

ELECTRICAL SAFETY  
POWER QUALITY  
ENERGY MANAGEMENT



## Graphene Energy Meter – GEM540

Single Phase and Three Phase Energy Meter

- Complies with MID EN50470 Class B
- Built-in Modbus RTU
- Compact size of 54mm width
- Direct Connection Up to 100A

# Graphene Energy Meter - GEM540

## Single Phase and Three Phase Energy Meter



### Product Description

The GEM540 is an advanced digital multi-function power meter and part of the smart Graphene-Meter-Series, which can be connected to loads up to 100A (direct). The device measures all-important system values like active energy, reactive energy, current, voltage, power, power factor, frequency and max demand.

Bi-Directional measurement makes it an ideal choice for power generation plants like solar/PV fields. Standard industrial interfaces like Modbus RTU ensure a smooth exchange with any other system. The front panel allows the user to check data and set up the meter via easy-to-access buttons. To provide the highest safety and to prevent unwanted changes in the settings, all communication parameters are password protected.

### Device Features

- Accuracy according to MID Class B
- Direct connection up to 100A
- Measure active energy, reactive energy, current, voltage, active power, apparent power, reactive power, power factor, frequency, max. demand
- Memory recording for energy, max demand
- Modbus RTU communication
- MID certified
- Class 1 (IEC62053-21) or Class B (EN50470-3)
- Self-Powered with measuring voltage
- Option with 2 Digital Inputs

### 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



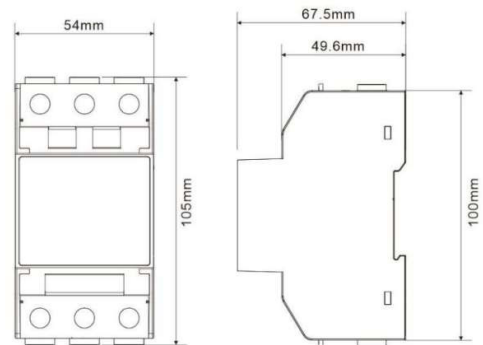
# Technical Specification

Model GEM540-D	
Connection Type	3 Phase Direct 100A
Nominal Voltage (Un)	230Vac / 240Vac L-N (120% overload capability)
Maximum rated current (Imax)	Maximum 100A / Minimum Starting Current 0.02A
Overload	20 Imax for 0.01s
<b>Insulation capabilities</b>	
AC voltage withstand	2.5KV for 1 minute
Impulse voltage withstand	4KV-1.2μS
Operational frequency range	50 or 60Hz
Internal power consumption	≤ 2W/10VA
<b>Environment Protection</b>	
Operating humidity	0 to 90%, non-condensing @40°C
Storage humidity	≤ 95%
Operating temperature	-25°C to +55°C
Storage temperature	-30°C to +80°C
Reference temperature	23°C± 2°C
Working altitude	≤2000m
Installation category	IEC 61010-1 CAT III
Mechanical environment	M2
Electromagnetic environment	IEC 61326-1:2013; IEC 61326-2-3:2013
Protection	IP51(indoor)
Insulating Class	IEC 61010-1 double insulated
Electrostatic discharges	8kV contact / 15kV air gap
<b>Accuracy class</b>	
Voltage, Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active Power / Reactive power	±1% of range maximum
Reactive energy (Varh)	Class 2
Active energy (Wh)	Class 1
International standard	IEC 62053-21 CL1, EN50470-1/3 MID CLB
Accuracy class	Class1/Class B
<b>Communication</b>	
Bus type	RS485
Protocol	Modbus RTU
Pulse output 1	Default setting is exp-kWh; 100mS, constant 400imp/kWh / Digital Input
Pulse output 2	It is fixed up with active kWh. The constant is 400imp/kWh / Digital Input

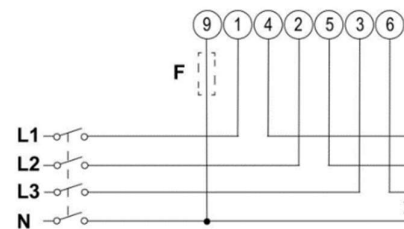
# Dimensions & Ordering Code

## Ordering Code for GEM540

G	Fixed Product Code
E	Fixed Code
M	Fixed Code
X	Reserved
M	M = MID Class
C	C = MODBUS RTU
5	5 = RS485
5	5 = 3 Phase Direct 100A (GEM540 series)
2	2 = Multi-function Meter
2	2 = 2 Pulse Outputs 3 = 2 Digital Input
2	2 = 2 Tariffs
1	1 = Accuracy 1%



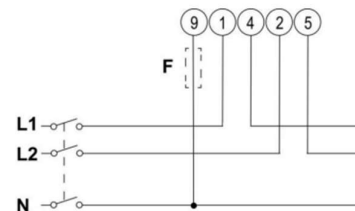
### ● Three Phase Four Wires:



## Common Model for GEM540

Order Number	Type	Features
GEMXMC552221	GEM540-D	Compact 1 phase & 3 phase Direct Connection 100A, 2 tariffs
GEMXMC552321	GEM540-D-2DI	Compact 1 phase & 3 phase Direct Connection 100A, 2 tariffs, 2xDI

### ● Single Phase Three Wires:



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