## ⚡ ELECTRICITY

# Mk10M

## Class 0.5 and Class 1

## Three Phase LVCT Smart Meter

Built around an enhanced metering OS platform, Mk10M has high-grade measurement engine with smart grid solutions, high data storage, data processing and modular communication capabilities.

## ▌ **Key Features**

| AMI READY | ANTI TAMPER | DLMS/COSEM IDIS | LARGE DATA STORAGE | MODULAR COMMUNICATIONS | NEUTRAL CURRENT MEASUREMENT | UPGRADEABLE |
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# Mk10M

Class 0.5 and Class 1

## Three Phase LVCT Smart Meter



180mm (W)
280mm (H)
95mm (D)

Weight: 2.2kg

## Standards and Compliance

- Class 0.5 and Class 1
- IEC 62052-11, 62053-21, 62053-22, 62053-23, 62052-31
- EN 50470-1, 50470-3
- CLC/TR 50579
- WELMEC 7.2
- DLMS Compliant
- IDIS Compliant

## Measurement

- 3 phase 4 wire
- Neutral current measurement

## Voltage

- Nominal voltage: 100V-110V, 220V - 240V
- Operating range: 80V-278V
- Withstand range: 456V
- Impulse voltage: 8kV IEC, 12kV (SP1618 Method)

## Current

- CT range:
  - 1/6A, 1/10A, 1/20A, 5/20A
- Phase current measurement sensor: Internal CT
- Neutral current measurement sensor: Shunt

## Power Consumption

- Voltage circuit: <10VA/phase, 2W @ Vn
- Current circuit: <4VA/phase @ In

## Frequency

- 50Hz/60Hz

## Inputs/Outputs Configuration

- 4 x LED indicators
- 1 control input, 1 control output, up to 2 pulse inputs/outputs

## Battery

- Internal lithium battery
- Option for external for backup
- Option for additional Supercap (72 hours)
- Backup time: 5 years without power (23°C)
- Battery shelf life of 15 years at 23°C

## Real-time Clock

- Precision clock accuracy: within 15 seconds per month at 23°C (IEC 61038)
- Conform to IEC 62054-21

## Data Memory

- 8MB of non-volatile memory

## Display

- 8 Characters of seven-segment display (11mm x 6.6mm)
- 4 Characters of starburst display for screen ID (5mm x 3.5mm)
- Display available without main power
- Option for backlight

## Measured Values

- 3 elements 4 quadrants
- Import/Export/Absolute: Wh, varh and VAh
- Per quadrant Wh, varh and VAh
- Power: W, var, VA, Vrms, Irms
- Power factor, frequency, phase angle

## Power Quality Indication

- Total Harmonic Distortion (THD)
- Instantaneous RMS voltages, currents, frequency
- Per phase instantaneous powers A+ A- R+ R-
- Per phase average powers A+ A- R+ R- (T=10mn)
- Aggregate instantaneous powers A+ A- R+ R- S+ S-
- Per phase voltage quality
  - Sag/Swell and missing voltage detection
  - Programmable thresholds and filtering time
- The meter recorded voltage quality profile up to 50 set sag/swell event
- The meter recorded THD Current & Voltage and calculated TDD Current per phase and Total

## LCD Configuration

- Up to 100 user-defined screens of any meter parameter
- Up to 3 display sets
- Definable enunciators

## Load Survey/Profile

- Up to 50 channels for 2 independent load surveys, 16 channels for PQ profile log and 16 channels for 7 independent data event log
- Intervals programmable from 1 to 1440 minutes
- Energy instantaneous readings
- Ability to store average/minimum/ maximum values for interval duration

## Time of Use

- 8 rates plus unified rate
- Daily, weekly, monthly, yearly and special days
- Maximum of 50 special days and 6 seasons
- Block or rolling maximum demand (kW)
- Time of maximum demand

## Calendar

- Supports Daylight Saving time
- Supports Gregorian or Persian calendars
- RTC and synchronisation

## Tamper Detection and Alarms

- Provision for sealing with conventional wire or plastic seals
- Reverse current detection
- Option for magnetic tamper detection
- Option for lid/terminal cover detection
- Line and neutral current unbalance detection
- Advanced tamper detection and logging
- Pre-programmed alarms for meter self-check
- Alarms trigger LEDs, enunciators, communications event
- Alarms are stored in event logs

## Security

- AES-GCM-128
- Security Suite 0

## Operation Mode

- Postpaid/Prepaid

## Communications

- Optical port: FLAG (IEC 62056-21)
- Option for modular communications
- Supports local and remote upgrade and configurations

## Protocol

- DLMS
- IDIS (Package 2)

## Software

- EDMI MultiDrive, EziConfig and Storm HES softwares available for large scale AMI and AMR solutions (Windows® compatible)

## Construction

- Meter Base:
  - Meter base is made of UV-resistance, high impact-resistance and self-extinghuishing polycarbonate. Color is Cool grey.
- Meter Cover:
  - Meter cover is made of UV-resistance, high impact-resistance and self-extinguishing polycarbonate. Security sealing is provided and the gasket of the meter cover is used for protecting the meters against moisture, dust and insects; the gasket is weather and made from aging resistant material (EPDM black).

## Environmental

- Specified operating range: -25°C to +70°C
- Operating range limit: -40°C to +70°C
- Storage range limit: -40°C to +85°C
- Relative humidity: Up to 85% mean, 95% non-condensing for 30 days
- Ingress protection: IP54

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