

ELECTRICAL SAFETY  
POWER QUALITY  
ENERGY MANAGEMENT



## GRAPHENE POWER QUALITY METER - GPQM144

### Power Quality Meter and Analyzer

- Class A Power Quality Measurement
- Complies with IEC62053 class 0.1S
- Sampling rate of 1024 samples/cycle
- Event waveform recording with 8GB memory
- Measures harmonics up to 63<sup>rd</sup> Harmonic (including THD, TDD)

# GPQM144 - Power Quality Meter and Analyzer



## Product Description

The GPQM144 (144 x 144 mm) is a power quality analyzer and part of the Graphene-Meter-Series. The combination of high accuracy and an internal 8GB memory allows to perform complex measurements and subsequently to analyze the electrical system's quality in detail.

The device measures currents, voltages, energy consumption, power, and individual harmonics to assess the power quality according to DIN EN 50160. The accuracy of active energy measurements corresponds to class 0.1S (DIN EN 62053-22).

The GPQM144 is suitable for 3- and 4-wire systems, including TN-, TT-, and IT-Systems. Standard industrial communication interfaces like Modbus RTU, Modbus TCP/IP, DIs/DOs ensure smooth communication with any other system.

## Features

- Class-A power quality analyzer
- In accordance with DIN EN 50160
- Accuracy class according to IEC 62053-22:0.1 S
- High resolution Failure Record with 1024 point/cycle
- Colorful LCD interface
- Failure diagnose location, 20  $\mu$ s for transient disturbance record
- Supports Failure Diagnose: support voltage sag source, harmonic source, flicker source, asymmetric source location and power supply failure type diagnose
- Full Real-time Data Measurement
- 4 current and voltage inputs
- 8 GB internal memory
- 8 digital input / 4 relay output
- Supports Modbus RTU and TCP and IEC61850
- Ride through voltage sags / voltage interruption with built in energy storage

## Typical Applications

- Continuous monitoring of the voltage quality in accordance with DIN EN 50160
- Collection of relevant data for energy management systems
- High-resolution waveform recording allows analysis of power quality phenomena

## Certifications & Compliances



# Technical Specification

## Power Supply

Rated Voltage (45~65Hz) AC85~265, DC100~300V (option 1)  
DC24V (option 2)

Power Consumption <10W

Voltage Ride Through ~ 5-10 seconds

## Communication / Interface

RS485 / RS232 port 2 Port, Modbus-RTU

Baud rate 2400-38400bps

Ethernet Port 1 port, Modbus TCP / IEC61850

Digital Input (DI) 8 Channels

Relay Output (DO) 4 Channels

RO1-RO4 Relay, action / return time: <10ms

Optocoupler Output 2 Channels  
Breaking Capacity: 250VA/30VDC, 0.2A  
L/R=20ms Max. voltage 30VDC  
Max. current 50mA

## Measuring circuit

### Measuring voltage inputs

Rated voltage 0~400V (400V L/N / 690V L/L)

Overload 1.2 Un, Continuous; 4Un, accept 1s

Power loss <0.1VA/Phase

Min. PT secondary input 5V

### Measuring current inputs

Rated Current 5A, 1A

Overload 4In, Continuous; 10In, accept 1s

Power loss <0.5VA/Phase@5A, <0.1VA/@1A

Min. CT secondary input 5mA

## Accuracy

Voltage/ Current  $\pm 0.1\%$

Re-,Active/Apparent power  $\pm 0.2\%$

Active Energy Class 0.1s

Reactive Energy Class 2

Power Factor  $\pm 0.5\%$

Frequency  $\pm 0.005\text{Hz}$

Harmonic Class A

Voltage Unbalance  $\pm 0.1\%$

Current Unbalance  $\pm 0.5\%$

Voltage Deviation  $\pm 0.1\%$

Frequency Deviation  $\pm 0.005\text{Hz}$

Flicker  $\pm 5\%$

## Environment/EMC

Temperature -10°C~+55°C

Storage -40°C~+85°C

IP Index Front: IP52, Side & Back: IP30

Humidity 5%~95%

Pressure 70kPa~110kPa

Measure mode 3 phase 4 wire, 3 phase 3 wire

## Measurement Parameters

### Power Quality Analysis

Wave Sampling 1024 points/cycle wave

Harmonic 2~63rd Harmonic, THD, TDD

Inter-Harmonics 2~63rd Inter-harmonic

Voltage Sag/Swell/Stop Waveform record

Transient Capture 20us circle wave transient

Unbalance Voltage-, current- and zero sequence

Voltage/Freq. Deviation Setpoint alarm and record

Rapid Voltage Alteration Trigger DO point, waveform record

Sag Source Location locate power supply side  
load side abnormal and fault

Real-time Data Voltage, Current, Active power,  
Reactive power, Apparent Power, Power  
Factor, Frequency

