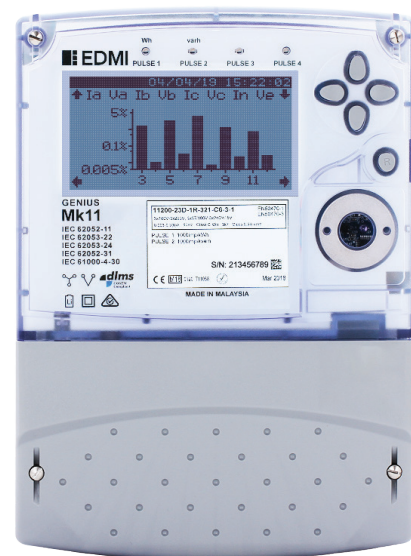


# Mk11

 **GENIUS** – Class 0.2S (MID Class C)

## High-Precision Smart Meter with Power Quality Features

The Genius Mk11 is a high-precision smart meter designed for generation, transmission and large industrial markets. Surpassing the IEC Class 0.2S requirement, it offers the highest level of metering system accuracy and equip with full power quality features complying to latest Edition 3 of IEC 61000-4-30. In addition, Mk11 also offers 12kV impulse protection and complies to Safety Standard IEC 62052-31.



## Key Features



HIGH  
ACCURACY



HIGH  
PERFORMANCE



NEUTRAL CURRENT  
MEASUREMENT



DLMS  
READY



ETHERNET



POWER QUALITY



12kV IMPULSE  
PROTECTION

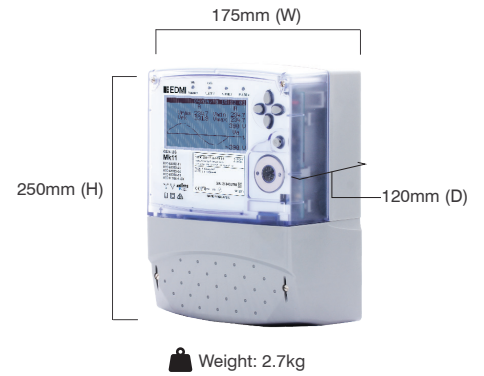


NEW SAFETY  
STANDARD COMPLIANT

# Mk11

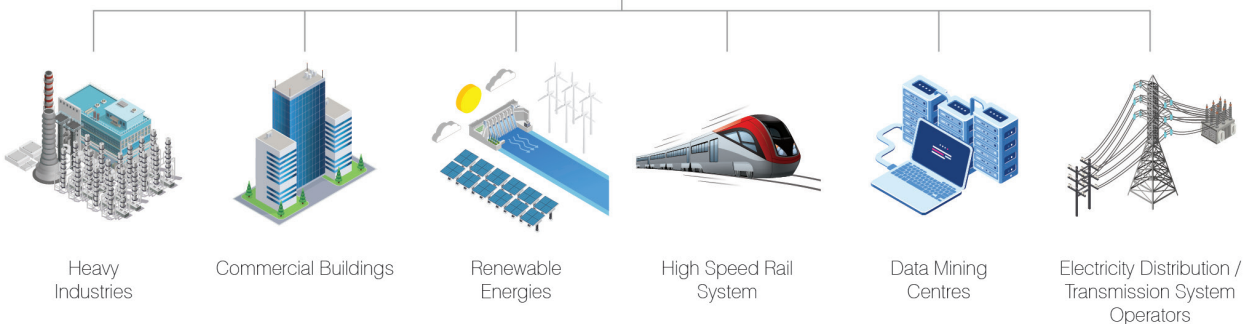
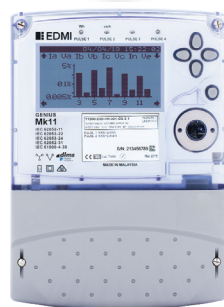
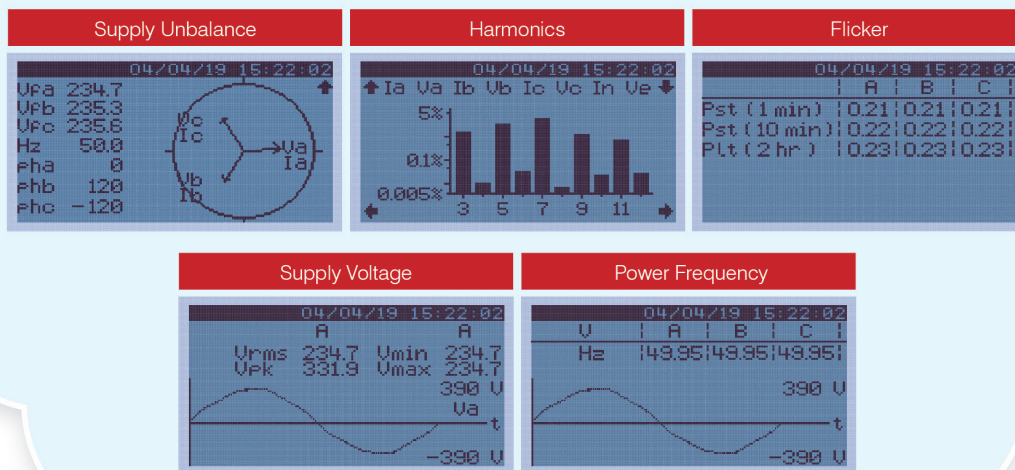
**GENIUS** - Class 0.2S (MID Class C)

