

# sMart-G 1phs SMART DIRECT SPLIT SINGLE PHASE METER

## EM101- 4

Residential & Commercial  
Applications (Low Voltage)



### INTRODUCTION

The EM101-4 Smart Prepaid electricity meter series are modern, electronic, fully programmable devices, designed for application in payment systems for monitoring and control of electricity consumption, and have been designed to serve billing purposes.

They can be charged manually using RFID cards or remotely through the GSM/GPRS modem or (Ethernet)

The EM101-4 Prepaid meter series is part of Advanced Payment Solution suitable for Residential consumers who would like to control their Bill and Utilities who would like to increase their Revenue collection.

The meter series enables Reading, Billing and Collection with flexible methods using RFID Smart cards.

The EM101-4 Prepaid three phase meter is a four wire, Prepaid compact electronic meter (direct connection meter), with accuracy class 0.5, capable of measuring KWh and is type approved according to IEC/EN standards.

The meter is used to measure energy consumption in 230 Vac, 50 Hz, and 5-60A. 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

### STANDARDS

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



Active Energy



RFID



Cut-Off Relay



Tampers



Battery



Optical



RS-485 / Ethernet



GSM/GPRS

## METER SPECIFICATIONS

### Electrical Characteristics

Nominal Voltage	230 V
Voltage Variation (Min)	-40% Vn
Voltage Variation (Max)	30% Vn
Nominal Current (Ibase)	5 A
Maximum Current (Imax)	60 A
Nominal Frequency	50 Hz
Frequency Variations	±2%
Accuracy Class	0.5
Starting Current	0.1 % 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	up to 90%
Altitude	0-3600M
Service Life	20 Years

### Communication

Optical Interface	Standard Optical Port (IEC 62056-21) Up to baud rate 2400 bit/sec
RFID	Several types of cards available i.e. (Customer card, Parameter card, etc...)

### Tariffs

Types	<ul style="list-style-type: none"> <li>• TOU tariff</li> <li>• Step tariff</li> </ul>
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## METER FEATURES

### Feature Description

Display	<ul style="list-style-type: none"> <li>• Fully electronic (LCD) 8 digits programmable</li> </ul>
Profiling	<ul style="list-style-type: none"> <li>• The meter is capable of storing a set of load profile parameters</li> <li><b>a. Data:</b> <ul style="list-style-type: none"> <li>✓ Total Consumption (KWh)</li> <li>✓ Current (A)</li> <li>✓ Voltage (V)</li> <li>✓ Power Factor</li> <li>✓ Date &amp; Time stamp</li> </ul> </li> <li><b>a. Maximum size:</b> <ul style="list-style-type: none"> <li>✓ Up to 3360 Records</li> </ul> </li> <li><b>a. Duration:</b> <ul style="list-style-type: none"> <li>✓ Every 15 minutes</li> </ul> </li> </ul>
Friendly Option	<ol style="list-style-type: none"> <li>1. During week ends and National Holidays (Configurable)</li> <li>2. At night (every day) when the vending stations are closed (Configurable)</li> <li>3. Special Calendar Setting with up to 365 days per years (Configurable)</li> </ol>
Tamper Proofing	<ul style="list-style-type: none"> <li>• The EM101-5 Prepaid 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>
Alarms	<ul style="list-style-type: none"> <li>• The meter supports three 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>
Relay Operation	<ul style="list-style-type: none"> <li>• The relay control modes include: <ul style="list-style-type: none"> <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>
Auto-diagnostics	<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> </ul> </li> </ul>

## MECHANICAL SPECIFICATIONS

- **Dimensions:** (L x W x D) = 209 mm x 125 mm x 78.5 mm
- **Weight:** Approximately 1.1 Kg
- **Meter Housing:** Flame Retardant Polycarbonate

