

# LONGMAX MICROGRID SOLUTION MANUAL





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**RENEWABLE ENERGY PRODUCTS AND SOLAR STORAGE & CHARGING SOLUTON INTEGRATOR**

# ABOUT LONGMAX

Longmax has built a diversified and comprehensive system, covering all aspects of R&D, product manufacturing, project construction, marketing and capital operation.

Longmax business covers R&D, production and sales of renewable energy-related equipment, system integration of renewable energy projects, customized service and support of solutions, as well as project investment and operation, which constitutes the company's complete business system.

Longmax has always been committed to becoming a professional service provider of renewable energy applications, providing total solutions and Life-cycle Service.

<b>2002</b> Since	<b>LONGMAX</b> Securities Abbreviation	<b>874241</b> Securities Code	<b>20,000 m<sup>2</sup></b> Factory Land	<b>30,000 m<sup>2</sup></b> Workshop Area
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# CORE CAPABILITY

## Global Business

180+GW Global shipment  
70+ Countries market

## Sustainable Development

Well-established management system  
ISO9001 ISO14001 ISO45001 QMS  
Digital Operation Management

## Research & Development

150+ High-tech patents  
National Standard Drafter  
Established R&D System



## Order Delivery

Joint Development of Core Components  
Stabilized Global Supply Chain  
Flexible Manufacturing & Mass Delivery

## Life-cycle Service

Professional "Life-cycle Service"  
Extensive global service experience

## Quality Assurance

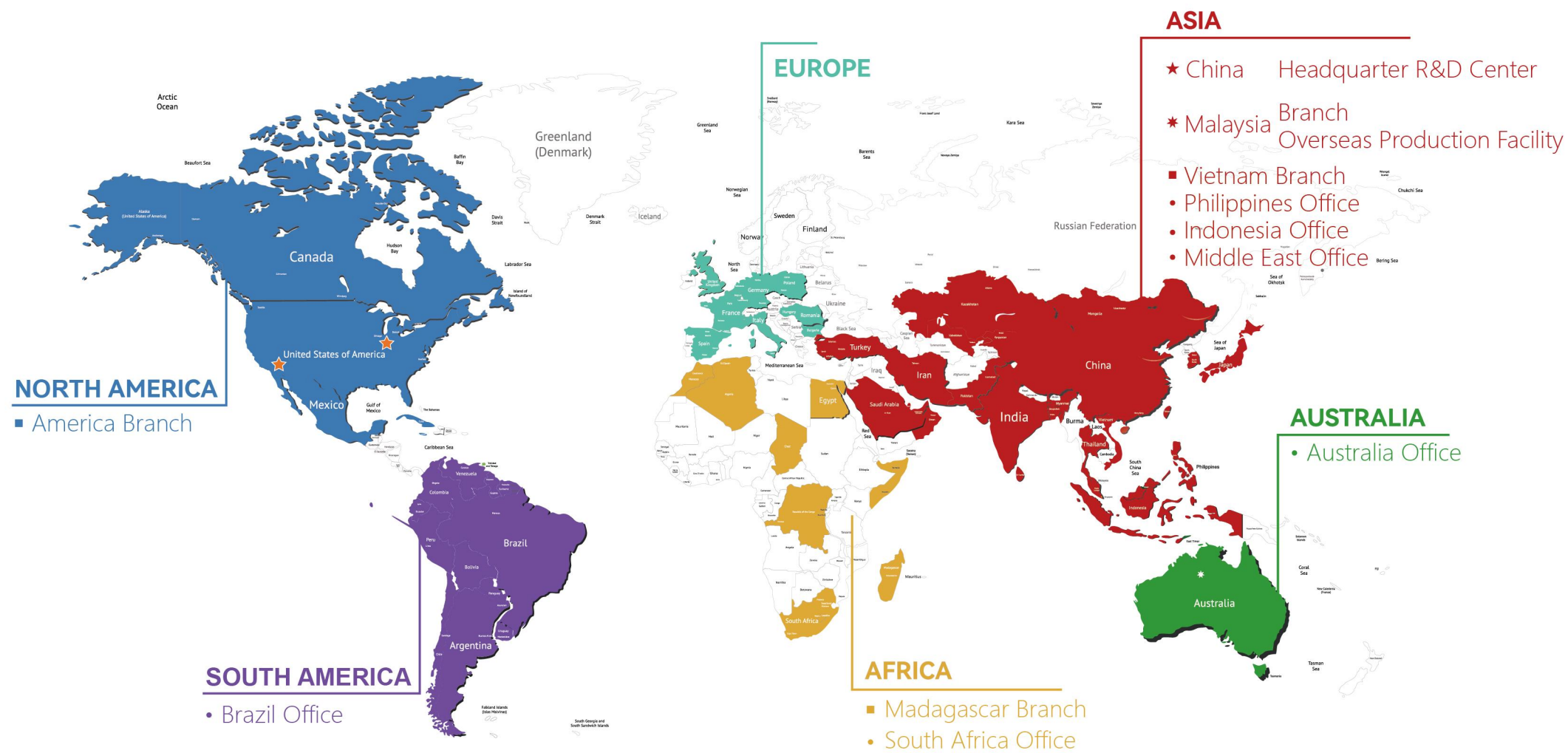
TUV CE UL CQC Product certification  
Comprehensive Testing Platform  
100% Testing for Critical Components & Product

