

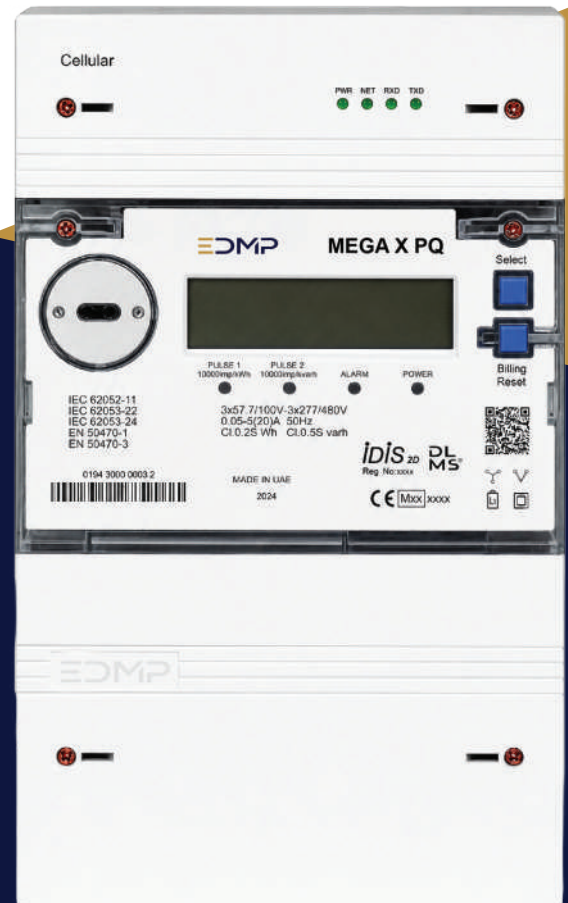
MEGA X PQ

EMPOWER YOUR GRID WITH
PERFECT CLARITY



Powering the Future
with Precision and Control

Introducing the **Mega X PQ**, an advanced smart meter specifically designed for power plants, HV and MV Substations, transmission grid, and large industrial applications, with a primary focus on **power quality** monitoring. It exceeds IEC Class 0.2S accuracy and **MID Class C** standards, delivering unparalleled precision in power quality measurements. The **Mega X PQ** complies with **IEC 61000-4-30** (Edition 3) for advanced power quality analysis, providing in-depth insights into voltage dips, harmonics, transients, and flicker. With 12kV impulse protection and meeting IEC 62052-31 safety standards, it ensures reliable and safe operation. This meter is perfect for utilities and large industrial customers seeking comprehensive power quality monitoring, offering real-time data and robust performance to optimize grid stability and operational efficiency. The **Mega X PQ** sets a new standard for power quality monitoring in smart metering systems, enabling better decision-making and ensuring grid reliability.



ELECTRICITY

EMPOWER YOUR GRID WITH PERFECT CLARITY

■ Main Functionalities

Measurement Capabilities

- Measures in 3 elements and 4 quadrants for accurate data across various parameters.
- Tracks absolute and differential energy, including Wh, VARh and VAh for comprehensive analysis.
- Provides power metrics per phase and total (W, var, VA) and voltage and current RMS values.
- Monitors power factor, frequency, and phase angles, with voltage
- Current Total Harmonic Distortion (THD), analysis up to the 50th order.
- Transformer and line loss compensation
- Neutral Current Measurement

Real-Time Clock (RTC)

- Maintains clock accuracy with a daily deviation of $\pm 0.5s/day$.
- NTP clock synchronisation over ethernet.
- Features a Gregorian calendar with automatic adjustments for leap years and Daylight-Saving Time.

Firmware Upgrading

- Allows for firmware upgrades via both local and WAN interfaces.
- Scheduled image updates.

Total Harmonics Distortion

- Up to 120 channels
- LP1, LP2, PQ independent surveys
- Up to 7 independent security levels
- Up to 6 individual users
- Support MODBUS for SCADA

Tariff Management

- Supports up to 8 tariffs and 200 programmable special days, including daily, weekly, monthly, and yearly scenarios.
- Manages up to 32 separate import and export registers and up to 12 seasons.
- Records up to 100 previous periods plus period totals for detailed financial tracking.

Power Quality

- Indication
- EN 50160 Report
- PQDIF Export
- Power frequency
- Magnitude of supply voltage & 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 on supply voltage
- Measurement of under-deviation and over-deviation parameters

Profiles and Storage

- Offers at least 150 channels with support for 3 independent surveys and 24-hour daily surveys. Programmable intervals ranging from 1 to 60 minutes, with storage for over 131,000 days storage
- (1 channel, 30min intervals)

Security

- Supports LLS with 3-level passwords for local and remote communication, and HLS with authentication and encryption for local and remote communication.
- Compatible with suite 0 and suite 1 security standards.