High-Precision Smart Meter with  
Power Quality Features



## I LCD Display

Fitted with a greyscale backlit LCD, Mk11 is capable of displaying graphs, tables, waveforms and vector diagrams. Advanced data analysis views on the meter include harmonics spectrum, real time waveforms, and many more.



# I Specifications

## Standards and Compliance

- Class 0.2S (MID Class C)
- IEC 62052-11, 62053-22, 62053-24, 62052-31, 62059-32-1, 61000-4-30 Edition 3 (2015)
- EN 50470-1, 50470-3
- NMI M6

## Measurement

- 3 phase 3 wire
- 3 phase 4 wire
- Neutral current measurement

## Voltage

- Nominal voltage: 57V - 240V L-N/100V - 415V L-L
- Impulse voltage: 12kV
- Terminal size: Ø 4.8mm - 5mm
- PQ declared input voltage: (U<sub>din</sub>): 120V or 230V
- PQ flicker system: 120V/60Hz or 230V/50Hz

## Auxiliary Supply Options

- 100 - 240VAC or 70 - 240VDC
- Options: Changeover, Auxiliary or VT priority

## Current

- CT range: 0.3/1.2A, 1/6A, 1/4A, 0.3/6A, 1/10A, 5/6A, 5/10A, 5/20A
- CT limit: 20 x I<sub>max</sub> for 0.5 seconds
- Terminal size: Ø 4.8mm - 5mm

## Power Consumption

- Voltage circuit: <10VA/phase @ V<sub>n</sub>
- Current circuit: <0.5VA/phase @ I<sub>n</sub>

## Frequency

- 50Hz/60Hz

## Inputs/Outputs Configuration

- 4 x LED indicators
- 4 x passive inputs (5VDC/12VDC/24VDC/48VDC 110VAC/240VAC)
- 6 x S0 outputs (27VDC, 20mA rated)
- Output pulse width: From 1ms onwards (Pulsing); At least 500ms, thereafter multiples (External Time Pulse)

## Battery

- External lithium thionyl chloride battery (3.6V, 1200mAh)
- Internal super capacitor (5V)
- Backup time: 72 hours without power (super capacitor)

## Data Memory

- 64MB of non-volatile memory

## Display

- Display digit size: 7mm x 4mm
- Greyscale graphic (with backlight)
- 17 Characters by 2 lines alphanumeric display
- Displays graphs, tables and vector diagrams
- Programmable units, multipliers and leading zeros
- Graphical display of load survey, phasor diagram, others
- Multiple user-defined screen pages to display any meter/energy parameter spread over 3 display sets