# BUSINESS





# GLOBAL MARKETING





SUSTAINABLE DEVELOPMENT



National/Provincial Speciality



AAA Credit Rating

ISO9001 ISO14001 ISO45001



100+ Government & Industry Awards

RESEARCH & DEVELOPMENT



More Than 150 Patents, Including 8 Invention Patents



TUV

UL

CE

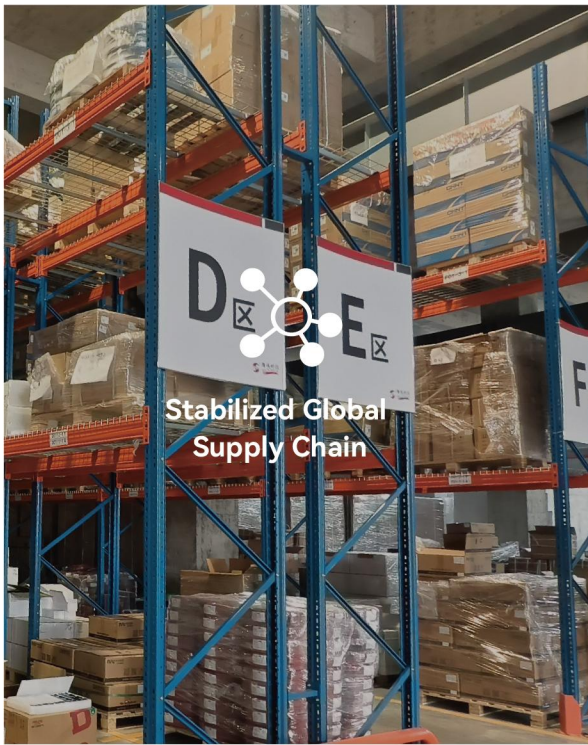
CQC



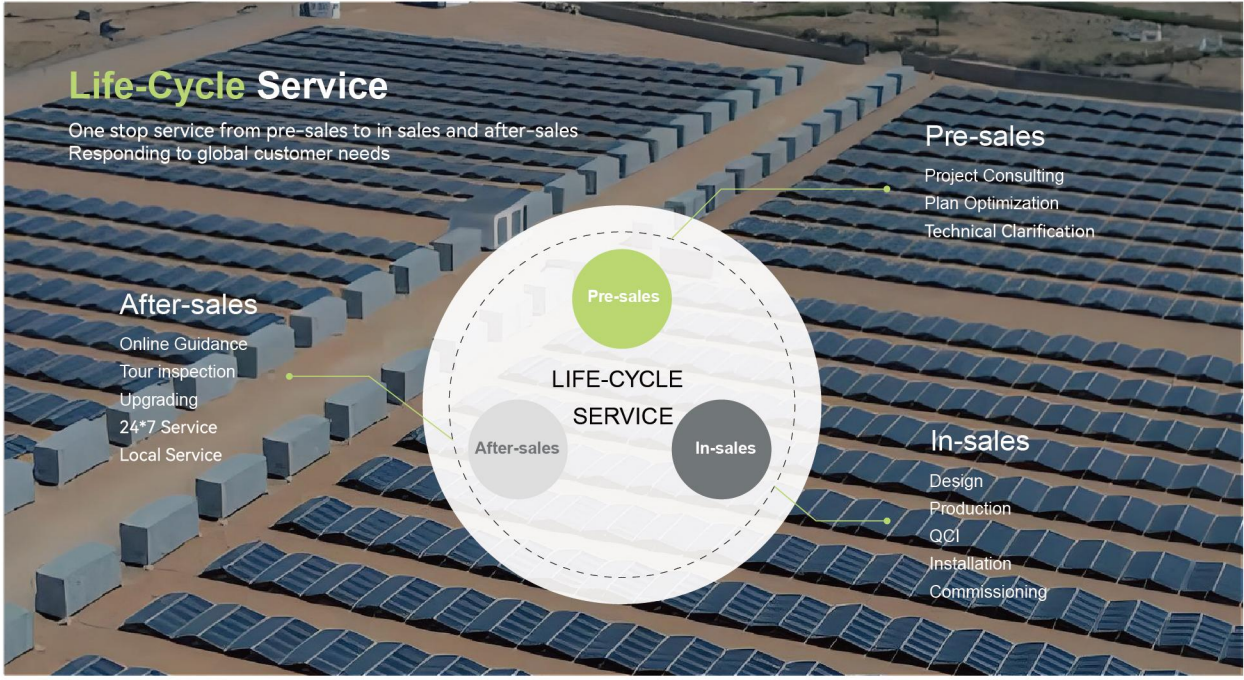
Municipal & Provincial Photovoltaic Engineering Research Center



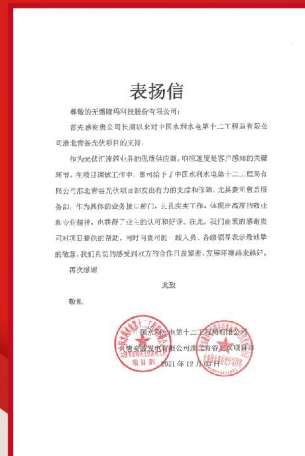
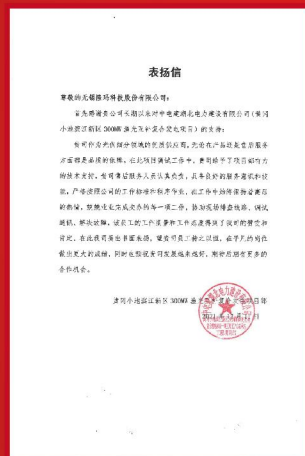
# ORDER DELIVERY



# GLOBAL SERVICE







LONGMAX

## SOCIAL RESPONSIBILITY



Continuous Donations 22yr

Donated 8.1 Million Yuan

## Demonstration Enterprise

## Social Service Advance

Donated to 800 Thousand People

## Love Enterprise



# MICROGRID SOLUTION INTRODUCTION



With over 20 years of experience in renewable energy and takes "building blocks" as design concept, Longmax officially launch the new microgrid system solution.

