



**EL SEWEDY
ELECTROMETER®**
MANAGE UTILITIES BETTER

ADVANCED PAYMENT SINGLE PHASE METER

EM101-4

Residential Applications (Low Voltage)



Active Energy



RFID



Cut-Off Relay



Tampers



Battery

INTRODUCTION

The EM101-4 is a single phase two wires prepaid type A electronic meter equipped with the latest Radio Frequency Identification (RFID) communication technology.

The EM101-4 was developed to meet the changing requirements of worldwide utility markets. The EM101-4 benefits from modern technology and up-to-date manufacturing techniques resulting in low power losses, high reliability and more flexibility.

The EM101-4 benefits from the RFID technology which allows a two-way communication path between the utility company and the consumer. Various forms of information and data can be exchanged securely via the RFID card(s) including but not limited to customer data, meter configuration and monthly consumption.

EM101-4 can accommodate different forms of customer billing methods.

STANDARDS

- IEC62053-21
- IEC62052-11
- IEC61036

METER SPECIFICATIONS

Electrical Characteristics

Accuracy Class	Class 1
Nominal Voltage	220Vac Phase to Neutral
Supply Variation	±30%
Spike Voltage Tolerance	4KV Rise Time: 5ns; Pulse Width: 50ns
Nominal Current (Direct Connection)	10A
Maximum Current (Direct Connection)	100A
Starting Current	40mA
Nominal Frequency	50Hz
Frequency Variation	±5%
Inherent Consumption of Voltage Circuit.	<0.5W/<4VA
Inherent Consumption of Current Circuit.	<0.1VA
Backup Battery Reserve	≤10 Years
Real Time Clock	Quartz Crystal 32KHz
Real Time Clock Accuracy	±2 minutes/year

Memory

Type	Non volatile memory
Update Rate	Every 6 hours or After Power Failure
Data Retention Period	40 Years

Environmental Conditions

IP Rating	IP54
Temperature Range	- 5°C to +70°C
Storage Temperature	- 30°C to +75°C
Humidity Range	0-95%
Altitude	0-3600 m
Lightning Protection Circuit.	Included
Meter Service Life	20 Years

Communication

RFID Operating Frequency	13.56MHz
Optical Port	Standard Optical Port - IEC 62056-21
Data Transmission Rate	RFID Module: 200 kbit/s Optical Port: 2400 bit/s

METER FEATURES

Feature Description

Measurements	<ul style="list-style-type: none"> The EM101-4 is capable of measuring the active power consumed (kWh), upgradable to support reactive energy measurement
RFID Operation	<ul style="list-style-type: none"> The meter is fully configurable via the RFID cards Various data can be retrieved from the meter including but not limited to consumption, remaining credit and tamper attempts The meter can be recharged via the RFID cards Extremely secure as it includes a 48-bit key encryption/decryption module to verify and validate the authenticity of the card used
Communication Modules	<ul style="list-style-type: none"> Optical Port Module: used to allow a PC/HHU to communicate with the EM101-4 RFID Module: Used to communicate with the EM101-4 via a variety of functional RFID cards
Payment Form	<ul style="list-style-type: none"> The EM101-4 supports the multi-tariff feature. The EM101-4 supports various payment forms including: <ul style="list-style-type: none"> ✓ Pre-paid If the money balance reaches zero, the relay shall be activated to disconnect power ✓ Friendly Feature EM101-4 shall not disconnect power during weekends and holidays ✓ Grace Period Feature EM101-4 shall allow a grace period prior to disconnecting power, after the credit limit has reached zero
Tamper Proofing	<ul style="list-style-type: none"> The EM101-4 is tamper proof against: <ul style="list-style-type: none"> ✓ Meter cover open ✓ Terminal cover open ✓ Reverse connection ✓ Current bypass connection ✓ Overload (Configurable limit) ✓ Overvoltage (Configurable limit) ✓ Undervoltage (Configurable limit) ✓ Upgradeable to detect additional tampers
Relay Operation	<ul style="list-style-type: none"> The relay is activated in response to the following triggers, and may be configured otherwise: <ul style="list-style-type: none"> ✓ Tamper detection ✓ No credit ✓ Low battery ✓ Manually by the utility
Indicators	<ul style="list-style-type: none"> The EM101-4 supports various indication methods for different triggers
Data Display	<ul style="list-style-type: none"> The EM101-4 allows users to set the information to be displayed on the 8 digit seven segment LCD screen Once set, scrolling through the information can be done automatically or manually

MECHANICAL SPECIFICATIONS

- **Dimensions:** (L x W x D) = 155.4mm x 134.6mm x 57.2mm
- **Weight:** 0.6Kg
- **Meter Housing:** Flame Retardant Polycarbonate