Event Record

- Maintains comprehensive logs including fraud detection (meter cover, terminal cover, current reverse, magnetic detection), failure detection (memory error, relay error, battery low voltage), power quality events (under/over voltage, power up/down), security events (parameter changes, clock adjustments), and standard events.

Communication

- Optical Port: Complies with IEC62056-21 standard with DLMS (IEC62056-21 mode E) protocol support.
- Plug & Play Module to support various communication technology.
- 2x RJ45 RS485 with Power Supply
- RS232 with Modem Power Supply (4W, 12VDC)
- Built in Ethernet Port
- HAN: Built in BLE Communication for SmartPhone Application

Additional Communication Ports

- RJ45 port (can be used as SCADA)
- Phoenix terminal, 2 set connection

Protocol

- DLMS/COSEM
- MODBUS
- DL/T 645-2007
- DNP3.0
- IPv4/IPv6
- IEC 870-5-102

■ Technical Specification

Standards

- IEC 61000-42, 4-30 Class A
- IEC 62052-11, 31
- IEC 62053- 21, 22, 23, 24, 61
- IEC 62056-21, 42, 46, 47, 4-7, 51, 5-3, 61, 6-2
- IEC 62059-32-1, SP-1618
- IEC 61850
- IEC/CISPR22 Class B
- EN 61268, 13757, 50470-1, 50470-3

Rated Nominal Voltage

- 3x 57.7/100V~22V/240V~277/480V
- Impulse Voltage: 12kV

CT Range

- 0.3(1.2)A, 0.3(6)A, 1(4)A, 1(6)A, 1(10)A, 5(6)A, 5(10)A, 5(20)A

CT Limit

- 20 x I_{max} for 0.5 Seconds

Accuracy

- Cl.0.2S Active kWh
- Cl.0.5S Reactive kvarh

Measurement

- 3 Phase 3 Wire
- 3 Phase 4 Wire
- Neutral Current Measurement

Rated Frequency

- 50Hz or 60Hz
- Rated frequency (fn): ±5%

Power Quality input voltage

- 120V or 230V

Power Quality Flicker System

- 1260V / 60Hz or 230V / 50Hz

Auxiliary Supply

- 100 – 240V AC or 40– 340 V AC/DC
- Auxiliary or VT Priority (Optional)

Memory

- 128MB of non-volatile memory

Power consumption in voltage circuit

- ≤10 VA

Power consumption in current circuit

- ≤0.5 VA

Input / Output

- 4x LED indicators
- 4x passive inputs
- (5VDC/12VDC/24VDC/48VDC/110VAC/240VAC)
- 6x S0 outputs (27VDC, 20mA rated)
- Output pulse width: 1ms onwards (Pulsing)

Temperature

- Normal Operation range
-25°C to +60°C
- Limit operation range
-40°C to +70°C
- Limit range for storage and transport Humidity
-40°C to +85°C

Accuracy

- Cl.0.2S Active kWh
- Cl.0.5S Reactive kvarh

Rated Frequency

- 50Hz or 60Hz

Rated frequency (fn)

- ±5%

Pulse Constant (Configurable)