## SYSTEM ADVANTAGE



### Hardware

- Modular system design
- Supports multiple energy source
- Fast and easy deployment
- Selected equipments with international certifications



### Software

- Fault alarm and automatic protection
- Fully automatic centralized operation of each subsystem
- Intelligent control logic based on data and needs
- Compatible with different types and brands of equipment access

## APPLICATION SCENARIOS



TEMPORARY  
CONSTRUCTION



MINING SITES



ISLANDS



OIL&GAS



EMERGENCY



EVENT

## SOLUTION FAMILY



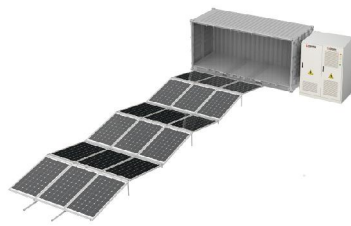
LMMSC10-50



LMMSC20-130



LMMSC40-260



### Solar+BESS Solution

- LMM10-25S-48B
- LMM20-97S-261B
- LMM-260S-500B



### Solar+DG Solution

- LMM-50S-25D
- LMM-130S-60D
- LMM-260S-120D



### Solar+BESS+DG Solution

- LMM-25S-48B-20D
- LMM-130S-261B-120D
- LMM-260S-500B-250D



# SOLAR SOLUTION



Longmax has innovatively developed a movable and reusable PV system, which skillfully integrates the PV system in a standard container, with many advantages such as fast installation, flexible deployment, strong adaptability, reusability, etc., and it is an excellent solution for the formation of new energy microgrids.

## Features



Easy installation



Strong adaptability



Wind resistance



Excellent quality



Strong flexibility

## Power Output Reference

No	Region	Direct Normal Irradiation kWh/m2	LMMSC10-50 kWh/yr	LMMSC20-130 kWh/yr	LMMSC40-260 kWh/yr
1	North Africa	2124	83462	217000	434000
2	West Africa	943	69808	181500	363000
3	South Africa	2760	92019	239250	478500
4	East Africa	1487	78269	203500	407000
5	Middle East	2252	92308	240000	480000
6	East Europe	1042	47404	123250	246500
7	West Europe	1970	69231	180000	360000
8	Southeast Asia	1398	75962	197500	395000
9	Middle Asia	1758	67596	175750	351500
10	South Asia	1679	80385	209000	418000
11	East Asia	1308	60865	158250	316500
12	Australia	2886	92596	240750	481500
13	West USA	2891	85577	222500	445000
14	East USA	1682	67308	175000	350000
15	South America	2256	89423	232500	465000

# LMMSC10-50

Mobile Solar Container



## Technical Parameter

General Data	
Type	LMMSC10-50
Solar capacity	50kW
Container Type	10
Unfolding area L*W	112*3m
Area size	336 m²
Slope limit	≤1%
Horizontal gap	≤14cm
Installation time	80mins
Installation worker	4
Inverter	
Nominal output power	50kW
Mode	On-grid
Nominal output voltage	380 / 400, 3W+(N)+PE
Max. output current	76A
Nominal voltage frequency	50/60Hz
Max. efficiency	98.60%
Protection	IP66
Solar Module	
Pmax	500w
Qty	108pcs
Dimension	1909*1134*30mm
Tilt angle	10°
Best Azimuth	East-West
Mounting System	
Material	Aluzinc steel
Modules per fold	2pcs
Folds qty	54
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive



# LMMSC20-130

Mobile Solar Container



# LMMSC40-260

Mobile Solar Container



## Technical Parameter

### General Data

Type	LMMSC20-130
Solar capacity	130kW
Container Type	20
Unfolding area L*W	120*6m
Area size	720 m²
Slope limit	≤1%
Horizontal gap	≤14cm
Installation time	100mins
Installation worker	4

### Solar Module

Pmax	650w
Qty	200pcs
Dimension	2172*1303*33mm
Tilt angle	10°
Best Azimuth	East-West

### Inverter

Nominal output power	110kW
Mode	On-grid
Nominal output voltage	380V/400V
Max. output current	167A
Nominal voltage frequency	50/60Hz
Max. efficiency	99.00%

