



**EL SEWEDY  
ELECTROMETER®**  
MANAGE UTILITIES BETTER

# SMARTG-02 SINGLE PHASE METER

## EM101-5

Residential, Commercial, and Industrial Applications (Low Voltage)



Active Energy



Modular



Cut-Off Relay



Tamper



Battery



GSM/GPRS



PLC



RF

### INTRODUCTION

The SmartG-02 electricity meter series are modern, electronic, fully programmable devices, designed for application in AMI systems for monitoring and control of electricity consumption.

The SmartG-02 electricity meter series meet remote data transmission requirements and enable readouts of various measurands. The meters are compliant with IEC and DLMS/COSEM standards and have been designed to serve billing purposes.

The EM101-5-SmartG-02 single phase meter is a two wire, Prepaid/Postpaid compact electronic meter (direct connection meter), with accuracy class 0.5, capable of measuring KWh and is type approved according to IEC standards.

The meter is used to measure energy consumption in 220 VAC, 50 Hz, and 5A-80A. It contains an independent measuring element allowing consumed energy to be measured in both line and neutral. There is a LED mounted on the front panel of the meter, pulsing at a rate of 3200 pulses per KWh for energy registration.

The modular nature of the meter means that its communications interface supports a broad range of field-upgradable communications options including GPRS, PLC, and RF among others.

### STANDARDS

- IEC 62052-11
- IEC 62053-23:2003
- EN 50470
- IEC 695-2-1
- IEC62055 (for contactor)
- IEC 62056-42
- IEC 62056-46
- IEC 62056-53
- IEC 62056-61
- IEC 60068



## METER SPECIFICATIONS

### Electrical Characteristics

Nominal Voltage	220 V
Voltage Variation (Min)	-40% Vn
Voltage Variation (Max)	30% Vn
Nominal Current (Ibase)	5 A
Maximum Current (Imax)	100 A
Nominal Frequency	50 Hz
Frequency Variations	±5%
Accuracy Class	0.5
Starting Current	0.4 % Ib
Power Consumption	≤ 2W
Measurements	KWh MD(A)(KW)
Back-up Battery Type	Lithium Battery
Back-up Battery Lifetime	10 Years

### Memory

Type	Flash memory
Retention Period	More than 20 Years

### Environmental Conditions

IP Rating	IP54
Temperature Range	-5°C to +70°C
Storage Temperature	-25°C to +80°C
Humidity Range	<90%
Altitude	0-3600M
Service Life	20 Years

### Communication

Optical Interface	Standard Optical Port (IEC 62056-21) Complies with DLMS/COSEM HDLC mode-E protocol
Serial Communication Port	RS-485 Complies with DLMS/COSEM direct HDLC protocol
AMI/AMM Module	Supported through the use of a GSM/GPRS Modem, PLC Modem or RF Modem
Data Transmission Rate	Optical Port: 2400 bit/s RS-485: 2400 bit/s GPRS: 56-114 Kbit/s

## METER FEATURES

### Feature Description

<b>Display</b>	<ul style="list-style-type: none"> <li>Fully electronic (LCD) with backlit</li> </ul>
<b>Load Profile</b>	<ul style="list-style-type: none"> <li>The meter is capable of storing two profiles. One for energy and one for other parameters</li> <li>Each profile has an integration period of 1 to 60 minutes</li> <li>The profiling period extends for at least 45 days</li> </ul>
<b>Events</b>	<ul style="list-style-type: none"> <li>The EM101-5-SmartG-02 records a considerable amount of data for extended periods of time</li> <li>In addition, the EM101-5-SmartG-02 stores up to 400 events</li> <li>Events are logged with a date/time stamp</li> </ul>
<b>Tamper Proofing</b>	<ul style="list-style-type: none"> <li>The EM101-5-SmartG-02 has the ability to detect the following types of tamper attempts: <ul style="list-style-type: none"> <li>✓ Meter Cover Open</li> <li>✓ Terminal Cover Open</li> <li>✓ Reverse Connection</li> <li>✓ Current Bypass Connection</li> <li>✓ Overload</li> <li>✓ Over Voltage</li> <li>✓ Under Voltage</li> <li>✓ Parameter Change</li> </ul> </li> </ul>
<b>Alarms</b>	<ul style="list-style-type: none"> <li>The meter supports two alarm methods: <ul style="list-style-type: none"> <li>✓ LED Indicator</li> <li>✓ Audible Alarm</li> <li>✓ Messages on LCD</li> </ul> </li> <li>The meter can be configured to give any combination of alarms as required</li> </ul>
<b>Relay Operation</b>	<ul style="list-style-type: none"> <li>The relay control modes include: <ul style="list-style-type: none"> <li>✓ Remote Disconnect</li> <li>✓ Local Disconnect</li> </ul> </li> <li>The relay is configurable to be triggered in the event of: <ul style="list-style-type: none"> <li>✓ Meter cover open</li> <li>✓ Meter Terminal Cover Open</li> <li>✓ Energy Reverses</li> <li>✓ Meter Current Overload</li> <li>✓ Meter Over Voltage and Under Voltage</li> <li>✓ At Low Battery</li> <li>✓ Low Credit</li> </ul> </li> </ul>
<b>Auto-diagnostics</b>	<ul style="list-style-type: none"> <li>With each power-up or firmware update, the meter shall diagnose: <ul style="list-style-type: none"> <li>✓ Meter and memory integrity</li> <li>✓ Display, alarms &amp; battery status</li> <li>✓ External communication module status</li> </ul> </li> </ul>

## MECHANICAL SPECIFICATIONS

- **Dimensions:** (L x W x D) =  
127.05 mm x 116.09 mm x 64 mm
- **Weight:** Approximately 1.5Kg
- **Meter Housing:** Flame Retardant Polycarbonate

