EETARP
Part of Bender

ELECTRICAL SAFETY
POWER QUALITY
ENERGY MANAGEMENT

EETARP Graphene

GRAPHENE POWER QUALITY METER - GPQM144
Power Quality Meter and Analyzer

- Class A Power Quality Measurement

- Complies with IEC62053 class 0.2S

- Sampling rate of 1024 samples/cycle

- Event waveform recording with 8GB memory

- Measures harmonics up to 63rd 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 0.2 S (DIN EN 62053-22).

The GPQM144 is suitable for 2-, 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 62053-22:0.2 S
- High resolution Failure Record with 1024 point/cycle
- Colorful LCD interface
- Failure diagnose location, 20 µs for transient disturbance record
- Supports Failure Diagnose: support voltage sag source, harmonic source, flickersource, 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

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	±0.1%
Re-,Active/Apparent power	±0.2%
Active Energy	Class 0.2s
Reactive Energy	Class 2
Power Factor	±0.5%
Frequency	±0.005Hz
Harmonic	Class A
Voltage Unbalance	±0.1%
Current Unbalance	±0.5%
Voltage Deviation	±0.1%
Frequency Deviation	±0.005Hz
Flicker	±5%

Environment/EMC	
Temperature	-10℃~+55℃
Storage	-40℃~+85℃
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.

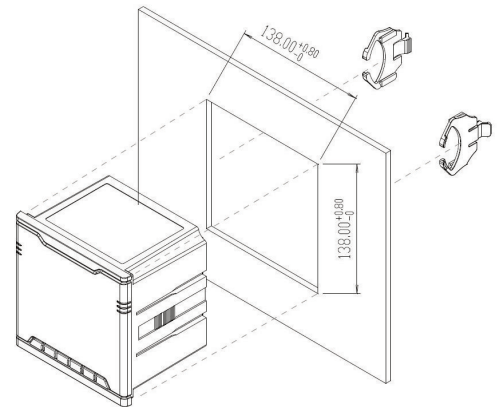| Other	
Dielectric strength	2kV voltage, 1 minute
Insulation resistance	No less than 100MΩ
Impulse voltage	6kV, 1.2/50µs
Electrostatic discharge immunity	IEC 61000-4-2-III
Radiated, radio-frequency, electromagnetic field immunity	IEC 61000-4-3-III
Electrical fast transient/burst immunity	IEC 61000-4-4-IV
Surge immunity	IEC61000-4-5-IV
Immunity to conducted disturbances	IEC61000-4-6-III
Power frequency magnetic field immunity	IEC 61000-4-8-III

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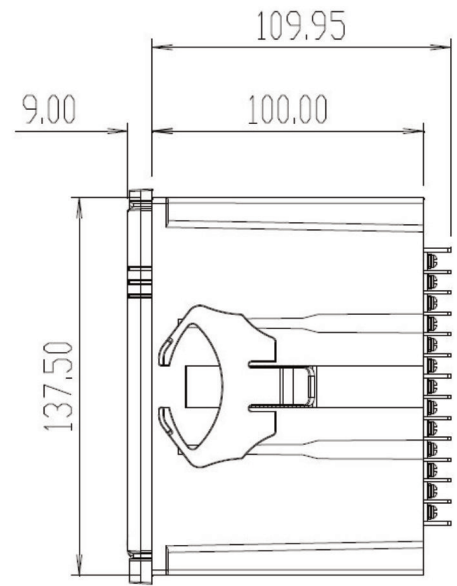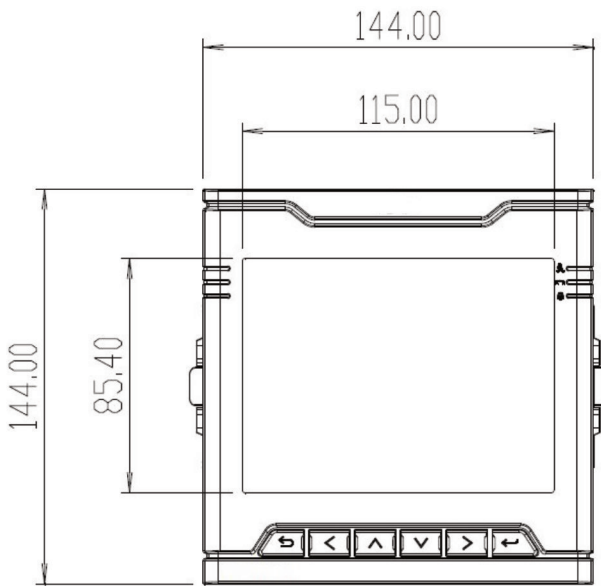
GPQM144	Eetarp Product Fixed Code
X	Reserved
X	Reserved
X	3 = 110/400/690V (direct), 5A 4 = 110/400/690V (direct), 1A
C	Modbus RS485 + Modbus TCP/IP + IEC61850
X	D = digital input dry contact
	W = digital input wet contact
X	X = Power Supply AC85~265, DC100~300V 1 = Power Supply DC24V
X	Reserved
X	Reserved