### Mounting System

Material	Aluzinc steel
Modules per fold	4pcs
Folds qty	50
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive

## Technical Parameter

### General Data

Type	LMMSC40-260
Solar capacity	260kW
Container Type	40
Unfolding area L*W	120*12m
Area size	1440m²
Slope limit	≤1%
Horizontal gap	≤14cm
Installation time	100mins
Installation worker	6

### Solar Module

Pmax	650w
Qty	400pcs
Dimension	2172*1303*33mm
Tilt angle	10°
Best Azimuth	East-West

### Inverter

Nominal output power	110kW
Qty	2
Mode	On-grid
Nominal output voltage	380V/400V
Max. output current	167A
Nominal voltage frequency	50/60Hz
Max. efficiency	99.00%
Protection	IP66

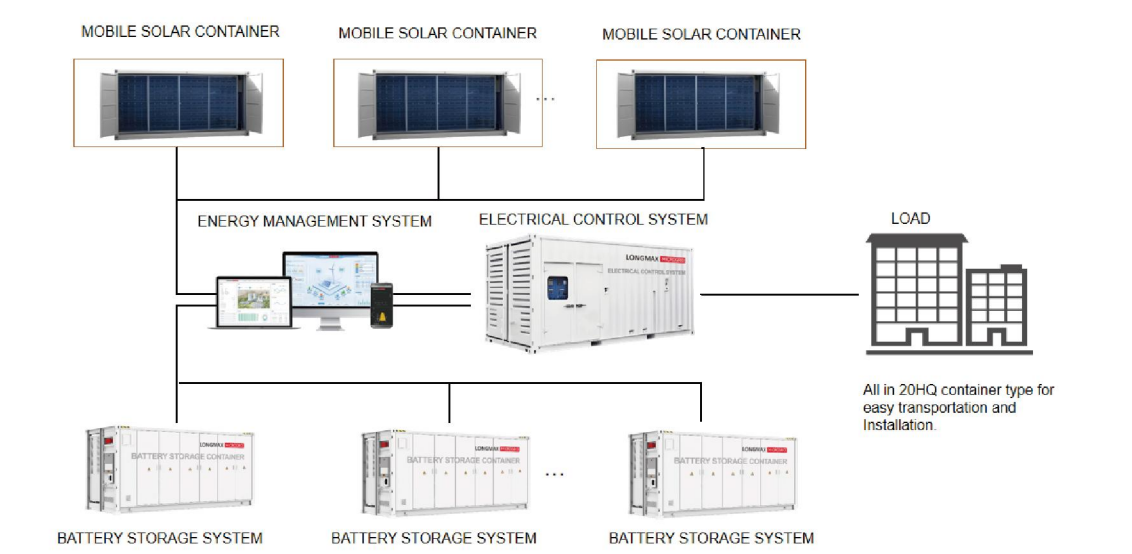
### Mounting System

Material	Aluzinc steel
Modules per fold	4pcs
Folds qty	100
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive




# SOLAR+BESS SOLUTION


Longmax PV+BESS solution integrates PV power generation and energy storage in one package. The integrated design facilitates transportation and installation, eliminates interconnection and commissioning work between systems, and truly realizes plug-and-play with higher overall efficiency.




## Features




Built-in battery energy storage



Easy to delivery



No system matching



Plug& Play

# LMM10-25S-48B

Solar+BESS Solution



## Technical Parameter

### General Data

Type	LMM10-25S-48B
Solar capacity	25kW
Container Type	10
Unfolding area L*W	60*3m
Area size	180 m²
Slope limit	≤1%
Horizontal gap	≤14cm
Installation time	80mins
Installation worker	4

### BESS

Battery output power	24kW
Battery capacity	48.36kWh
Battery type	LiFePO4
Cooling	Air
Working temp	-20-55℃
Relative humidity	5%-95%
Max altitude	4000m
Protection level	IP66