Measurement Channel 4 channels for each: Voltage / Current

### Energy

Energy Positive / Negative active, reactive,  
apparent energy; Positive / Negative  
base wave active, reactive energy

Harmonic Energy 2~31st positive active  
reactive harmonic energy, Negative  
active, reactive harmonic energy

History Energy Storage latest 30 days and latest  
12 months history energy data

Multi-tariff energy 4 tariff, 8 time period, 2 time zone

### Demand

Real-time Demand fixed- and slide window record value

Predict Demand Interval demand fixed circle: 15min

### Data and Event Record

Memory 8GB

Max. / Min Record Current and last month (min/max  
value and time)

SOE Record 1024 records, time resolution: 1ms

PQ Record 1024 records, time resolution: 1ms

ITIC Curve 1 Group

EN50160 EN 50160 statistic function

Mark Function Mark voltage sag/ swell/ stop etc.

## Other

Dielectric strength 2kV voltage, 1 minute

Insulation resistance No less than 100MΩ

Impulse voltage 6kV, 1.2/50μs

Electrostatic discharge immunity IEC 61000-4-2-III

Radiated, radio-frequency, electromagnetic field immunity IEC 61000-4-3-III

Electrical fast transient/burst immunity IEC 61000-4-4-IV

Surge immunity IEC 61000-4-5-IV

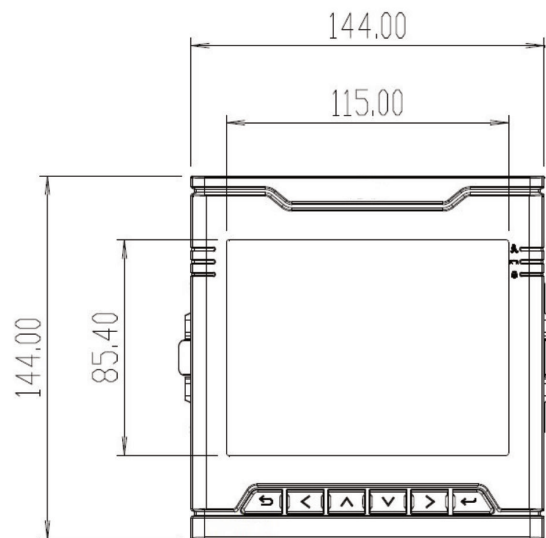
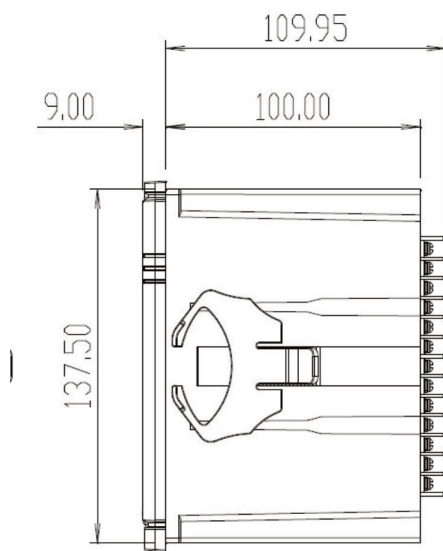
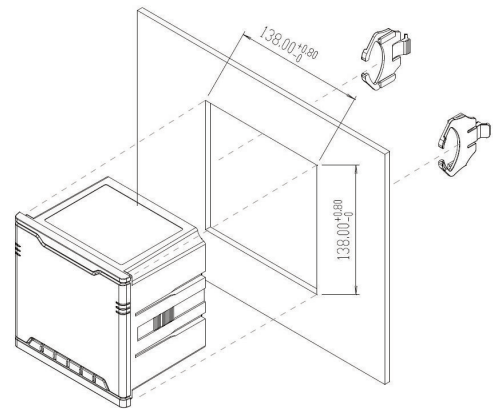
Immunity to conducted disturbances IEC 61000-4-6-III

Power frequency magnetic field immunity IEC 61000-4-8-III

# Dimensions & Ordering Code

## Ordering Code for GPQM144

GPQM144	Eetarp Product Fixed Code
X	Reserved
X	Reserved
X	3 = 110/400/690V (direct), 5A 4 = 110/400/690V (direct), 1A
C	Modbus RS485 + Modbus TCP/IP + IEC61850
X	D = digital input dry contact
	W = digital input wet contact
X	X = Power Supply AC85~265, DC100~300V 1 = Power Supply DC24V
X	Reserved
X	Reserved



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### Supported Countries

Australia, China, India, Indonesia, Japan, Philippines, South Korea, Taiwan, Thailand, Vietnam

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