DOL 20A Contactor with 230V / 50 Hz / 11VACOIL .
- Bimetallic thermal O/L relay with range 1.4A- 2.3A
- Green shrouded socket provided to extend earth.

◆ 3 phase bidirectional power cum energy meter panel (EMT34) - 4 Nos.

[8 Shrouded Banana]

- Bidirectional multifunction meter
- 3 phase 3/4 wire, 415VAC, CT input 5A
- LED/LCD display, Aux. supply 230V, 45-65Hz, 5W
- Measure V, I, Hz, Pf, KVA, KW, KWH
- MODBUS RTU RS 485 for SCADA
- Built in remote cut off relay
- Green shrouded socket provided to extend earth.

◆ Resistive load panel (EMT 14A/B) -2 Nos.

[18 Shrouded Banana]

- AC Resistors: 10K/5K/3.5K/2.5K/2K/1.5K/OFF
200W x 3 phases/ 6 taps
- DC Resistors: 750E/600E/300E/212E/162E/ 125E/
112E/100E/400W /8 taps + OFF + separate 60E tap for DC series Gen.

◆ Lamp Load panel (EMT 7) -2 Nos. [12 Shrouded Banana]

- 230V/100W X 3 bulbs with individual ON/OFF using 6A toggle.

◆ Shakti/Vega/Thejas based RICS-V controller panel (TMS-EST) - 3 Nos.

- RICS-V Controller @ 25MHz, 1.8 MB flash memory, GPIOs, 2+1 UART, 2 SPI, 6 PWM, 2 I2C, with optionally LCD text

display – 3nos.

- Rs485 application modules - 2nos.
- GSM application module – 2 nos.
- Wi-Fi application module – 2 nos.
- Combo application board – 3 nos.
- 26 pin FRC cables – 3nos.
- Micro USB cable – 1no.
- RCAjack 2 pin M to 9 pin D female connector cable -1 no.
- RCAjack 2 pin M to M cables for Rs485 – 4nos.

◆ SCADA Infrastructure

◆ GUI Software for local field PC (Use PC from labstock)

- Display all parameters of energy meter like voltage, current, watt, VAR, Frequency, Wh etc.
- Locally can control inbuilt ON/OFF relay in each meter.
- Set customer billing amount.
- Can export/save current readings in excel format
- Creation of password & ID for cloud based control & monitoring.
- ◆ Cloud Based SCADA
- Password protected central billing dashboard at HQ of electricity board on server or even mobile
- Can control remote cut off relay through cloud based SCADA.
- Password protected access of monitoring & control using web browser on smart phone or PC

List of Experiments:

- 1] Monitor all energy meters connected to network
- 2] Meter disconnection when consumption crosses prepaid value.