EETARP
BENDER Group

ELECTRICAL SAFETY
POWER QUALITY
ENERGY MANAGEMENT

Eetarp Graphene®
Designed For Intelligence

Graphene Power Meter – GPM96

Power Quality & Energy Meter

- Complies with IEC62053 class 0.5S
- Measurement sampling rate of 128 samples/cycle
- Build-in Modbus RTU communication (Optional TCP/IP)
- Measurement of harmonics up to 63rd order

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Graphene Power Meter – GPM96

Power Quality & Energy Meter

Product Description

The GPM96 is a power quality meter and part of the Graphene-Meter-Series. It measures all-important system values like voltage, frequency, power, power factor, THDV, THDI harmonics (up to 63rd), displacement power factor, voltage crest factor, current K-factor, or voltage unbalance. In addition, the build-in Modbus RTU (Optional TCP/IP) interface ensures smooth communication to any other system.

The combination of the wide range of measurements and an accuracy class of Cl 0.5S (IEC62053-22) makes the GPM96 an allrounder and an ideal choice for reliable analysis and metering in electrical systems.

Device Features

- Compliance to IEC62053-22 Cl 0.5S
- Instantaneous values, L-N voltage, L-L voltage, frequency, power, power factor, THDV, THDI harmonics, Displacement Power Factor (option), voltage crest factor (option), Current K factory (option), voltage unbalance (option)
- Harmonics up to 63rd order
- Memory Recording for energy, demand, max demand & max/min record
- Real time clock
- Build in Modbus RTU communication
- 6.4kHz sampling (128 Samples/cycle)
- multi tariffs
- Optional - 4DI, 2DO
- Optional - Modbus TCP/IP
- Optional - MID certified

Typical Applications

- Low voltage distribution networks
- Power station
- Generation plant
- Data Center
- Consumer billing
- Retails shop
- Commercial/residential building
- Oil & Gas Plant
- Offshore and marine
- High tension distribution network

Certifications

Technical Specification

Power Supply	
Rated Voltage	AC 85 ~ 275Vac /DC 120 ~ 380Vdc
Power Consumption	≤7VA
Withstand voltage	≥2kV

Communication / Interface	
RS-485: Modbus-RTU	
Physical interface	RS-485
Communication speed	Up to 38.4 kbps
Communication protocol	Modbus-RTU
Isolation voltage	2000 VAC (1 min)
Relay output	
Capacity	3A/250 VAC
Isolation voltage	Between contact and coil: 2500 VAC / min
Output Frequency	1 Hz maximum
Relay Type	Electromagnetic relay
Compliance	Electrostatic Discharge IEC 61000-4-2
Energy pulse output	
Pulse width	Selectable 200/100/60 ms
Pulse Output	kWh/kVarh
Pulse constant	0.001/0.01/0.1/1/10/100/1000 per pulse
Compliance	IEC62053-31 Class A.
Digital input	
Number	4 (max) ** Optional
Isolation voltage	2500 VAC (1 min)
Response Time	10 ms
Maximum Frequency	1kHz

Measuring circuit	
Measuring voltage inputs	
Rated range (L-L)	240V / 600V (L-L) continuous: 1.2Un
Resolution	0.1 V
Impedance	1.6 MΩ/per phase
Power consumption	≤0.1 VA /per phase
Safety Requirements	As per IEC61010-1 CAT III
Frequency	45-65 Hz
Measuring current inputs	
Rated range	5A/1A, (continuous: 1.2In)
Resolution	5 mA
Impedance	≤20mΩ/per phase
Power consumption	≤0.2 VA/per phase
Over current	120A for 0.5Seconds

Working Environment	
Working temperature	-25°C to 55°C
Storage temperature	-40°C to 70°C
Relative humidity	≤95% RH, no condensation
Working altitude	≤2000m
Protection degree	Front case IP54, rear case IP20
Pollution	Degree II

