



MS Series

Product Introduction

hoymiles.com

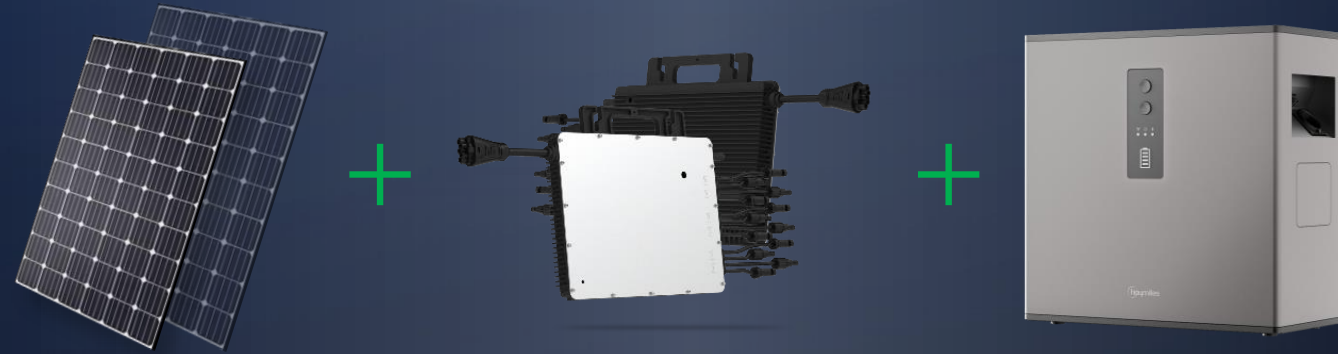


01 Background

Open Energy For All

| Balcony Energy Storage System

Components



Application Scenarios



Balcony



Courtyard



Rooftop



Wall

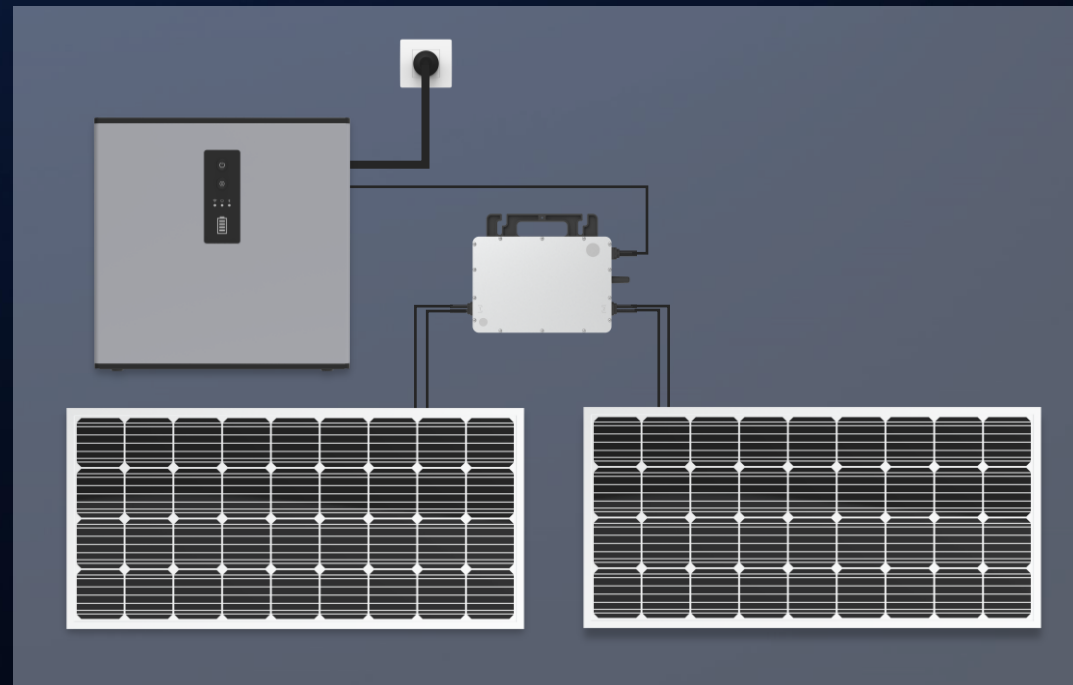
02

Hoymiles Balcony Energy Storage Solution

Open Energy For All

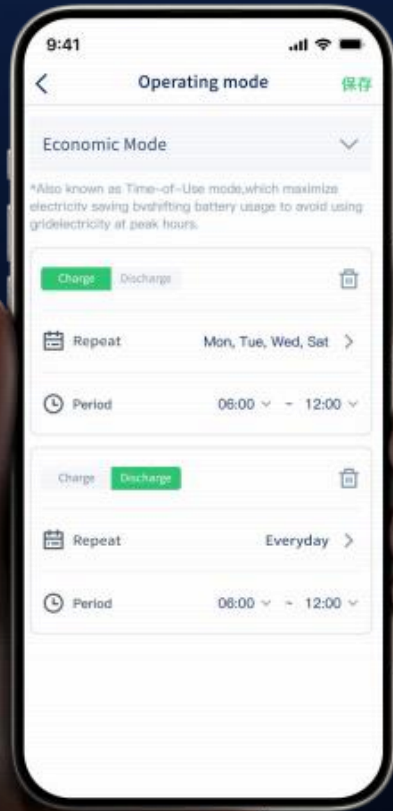
| System Introduction

System wiring solution & Scene graph



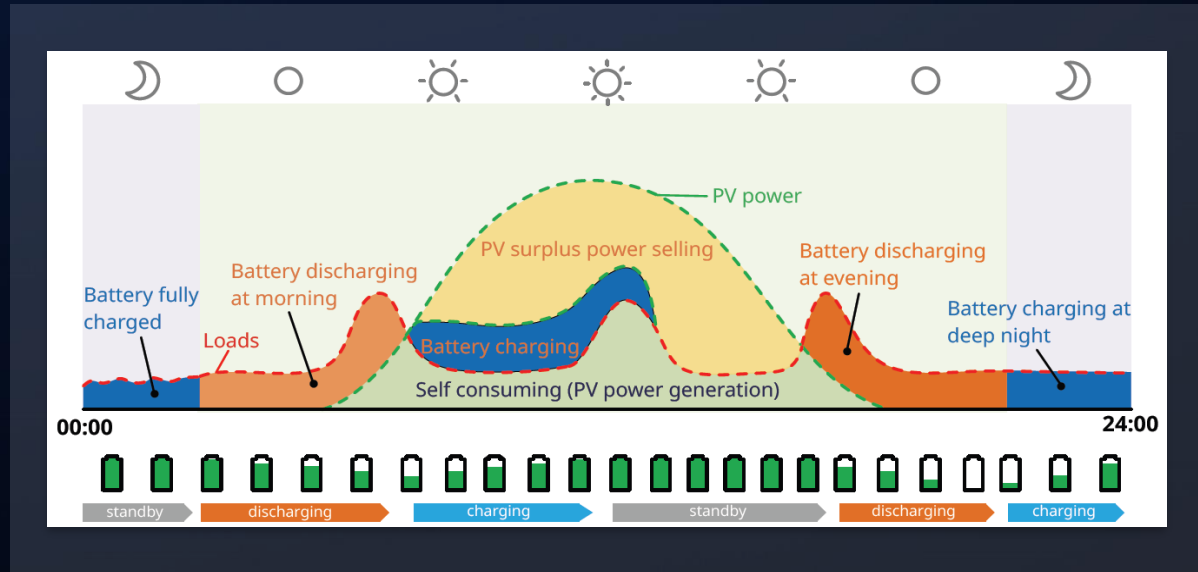
Results: *The first AC coupled product on the market*

Main Features



TOU mode^[1]

- This mode is designed for peak and off-peak pricing scenarios, divided into three periods: peak, valley, and flat. During off-peak (valley) times, the grid charges the device, and during peak times, the battery discharges to power the load.
- Users need to set the time-of-use schedule to confirm when the battery should charge and discharge, as well as the applicable dates.



