

# Renepoly Microgrid Energy Management System



## Introduction

Microgrids, whether on-grid or off-grid, require intelligent management to ensure reliability, efficiency, and economic viability.

Renepoly's Energy Management System (EMS) provides a comprehensive solution for real-time monitoring, control, and optimization, built on years of engineering expertise and field testing.

Renepoly's EMS is designed to optimize energy use, enhance system reliability, and maximize economic returns. It ensures efficient utilization and storage of renewable energy, facilitates load shifting, isolates from the grid during instabilities, and supports energy trading to generate revenue.

Renepoly's EMS features robust hardware, (e.g., local controller, interactive touchscreen, and internet router), along with ReneCloud for web control and ReneApp for mobile monitoring, enabling seamless management of microgrid operations. This helps owners maximize the uptime of optimal performance for the entire microgrid.

## Applications

- All on-grid and off-grid applications
- Multiple energy systems: grid, solar, wind, battery, diesel generator, electric vehicle, etc.
- Renewable and battery storage power plants
- Critical commercial and industrial facilities
- Remote and island communities
- Green carpark and smart home

## Functions

- **Remote Monitoring & Smart Control**  
Allows real-time oversight and automated control of operations via a web portal and mobile apps.
- **Maximized Renewable Energy**  
Optimizes renewable usage to reduce energy costs and promote a greener, sustainable future.
- **Peak-shaving & Self-Consumption Maximisation**  
Shifts and balances power consumption to minimize peak demand and enhance efficiency.
- **Grid Independence & Resilience**  
Isolates from the grid during instability, ensuring continuous power supply.
- **Intelligent Energy Trading**  
Earns revenue through selling surplus power and energy arbitrage.
- **Grid Services & VPP Integration**  
Provides frequency regulation and demand response services, enabling virtual power plants.



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## Features

- Human machine interface (HMI) with touch screen
- Robust surge protection for incoming AC, ethernet and serial signal
- Redundant power with UPS (provided separately)
- Integrates with existing on-site controller via Modbus
- Provides microgrid controller as an optional add-on
- Provides On-Demand Function Expansion Modules.
- Local and cloud-synchronized data storage
- 2 year warranty on product workmanship (excludes wear and tear)
- No subscription fees, with lifetime debugging support
- Interfaces seamlessly with ReneCloud and ReneApp from anywhere

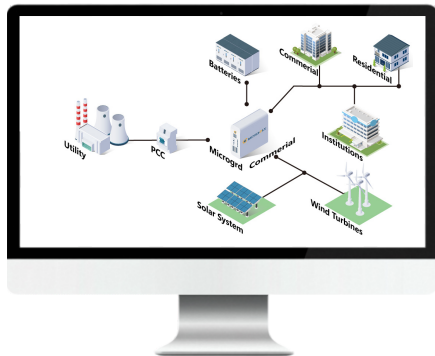


Fig. 1 - Advanced monitoring and control via ReneCloud

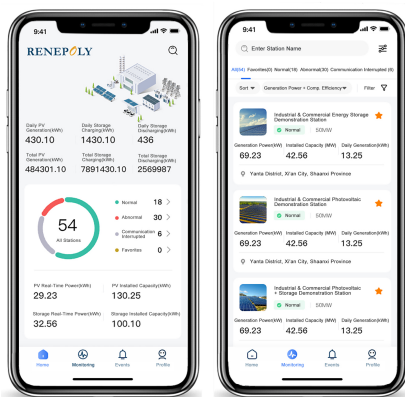


Fig.2 – Fast and flexible management via ReneApp

## Specifications

Main Power Supply	220VAC, 50Hz, 2A
Surge Protection	2KV
Alarm	1 Unit of Buzzer, 3 Units of Light
Communication Protocols	Modbus RTU, Modbus TCP
RS485 INTERFACE	13
Ethernet Interface	4
Digital Inputs/Outputs	8 Digital Inputs, 8 Digital Outputs, 4 Mechanical Relays, 4 Optocoupler Relays
Back-up Supply (UPS not supplied)	AC Input of 230VAC DC Output of 24VDC (10A max.)
Power Consumption	36W
Touch Screen	10.1-inch
Operating System	Linux 6.6.48
CPU & Controller	650Mhz Dual-Core ARM Cortex-A7 @ 650MHz
Memory	1G DDR3L
Storage	8G EMMC
Size (W x D x H)	500*300*650mm
Weight (kg)	≤30kg
Mounting	Wall Mounted
Enclosure Protection	IP55
Operating Temperature	0°C~50 °C
Operating Humidity	5~95%
Installation Location	Indoor/Outdoor
Anti-corrosion Level	C3/C5

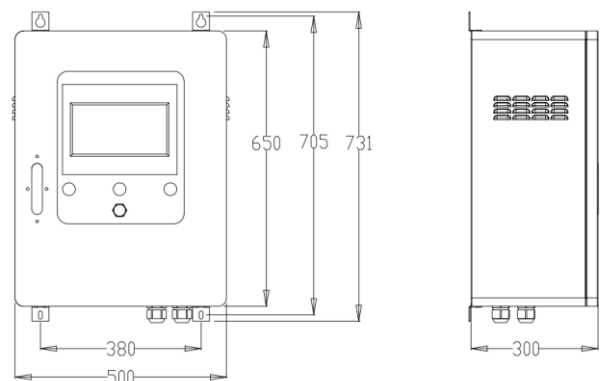


Fig. 3 – Product dimensions with HMI touch screen