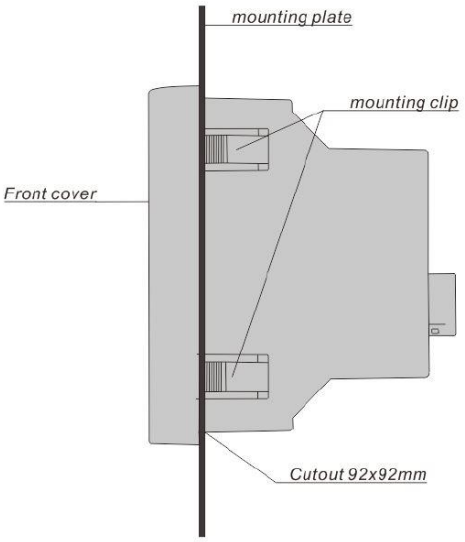
Measurement Parameters	
Power Quality Analysis	
Sampling	128 points/cycle wave
Harmonic	2~63rd Harmonic,
Sequence of events	20 events
Phase Sequence	Yes
Displacement Power factor	Modbus read
Voltage crest factor	Modbus read
Current K factor	Modbus read
Threshold setting	Trigger DO
Phase Angles	3 Phase Voltage / 3 Phase Current
Real-time Data	Voltage, Current, Active power, Reactive power, Apparent Power, Power Factor, Frequency
Measurement Channel	3 channel for each: Voltage / Current
Energy	
Energy	Positive / Negative active, reactive, apparent energy ; Positive / Negative base wave active, reactive energy
Multi-tariff energy	4 tariff, 8 time period
Demand	
Real-time Demand	fixed- and slide window record value
Accuracy	
Voltage/ Current	±0.2%
Re-,Active/Apparent power	±0.2%
Active Energy	IEC 62053-22 Class 0.5S, IEC 61557-12 Class 0.5
Reactive Energy	IEC62053-23 Class 2, IEC 61557-12 Class 2
Power Factor	±0.01
Frequency	±0.1%

Product is tested and manufactured according to…	
Electrostatic discharge immunity	IEC 61000-4-2
Radiated, radio-frequency, electromagnetic field immunity	IEC 61000-4-3
Electrical fast transient/burst immunity	IEC 61000-4-4
Surge immunity	IEC 61000-4-5
Immunity to conducted disturbances, induced by radio-frequency fields	IEC 61000-4-6
Power frequency magnetic field immunity	IEC 61000-4-8
Immunity to Voltage Dips	IEC 61000-4-11
Radiated Emissions	EN55011 Class A
Harmonics	IEC 61000-3-2

Dimensions & Ordering Code

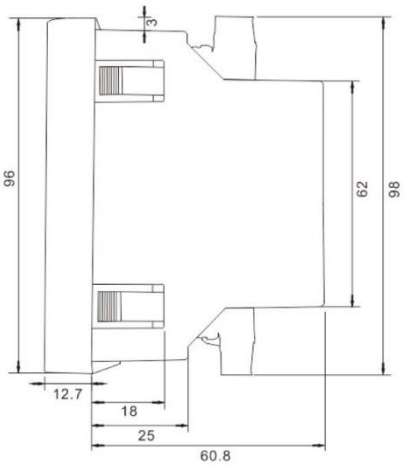
Ordering Code for GPM96-Series

G	Eetarp Product Fixed Code
A	A = IEC62053-22, M = MID Class
X	Reserved
X	Reserved
X	Reserved
X	C = MODBUS RTU, E = MODBUS TCP/IP
X	B = Aux 65~480V AC / 80~660V DC, C = 24~48V DC, D = Self-power supply
X	5 = RS485, 6 = TCP/IP
X	Reserved
X	3 = Demand Version + 15th harmonics version 4 = Demand + Min/Max + 63rd Harmonics Version + multi tariffs + DPF + Unbalance 5 = Basic Version 6 = MID, Multi-tariff with 63rd Harmonics Version
X	X = No Ethernet Gateway, 1 = With Ethernet Gateway
X	2 = No DI/DO, 3 = 4 DI & 2 DO
X	X = No Pulse Outputs, 2 = 2 Pulse Outputs
X	Reserved
X	X = 1% - Basic version 0 = 0.5% 1 = 0.2%



Common GPM96 Variants

Order Number	Type	Features
GMXXXCD5X6X22X0	GPM96-MID	GPM96 with 63rd harmonics, Multi Tariffs, Modbus RS485, MID Certified, 2 pulse output
GAXXXCB5X5X2XX0	GPM96-PK2	GPM96 with basic electrical parameter, Modbus RS485, CL0.5S (Basic Model)
GAXXXCB5X4X2XX0	GPM96-PK3	GPM96 with 63rd harmonics, Multi Tariffs, Modbus RS485, min/max, CL0.5S
GAXXXCB5X4X3XX0	GPM96-PK4	Basic Model + 4xDI, 2xDO
GAXXXEB6X4X2XX0	GPM96-PK5	Basic Model + Modbus TCP/IP
GAXXXEB6X4X3XX0	GPM96-PK6	Basic Model + 4xDI, 2xDO, Modbus TCP/IP
GAXXXEB6X413XX0	GPM96-PK7	Basic Model + 4xDI, 2xDO, Modbus TCP/IP, Modbus Gateway



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