### Solar Module

Pmax	500w
Qty	50pcs
Dimension	1909*1134*30mm
Tilt angle	10°
Best Azimuth	East-West

### Mounting System

Material	Aluzinc steel
Modules per fold	2pcs
Folds qty	25
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive

### Energy Controller

Mode	On-grid/Off-grid
On-grid output power	25kW
Norminal output voltage	380/400V
Nominal voltage frequency	50/60Hz
Max. efficiency	98.30%
EMS	Integrated



# LMM20-97S-261B

Solar+BESS Solution



# LMM-260S-500B

Solar+BESS Solution



## Technical Parameter

### General Data

Type	LMM20-97S-261B
Solar capacity	97.5kW
Container Type	20
Unfolding area L*W	120*6m
Area size	720 m²
Slope limit	≤1%
Horizontal gap	≤14cm
Installation time	120mins
Installation worker	6

### BESS

Battery output power	125kW
Battery capacity	261kWh
Battery type	LiFePO4
Cooling	Liquid
Working temp	-20-50℃
Relative humidity	0%-95%
Max altitude	2000m
Protection level	IP54
Electrical panel	Integrated

### Diesel Generator (Exlcuded)

Max input power	125kW
Normal input current	181A
Normal input voltage	3L/N/PE, 400V
Normal input frequency	50Hz

### Solar Module

Pmax	650w
Qty	150pcs
Dimension	2172*1303*33mm
Tilt angle	10°
Best Azimuth	East-West

### Mounting System

Material	Aluzinc steel
Modules per fold	3pcs
Folds qty	50
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive

### Energy Controller

Mode	On-grid/Off-grid
On-grid output power	125kW
Normal output voltage	400V
Max. output current	208A
Nominal voltage frequency	50Hz
EMS	Integrated
DG Input	Supported

## Technical Parameter

### General Data

Type	LMM-260S-500B
Solar capacity	260kW
Container Type	2*20 Solar 1*10 BESS
Area size	1500 m²
Installation time	300mins
Installation worker	6

### BESS

Battery output power	250kW
Battery capacity	522kWh
Battery type	LiFePO4
Cooling	Liquid
Working temp	-20-50℃
Relative humidity	0%-95%
Max altitude	2000m
Protection level	IP54
Electrical panel	Integrated

### Diesel Generator (Exlcuded)

Max input power	250kW
Normal input current	362A
Normal input voltage	3L/N/PE, 400V
Normal input frequency	50Hz

### Solar Module

Pmax	650w
Qty	2*200pcs
Dimension	2172*1303*33mm
Unfolding area L*W	2*120*6m
Tilt angle	10°
Best Azimuth	East-West
Slope limit	≤1%
Horizontal gap	≤14cm

### Mounting System

Material	Aluzinc steel
Modules per fold	4pcs
Folds qty	2*50
Wind-resistant	≤55m/s
Anti-corrosion	C4
Convey system	Mechanical drive