## Real-time Clock

- Precision clock accuracy: <5ppm (15 seconds per month) at full temperature range (-25°C to + 60°C)

- RTC and frequency synchronisation
- Configurable external time source input (e.g. 1PPS)
- Mains synchronised or internal crystal time keeping with revert

## Measured Values

- 3 elements 4 quadrants
- Import/Export/Absolute Wh, varh and VAh
- Per quadrant Wh, varh and VAh
- Phase A, B, C and Total
- W, var, VA
- Power factor, frequency, phase angles
- True RMS voltage and current (3 phase + neutral)
- CT and VT correction
- Transformer and line loss compensation

## Power Quality

- Power frequency
- Magnitude of supply voltage and current
- Flicker
- Supply voltage sag and swell
- Voltage interruption
- Rapid voltage change
- Unbalance supply voltage and current
- Voltage and current harmonics
- Voltage and current inter-harmonics
- Main signalling voltage on supply voltage
- Measurement of under-deviation and over-deviation parameters
- EN50160 report

## Load Survey/Profile

- Up to 250 channels and 2 independent surveys
- Intervals programmable from 1 minute to 1 month
- 30 days storage (Over 200 channels, 1 minute interval)
- 30 days storage (Over 200 channels, 30 minute interval)
- Energy, instantaneous readings, pulsing inputs as channel sources
- Ability to store average/minimum/maximum values for interval duration

## Time of Use

- Up to 8 rates plus unified rate
- Up to 32 separate import and export registers
- Daily, weekly, monthly, yearly and special days
- Up to 200 programmable special days
- Up to 100 previous periods plus period totals
- Block or rolling maximum demand
- Energy, pulsing inputs
- Time of maximum demand

## Calendar

- Supports Daylight Saving time

## Tamper Detection and Alarms

- Provision for sealing with conventional wire or plastic seals
- Reverse current detection
- Advanced tamper detection and logging
- Pre-programmed alarms for meter self-check
- Alarms trigger LEDs and/or communication event
- Alarms are stored in event logs

## Security

- Multi-level security (username and password including encrypted log-in)
- Up to 7 independent levels
- Up to 6 individual users

## Script Extensions

- Mk11 Genius meter continues the adaptable concept of meter "extensions" introduced in the original MK6 Genius using EziScript, complex register manipulations can be performed allowing sophisticated processing capabilities.
- Standard toolbox extensions provided
- Customer-specific extensions will be made to order

## Communications

- Up to 3 independently working communication ports:
  - Optical port: FLAG (IEC 62056-21)
  - RS-232 with modem power supply (4W, 12VDC max) or Ethernet
  - RS-485 (2 or 4-wire RJ45 or 2-wire screw terminal)
- POD features:
  - 2x RJ45 RS-485
  - 1x 2-wire RS-485
  - 2x Active I/P (+11V)
  - 6x BOSFET O/P (240V)
- GSM/GPRS
- Built-in Ethernet Port (10/100Mbps)
- Supports local and remote upgrade and configurations

## Protocol

- EDM1 command line
- DLMS/COSEM
- MODBUS (RTU)
- DL/T 645-2007
- IPv4
- IEC 60870-5-102
- SFTP Client
- Network Time Protocol (NTP)

## Software

- EDM1 EziView software available for meter programming and reading (Windows® compatible)
- EDM1 MultiDrive software available for large scale AMI and AMR solutions (Windows® compatible)

## Environmental

- Specified operating range:
  - 25°C to +60°C
- Operating range limit:
  - 40°C to +70°C
- Storage range limit:
  - 40°C to +70°C
- Relative humidity:
  - Up to 75% mean, 95% non-condensing for 30 days
- Ingress protection:
  - IP54 (without suction)
- Protective Class II

# Global Energy Solution Leader

Since 1978, EDM I has been delivering the best breed of smart metering solutions with smart electricity and gas meters across transmission, commercial and industrial, residential and sub-metering markets.

EDMI prides itself on its dedication to quality, compliance and customer service. We are international leaders in smart metering innovation and recognise our obligation to combine the best of cutting-edge technologies with a strong commitment to quality and reliability.

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