# SEM3-WL-2

## Multi-function 3 phase meter




- Multi-parameter measurements
- Accuracy Class 1 active energy
- Support Wi-Fi/Bluetooth dual-mode communication
- 2 Measurement modes
- Easy connection solution
- Compact design
- Support 1x3p or 3x1p load measurements
- Phase sequence error warning
- Four-quadrants reactive energy

## Introduction

The SEM3 three-phase electricity meter is designed for three-phase four-wire power grids and can accurately measure various critical electrical parameters: voltage, current, power, frequency, active energy, reactive energy, forward and reverse energy, etc. It is suitable for real-time power monitoring systems, featuring multifunctionality, versatility, high stability, and long service life.

The SEM3 is a three-phase electricity meter designed for power monitoring needs in power systems, public utilities, industrial applications, and residential settings. It can be used in scenarios such as power transmission and distribution, AC charging piles, and solar photovoltaic systems. Its comprehensive communication capabilities make it highly suitable for various real-time power monitoring systems.

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# Datasheet | SEM3 smart energy meter

## Electrical Characteristics

| | | |
|---|---|---|
| Type of Measurement | | RMS Including Harmonics on Three Phase AC System (3P, 3P+N) |
| Measurement Accuracy | Power | ± 1% IEC 61557-12 Class 1 |
| | Active Energy | ± 1% |
| | Reactive Energy | ± 2% |
| | Frequency | ± 0.2% |
| | Current | ± 0.5% (4A to 120A)<br>± 1% (1A to 4A)<br>± 3% (0.06A to 1A) |
| | Voltage | ± 0.5% |
| | Power Factor | ± 0.1 |
| Data Update Rate | | Active Power:50mS(RS485), 500mS(Wi-Fi) |
| Input-Voltage | Un | 3*230V(L-N)/400V(L-L) |
| | Working Voltage Range | 90 to 277 V ac L-N<br>156 to 480 V ac L-L |
| | Frequency Range | 50/60Hz |

## Mechanical Characteristics

| | |
|---|---|
| Net Weight | ≈100g |
| IP Degree of Protection (IEC 60529) | IP51 Front Display<br>IP20 Whole Meter |
| Dimensions (DxHxW) | 68.5*90*19mm |
| Mounting | DIN Rail 35mm |
| Material of Meter Case | Self-extinguishing UL 94 V-0 |
| Mechanical Environment | M1 |

## Environmental Characteristics

| | |
|---|---|
| Operating Temperature | -40 °C to +70°C |
| Storage Temperature | -40 °C to +85°C |
| Humidity Rating | ≤95% RH , non-condensing |
| Pollution Degree | 2 |
| Altitude | Up to 2000m |
| Vibration | 10Hz to 50Hz, IEC 60068-2-6 |

## Electromagnetic Compatibility

| | |
|---|---|
| Electrostatic Discharge | IEC 61000-4-2 |
| Immunity to Radiated Fields | IEC 61000-4-3 |
| Immunity to Fast Transients | IEC 61000-4-4 |
| Immunity to Impulse Waves | IEC 61000-4-5 |
| Conducted Immunity | IEC 61000-4-6 |
| Immunity to Magnetic Fields | IEC 61000-4-8 |
| Immunity to Voltage Dips | IEC 61000-4-11 |
| Radiated Emissions | EN55032 Class B |
| Conducted Emissions | EN55032 Class B |

## Safety

| | |
|---|---|
| Measurement Category | Per IEC61010-1 CAT III |
| Current Inputs | Require External Current Transformer for Insulation |
| Over-voltage Category | CAT III |
| Protective Class | II |

## Communications

| | |
|---|---|
| Interface 1 | RS485 Port |
| Interface 1 Protocol | MODBUS RTU |
| Communication Address | 1 to 247 |
| Transmission Mode | Half Duplex |
| Data Type | Floating Point |
| Transmission Distance | 1000m Maximum |
| Transmission Speed | 2400/4800/9600(Default)/19200/38400/115200bps |
| Parity | NONE(Default)/ ODD / EVEN |
| Stop Bits | 1 or 2 |
| Response Time | <50 ms |
| Interface 2 | Wi-Fi |
| RF Band | 2.4 GHz to 2.5 GHz |
| Max. RF Power | <20 dBm |
| Wi-Fi Protocol | 802.11 b/g/n |
| Wi-Fi Range | Up to 30m / 100ft indoors and 50m / 160ft outdoors (Depends on local conditions) |
| Interface 3 | Bluetooth |
| Bluetooth Protocol | Bluetooth 4.2 |
| Bluetooth Range | Up to 10m / 33ft indoors and 50m / 160ft outdoors (Depends on local conditions) |

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