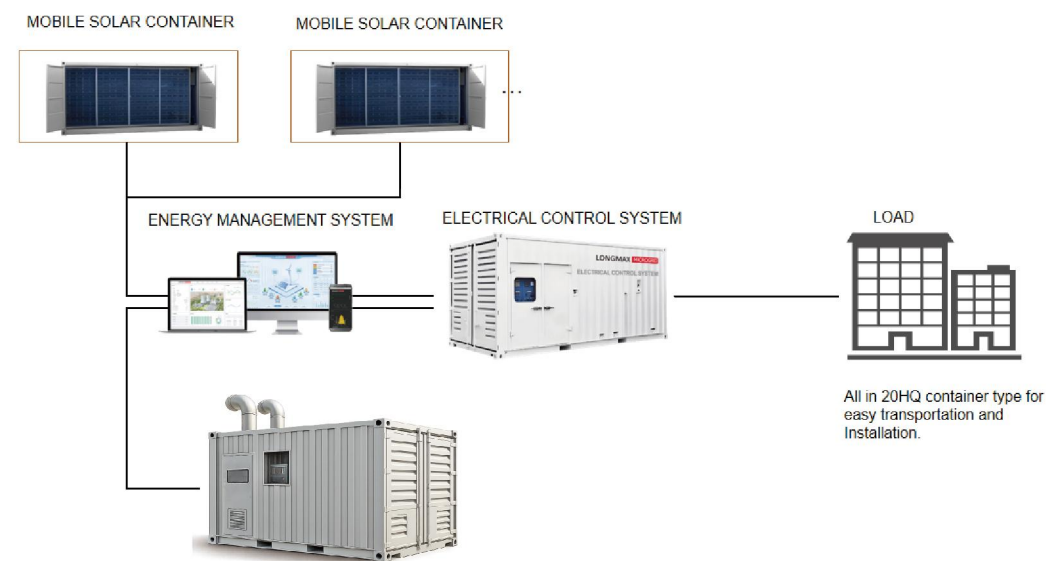
### Energy Controller

Mode	On-grid/Off-grid
On-grid output power	250kW
Normal output voltage	400V
Max. output current	416A
Nominal voltage frequency	50Hz
EMS	Integrated
DG Input	Supported



# SOLAR+DG SOLUTION

Longmax PV+DG solution is to construct a grid based on DG and automatically deploy the system to generate electricity through the microgrid controller, which minimizes the utilization and maintenance of DG, matches the load demand more flexibly and realizes the better utilization of renewable energy.

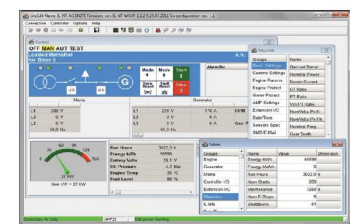


## Energy Management System Structure

Longmax provides a cloud-based system structure designed for remote monitoring, data analyzing and management of diesel generator, solar, battery etc. It provides you with an easy overview of all your devices, their operational status, location and other important data, and alerts you in case of potential issues. Using its powerful reporting and analysis tools, you can minimize system downtime, reduce maintenance costs and maximize the revenue for your microgrid system.

## Features

- Safe operations on Microsoft Azure cloud servers
- Advanced security protection design
- List and Map views of devices and alerts on one screen
- Dashboard with different sub-system or devices statistics
- Alarm analyzer and report which can help to reduce maintenance costs
- API enabling you to download and store complete data from cloud system
- User activity logger to logs all activity a user has actioned for a device
- User management with different roles and permission



