

Single Phase 2 Wire Smart Meter

M31

PRODUCT INFORMATION

M31 Single Phase Meter is a new generation of single phase smart meter.

M31 supports active, reactive & apparent energies with import and export measurements, instantaneous measurement, and relay disconnection and reconnection management. With an optional plug-and-play PLC/RF/ GPRS communication module, the meter can be used in sophisticated AMI & vending system.



KEY FEATURES

- Complying to IS 16444 Part-1 standards for metering requirement, IEC 62052-11, IEC 62053-21 & IEC 62056-21
- Complying to IS 15959 part-2 standard for DLMS
- Full smart functionality
- Bidirectional measurement of instantaneous, energy and demand parameters
- Data logging for instantaneous parameters, billing parameters and block load profile
- Tamper events detection, recording and reporting
- Event logging available with active energy, voltage and current snap shots
- Power fail alerts (last gasp) and power resume information (first breath) available
- Load connection/disconnection through latching relays for both phase and neutral
- Communication options including optical, RF, PLC and GPRS
- Bidirectional communication with push feature as well as on demand reading
- Remote firmware upgrade
- Net metering feature available
- Prepaid function as per IS 16444 Part-1 / IS 15884 (optional)



M31

CLASS 1.0

SINGLE PHASE 2 WIRE SMART METER

SPECIFICATIONS



STANDARDS

- IS 13779, IS 16444, IS 15884
- IS 15959 part 1 and part 2
- IEC 62052-11, IEC 62053-21 and IEC 62056-21

METER TYPE

- Single Phase, 2 Wire (Direct Connection)

MEASUREMENT ACCURACY

- Active energy–Class 1

VOLTAGE

- Nominal Voltage: 220V-240V (-40% to +20%) (other ratings can be provided as per customer's requirement)

CURRENT

- Ib/Iref: 5A, 10A
- Imax: 40A, 60A, 80A, 100A
- Starting Current: 0.2% of basic current

POWER CONSUMPTION

- Voltage circuit: < 2W, < 10VA
- Current circuit: < 4VA

ELECTROMAGNETIC COMPATIBILITY

- Electrostatic discharge: 8 kV (contact discharge), 15 kV (air discharge)
- Fast Transient Burst: 4kV
- Surge immunity: 4 kV
- Electromagnetic RF Field: 80 MHz to 2000 MHz (frequency range), 10 V/m (with voltage), 30 V/m (without voltage)
- Conducted disturbance: 150 kHz to 80 MHz (frequency range), 10 V (voltage level)

FREQUENCY

- Normal frequency: 50Hz / 60Hz

ENVIRONMENTAL

- IP 51
- Operating Temp: -25°C to +55°C
- Storage Temp: -40°C to +70°C
- Limit Temp: -40°C to +70°C
- Humidity: 95% RH

INSULATED STRENGTH

- Impulse voltage: 6 kV 1.2 /50μS
- AC Voltage: 4 kV 1 min
- Frequency Variation: ±5%

DATA STORAGE

- Load profile: 6 parameters (voltage, current, and bidirectional energy)
- Billing data: 6 billing periods

TERMINAL TYPE

- Terminal cover: Long/short cover
- Terminal Connection hole: Φ9mm for 60A, Φ12mm for 100A (brass material)
- Pressure plate type terminals (optional)

PHYSICAL DIMENSION

- Dimension: 265mm x 141mm x 85mm (L x W x D)
- Weight: 1.3 kg. Approx. (without communication module)
- Weight: 1.4 kg. Approx. (with communication module)
- Case Material: Polycarbonate + Glass filled fiber (terminal block)

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CLASS 1.0

SINGLE PHASE 2 WIRE SMART METER

MAIN FUNCTIONALITIES



MEASUREMENT

- Unidirectional or bidirectional measurement
- Cumulative energy
- Record active & reactive energy (optional) in tariffs

INSTANTANEOUS VALUES

- Power, voltage, current
- Power factor, frequency

DISPLAY

- Large digit LCD display with backlight
- Scrolling display and push button display configurable
- Display readable without main power (RWP)
- Tamper and relay status shown as ICON
- Impulse LED available for kWh and kVArh

TARIFF

- Single/TOU
- Up to 4 registers, configurable profiles and seasons

DAILY PROFILE

- Daily profile for 35 days
- Energy

BILLING PROFILE

- Billing profile for 6 months
- Energy, average PF, maximum demand

LOAD PROFILE

- Up to 1 Megabytes of Non-Volatile memory
- Max 35 days storage (30 minutes)
- Energy, voltage, current

RTC

- Clock accuracy (daily deviation): $\leq 0.5S$ (23°C)
- RWP (Read Without Power)
- Replaceable Lithium Batter (10 years support)

ANTI-TAMPER

- 4 sealing positions (terminal, bossy)
- Meter cover and terminal cover open detection
- Bypass/reverse current
- Neutral missing/neutral disturbance
- Strong magnetic field detection

EVENTS AND ALARMS

- Load and power grid events detection
- Under voltage, over voltage, over current, and over load
- Power failure and power resume
- 200 event records with date and time
- Alarms for events and tampers
- Alarms indication (LED & Buzzer) (optional)

LOAD CONTROL

Load disconnection provided for:

- Over Voltage, Over Current and Over Load
- Selected tamper (optional)
- Command from utility through remote communication

RELAY

- Provided in both phase and neutral complying to IS15884 UC1/UC2/UC3
- Status of relay connect /disconnect available on display and data downloading
- Connect/disconnect of relay are logged as events and available for downloading

DEMAND MONITORING

- Block/slide mode (optional)
- Demand interval configurable
- Maximum demand with time stamp
- Historical value (optional)

SECURITY

- Multi-level password for data reading and programming for all available parameters
- 2 data access levels (LLS and HLS)
- Encryption of data AES -128 standard

COMMUNICATION

- Optional port for local communication
- RF/PLC/GPRS Plug and play communication module
- RF module with Wi-Sun Sub GHz transceiver
- PLC with G3-PLC band 150kHz-450kHz
- GPRS support 2G/3G network
- Protocol: DLMS as per IEC 62056, IS15959 part1 & part2 standard
- Push and remote firmware update available
- Prepaid function as per IS 16444 Part-1 / IS15884 (optional)



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