

ELECTRICAL SAFETY  
POWER QUALITY  
ENERGY MANAGEMENT



## GRAPHENE ENERGY METER - GEM230/GEM630

Single Phase and Three Phase Energy Meter

- Complies with MID EN50470 Class B
- Built-in Modbus RTU
- 2 tariffs energy counter
- Measurement of THD harmonics

# GEM230/GEM630 - Single Phase & Three Phase Energy Meter



## Product Description

GEM230/GEM630 is part of the new smart Graphene-Meter-Series and an advanced digital multi-function power meter, which can be directly connected to up to 100A loads or via a current transformer to any system. The unit measures all-important system values like active energy, reactive energy, current, voltage, power, power factor, frequency, demand, etc.

Bi-directional measurement makes it an ideal choice for Solar PV / generation plant measurement. A remote communication port and a standard interface via Modbus RTU or M-bus EN13757-3 ensure smooth exchange with any other system. To provide the highest security standard, all communication parameters are password protected. The front panel allows the user to check data and set up the meter via easy-to-access buttons.

## Features

- Accuracy according to MID Class B
- Direct connection up to 100A
- CT operated 1A/5A/100mV
- Measures active energy, reactive energy, current, voltage, power, power factor, frequency, demand, THDV, THDI, etc.
- 64kB data recording for energy, demand, max demand & max record
- Memory ROM 128kB
- Modbus RTU communication
- MID certified
- Multi-tariff
- Optional: LoRaWAN protocol

## 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

## Certifications & Compliances



# Technical Specification

	Model		
	GEM230-D	GEM630-D	GEM630-CT
Connection Type	1 Phase Direct 100A	3 Phase Direct 100A	3 Phase CT Operated / 100mV
Nominal Voltage (Un)	120V or 230Vac	3x230/400Vac	
Operational voltage	80%~120% of Un		60%~120% of Un
Maximum rated current (Imax)	100A (0.4% Ib-Imax)		100mV / 5A CT (0.4% Ib-Imax)
Overload	30 Imax for 0.01s		20 Imax for 0.01s

## Insulation capabilities

AC voltage withstand	4KV for 1 minute
Impulse voltage withstand	6KV-1.2μS
Operational frequency range	50 or 60Hz
Internal power consumption	≤ 2W/10VA

## Environment Protection

Operating humidity	≤ 90%		
Storage humidity	≤ 95%		
Operating temperature	-25°C - +55°C		
Storage temperature	-40°C - +70°C		
Working Altitude	≤2000m		
Reference temperature	23°C± 2°C		
Installation category	EN61010-1 CAT II	EN61010-1 CAT III	EN61010-1 CAT III
Mechanical environment	M1		
Electromagnetic environment	E2		
Degree of pollution	2		
Protection	IP51(indoor)		
Insulating Class	II		
Electrostatic discharges	8kV contact / 15kV air gap		
Radiated & emissions	EN 55022		

## Accuracy class

Voltage, Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active Power / Reactive power	± 0.5% / ±1% of range maximum
Reactive energy (Varh)	Class 2
Active energy (Wh)	Class 0.5 / Class 1
International standard	IEC 62053-21 CL0.5/ CL1, EN50470-1/3 MID CL B, IEC 61557-12 CL0.5/ CL1
Accuracy class	Class 0.5 / Class C, Class 1 / Class B

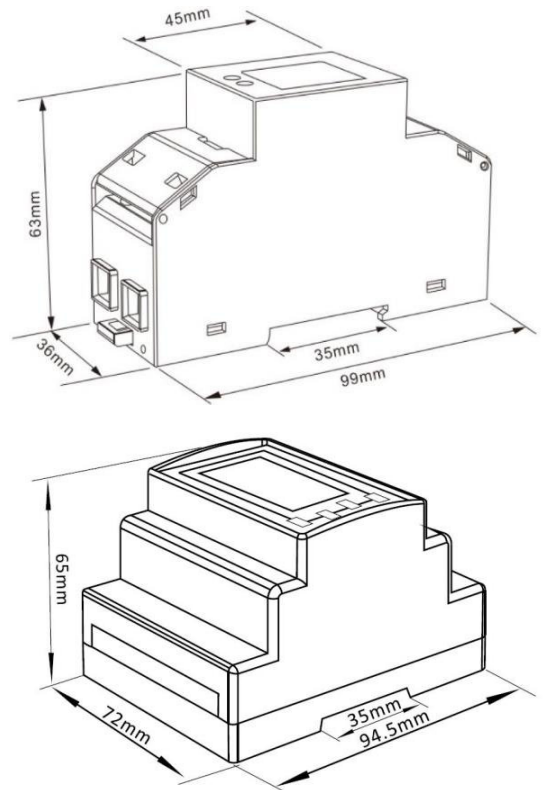
## Communication

Bus type	RS485 / Wireless		
Protocol	Modbus RTU / Lorawan (Output Power: 13 dBm)		
Pulse output 1	Configurable		
Pulse output 2	1000imp/kWh	400imp/kWh	3200 imp/kWh
Max reading	99999.9 kWh	999999.99 kWh/kVarh	9999999.9 kWh/kVarh

# Dimensions & Ordering Code

## Ordering Code for GEM230/GEM630

G	Eetarp Product Fixed Code
E	Fixed Code
M	Fixed Code
X	Reserved
M	M = MID Class
X	C = MODBUS RTU M = Mbus L = LoRaWAN (only for GEM630-CT-L)
X	5 = RS 485
X	1 = 1 Phase Direct 100A 2 = 3 Phase Direct 100A 3 = 3 Phase CT Operated 1/5A 4 = 3 Phase CT Operated 333mV (unavailable) 5 = 3 Phase CT Operated 100mV
X	1 = Basic (imp/Exp kwh) 2 = Multi-function Meter
X	X = No Pulse Outputs 2 = 2 Pulse Outputs
X	X = No Tariffs 2 = 2 Tariffs 4 = 4 Tariffs
X	1 = 1% 5 = 0.5%



## Common GEM230/GEM630 Variants

Order Number	Type	Features
GEMXMC512221	GEM230-D	1 Phase Direct Connection 100A, 2 tariffs, CL 1
GEMXMC522221	GEM630-D	3 Phase Direct Connection 100A, 2 tariffs, CL 1
GEMXMC532221	GEM630-CT	3 Phase CT Operated 1A/5A, 2 tariffs, CL 1
GEMXMC5122X1	GEM230-D-M	1 Phase Direct Connection 100A, single tariffs, CL 1
GEMXMC5222X1	GEM630-D-M	3 Phase Direct Connection 100A, single tariffs, CL 1
GEMXMC5322X1	GEM630-CT-M	3 Phase CT Operated 1A/5A, single tariffs, CL 1
GEMXMC5222X5	GEM630-D-M-1	3 Phase Direct Connection 100A, single tariffs, CL 0.5
GEMXMLX3XXX1	GEM630-CT-L	3 Phase CT Operated 1A/5A. LoRaWan, CL 1



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### Supported Countries

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

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