- Default: 10000 imp/kWh, 10000 imp/kvarh

Protection degree

- IP54 complies with IEC 60529
- Insulation grade II

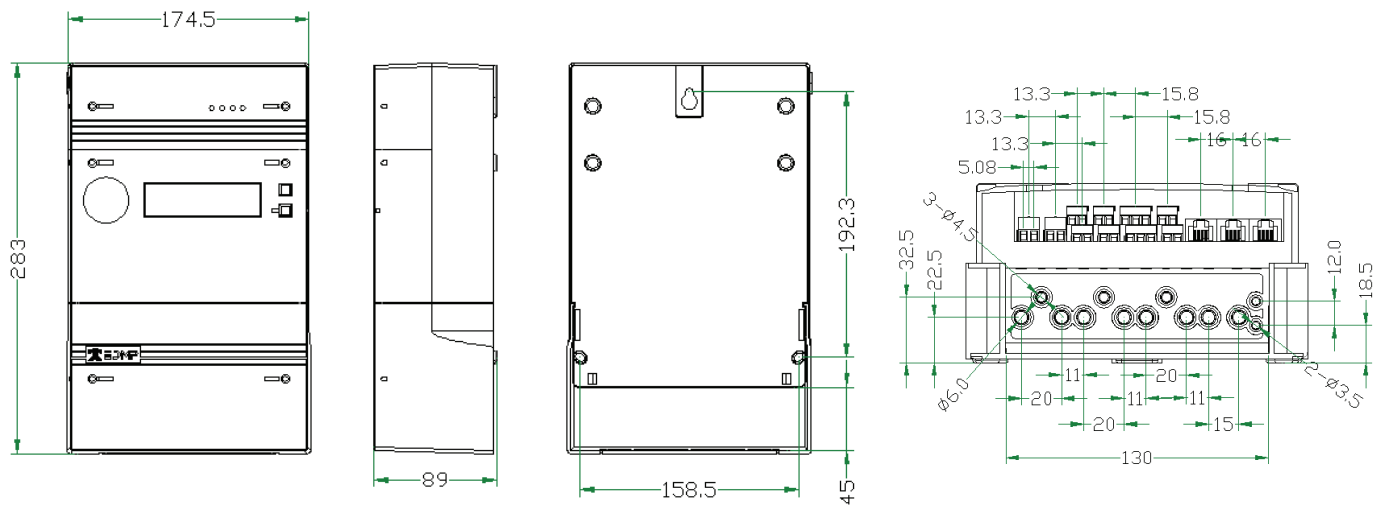
Battery

- External lithium thionyl chloride battery
(3.6V,1200mAh)
- Internal super capacitor (5V)
- Backup time: 15 years without power
(lithium battery)

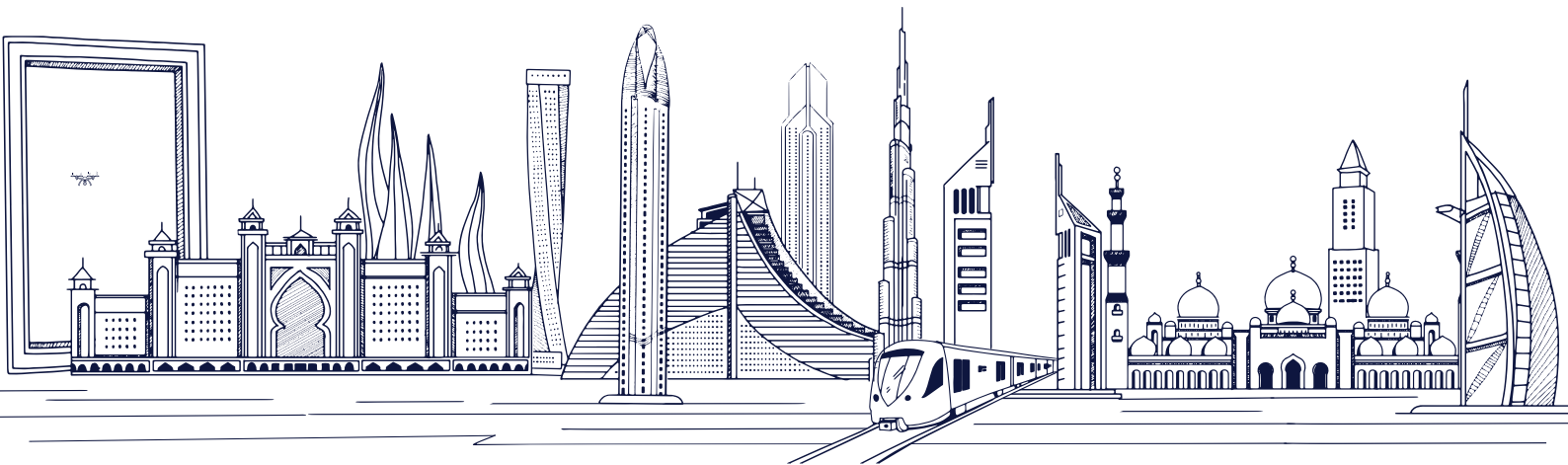
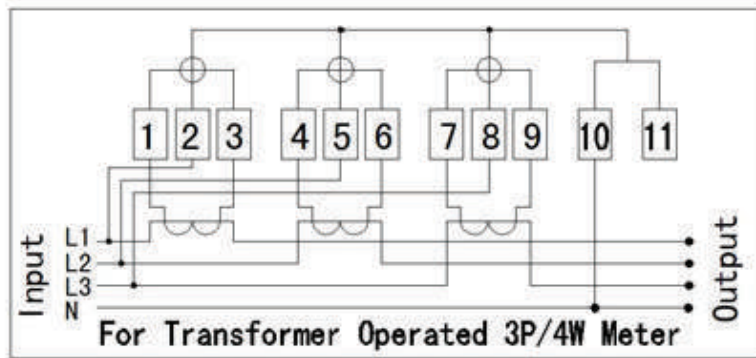
Lifetime

- ≥15 years

Diagram



Wiring Diagram



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