



SYED BHAIS (PVT) LTD.

EM1

Single Phase Multifunction Electricity Meter

Multi-Energy, MDI, Multi-Rate Tariff

EM1 Electricity meter is a high quality, high reliability, low cost Solid State kWh meter platform that is easily adaptable to various Automated Meter Reading (AMR) technologies.

The state of art engineering design made it possible to have a variety of features & functionalities all on a single board. The heart of meter is a high speed, high resolution Digital Signal Processing engine integrated with a micro-controller core and RTC to cover all metering requirements in compact space with high degree of accuracy & reliability.



STANDARDS COMPLIANCE

- IEC 62052-11
- IEC 62053-21
- IEC 62053-23
- IEC 62053-22
- IEC 62053-61

PROGRAMMABLE DEMAND MEASUREMENTS

- Selectable among Block or Rolling demand measurement methods
- Programmable demand interval

PROGRAMMABLE TOU MEASUREMENTS

- Upto 4 programmable seasons
- Upto 4 programmable Dates Types
- Upto 4 programmable Rates
- Upto 100 programmable dates for specific rate schedule

METERING FEATURES

- Accuracy Class 1.0 & 0.5 (Optional)
- Metering on Phase wire
- Optional simultaneous metering on both Phase & Neutral wires with automatic selection of higher value for registration.
- Reactive Energy Measurement (kVArh)
- Apparent Energy Measurement (kVAh)
- Optional Single Wire Metering (also called Missing Neutral Billing) with no voltage applied to meter terminals & anyone of phase or Neutral current passing through meter (Current \geq 1A)

MULTIFUNCTION CAPABILITIES

- ↓ Demand Metering
- Time of use (TOU) Metering
- Event Log
- Optical Communication for Reading/ Programming
- Meter Errors, Cautions & Diagnostics display.
- IEC 62056-21 compliant optical communication
- Windows GUI based software for downloading/ uploading Reading & Programming information.

The Infinity Bandwidth Company



Accredited by the RvA
ISO-9001 REGISTERED FIRM
Det Norske Veritas B.V., NETHERLANDS

STANDARDS COMPLIANCE

- IP54 compliant meter enclosure
- Protective class II insulation
- Compliant to IEC standards of Electro-magnetic compatibility including
 - IEC 61000-4-2
 - IEC 61000-4-3
 - IEC 61000-4-4
 - IEC 61000-4-5
 - IEC 61000-4-6
 - CISPR 22

CONFIGURABLE DISPLAY OPTIONS

Three Modes of Display

- 1) Normal Mode
 - 2) Alternate Mode
 - 3) Test Mode
- Programmable Test mode interval
 - Programmable display scroll sequence
 - Programmable display item time (3 to 10 seconds)

SECURITY FEATURES OF SOFTWARE

Three Levels of Security

- Administrator
- Writer
- Reader

EVENT LOGS FOR POSSIBLE TEMPER CONDITIONS

- Phase Reversal/Negative energy flow
- Demand Reset
- Test mode activation
- Programming mode activation
- Single wire metering start & finish.
- Meter Reading/Programming activation.
- Power Down/up

PROGRAMMABLE THRESHOLDS FOR EVENTS

- Under voltage/overvoltage
- Over Current
- Demand overflow
- Over temperature

RANGE OF OPERATION

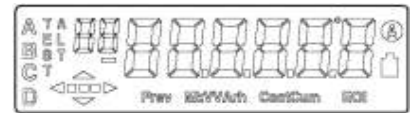
Current range: 10A basic to 60 Amps Maximum
Voltage range: 130V to 456V AC
Temperature Range: -40°C to +85°C
Humidity : 0 to 90% relative humidity non-condensing
UV exposure: Casing and LCD designed for outdoor installation even in direct sunlight

REAL TIME MEASUREMENTS

- Instantaneous Power (P)
- Instantaneous Current (I)
- Instantaneous Phase Angle (Φ)
- Instantaneous Temperature
- Instantaneous Voltage (V)
- Instantaneous Power Factor (pf)
- Instantaneous Frequency

DISPLAY

- Large six digits for displaying quantities (kWh, kVARh, V, I etc)
- Two small digits for Display Sequence number
- Voltage indicator
- TOU Battery indicator (Blinking while LOW & ON when OFF)
- Alternate (ALT) and Test (TEST) mode indicators
- TOU rate indicators
- UV protected LCD design for longer life and reliability in outdoor meter installation
- Display operation on Battery to facilitate reading during Power Outages.
- Disk Analog & Quadrant Indicators



SECURITY FEATURES

- Sealable Front Cover to block unauthorized access to meter panel
- Sealable Terminal Block Cover
- Rain proof buttons for mode and Display switch

ANTI-TEMPER FEATURES

- **Simultaneous Metering on both Phase & Neutral**
 - ☐ Meter records energy due to occurrence of fault in phase & Neutral wires and stores them separately to facilitate easy access to investigate tempering activities
 - ☐ Total Active Energy accumulation for month high or low energy based upon programmed threshold
- **Uni-directional Metering**
 - ☐ A negative flow of power will also result in positive accumulation
 - ☐ Phase reversal is detected and Logged as event
- **Sing Wire Metering**
 - ☐ If only Phase or Neutral current flowing through meter with the wire disconnected from main supply load, meter can still perform metering based upon Nomin Voltage and unity power factor. This registration can be stored separately and added to Total Energy Register based upon customer select Sing Wire Metering range: 0 Amps ~ 60 Amps 0.5% accuracy even in low load Sing Wire Metering. Meter's Display is on digital accumulation LCD.



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