Configuration Software



Local Display

Web/APP

## Typical Series

LMM-50S-25D	LMM-130S-60D	LMM-260S-120D
PV 50kW	PV 130kW	PV 260kW
DG 25kW	DG 60kW	DG 120kW

## Technical Parameter

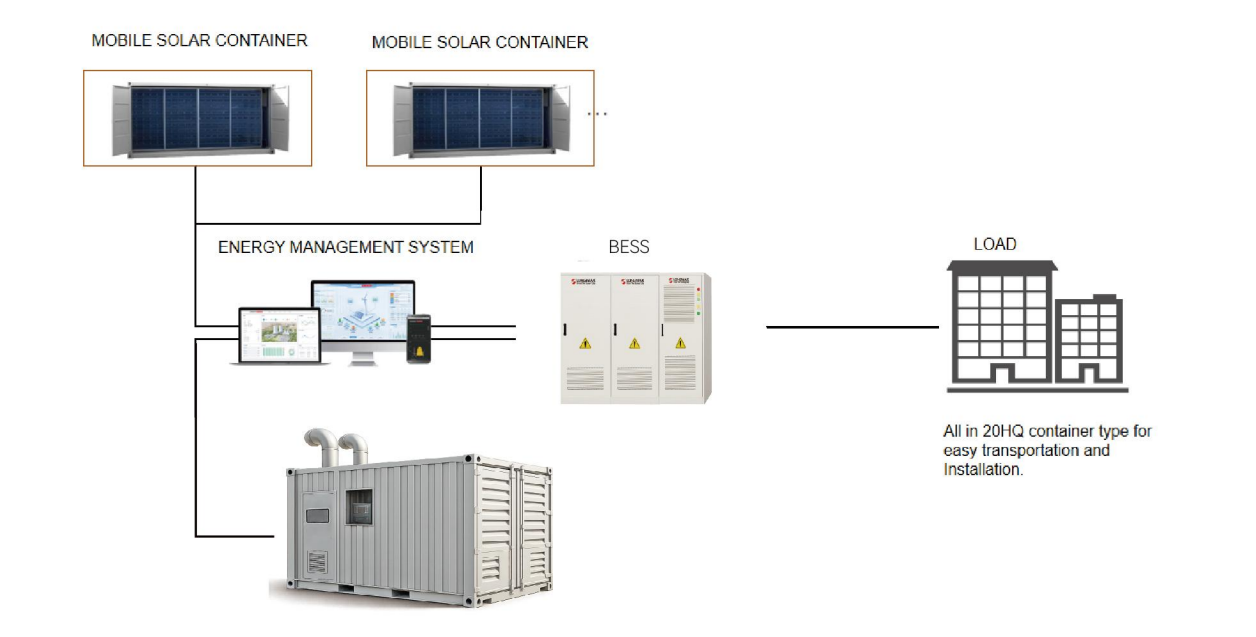
Model	
General Date	
Type	LMM-260S-120D
Solar capacity	260kW
DG capacity	120kW
Solar	
Type	LMMSC20-130
Qty	2
Solar container power	130kW
Inverter output power	110kW
Power frequency	50/60Hz
Energy controller	
Inverter Connection	Modbus/TCP
DG Connection	CAN
Grid Connection	Supported
PLC Function	Supported
Input/Output Control	Supported
Data analysis	Supported
DG	
Generator power	150kVA
Master power	120kW
Backup power	132kW
Cylinder Qty	6
Fuel consumption	30L/h
Voltage	400/230V

Standard configuration for reference.Custimization is available for detail project.



# SOLAR+BESS+DG SOLUTION

Longmax PV+DG+BESS solution makes full use of solar energy resources and utilizes energy storage and diesel generator to ensure stable operation of the system, utilizes the microgrid energy management system for intelligent and automatic control, is compatible with on-grid/off-grid modes of operation, and supports rapid installation and deployment, which is highly flexible and reliable.



## Typical Series

LMM-25S-48B-20D	LMM-130S-261B-120D	LMM-260S-500B-250D
PV 25kW	PV 130kW	PV 260kW
BESS 48kWh	BESS 261kWh	BESS 522kWh
DG 20kW	DG 120kW	DG 250kW

## Technical Parameter

Model	
General Date	
Type	LMM-260S-500B-250D
Solar capacity	260kW
DG capacity	250kW/522kWh
Solar	
Type	LMMSC20-130
Qty	2
Solar contianer power	130kW
Inverter output power	110kW
Power frequency	50/60Hz
BESS	
Battery output power	250kW
Battery capacity	522kWh
Battery type	LiFePO4
Cooling	Liquid
Working temp	-20-50°C
Relative humidity	0%-95%
Max altitude	2000m
Protection level	IP54
Electrical panel	Integrated
Energy controller	
Mode	On-grid/Off-grid
On-grid output power	250kW
Norminal output voltage	400V
Max. output current	416A
Nominal voltage frequency	50Hz
EMS	Integrated
DG Input	Supported
DG	
Generator power	313kVA
Master power	250kW
Backup power	280kW
Cylinder Qty	6
Fuel comsption	70L/h
Voltage	400/220V

Standard configuration for reference.Custimization is available for detail project.