[1] Currently unavailable , it will be released in future

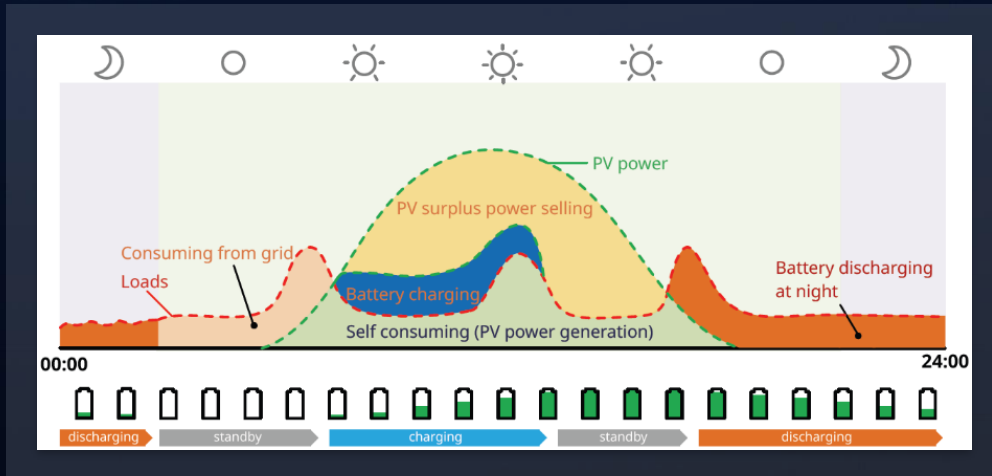
Main Features

Self-consumption mode

- It is the default mode for saving your home energy consumption;
- PV energy is prioritized in the following order:
 - Load > Battery > Grid ;
- The energy management system can accurately monitor load information from the Shelly Smart Plug.^[1]

Portable power station

- Perfect for camping, power outages, or emergencies. ;
- Users can set a backup SOC (state of charge)—default is 10%—to reserve energy for off-grid situations ;
- If users plan to use the backup energy later, they can choose to charge it immediately or schedule the charging through the energy management system.



03

Competitive Analysis

Open Energy For All

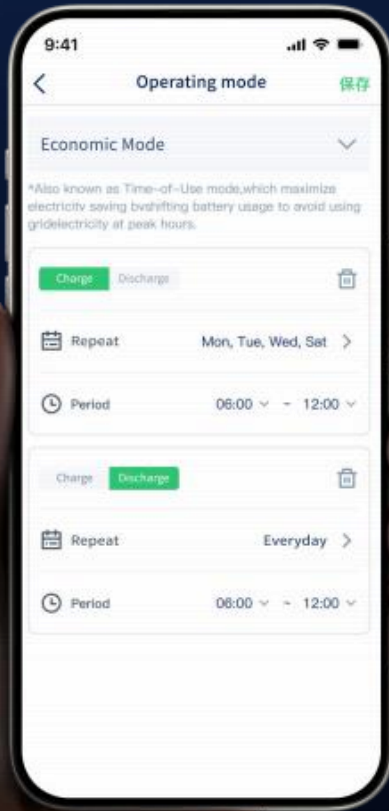
Competitive Analysis | Versatile Functionality

Manufacturer	Hoymiles	An***		Zen***			Eco***	Gro***
Product	MS-A2	Solar**1600	Solar**1600 2 Pro/Plus	Solar***	A**2400	Hy***2000	Power***	No**2000
TOU mode	✓	✗	✗	✗	✗	✓	✓	✗
Self-heating mode	✓	✗	✓	✗	✓	✓	✗	✓
Capacity expansion	✓	✓	✓	✓	✓	✓	✗	✓
Portable power station	✓	✗	✓	✗	✗	✗	✓	✗
Self-Consumption mode	✓	✓	✓	✓	✓	✓	✓	✓



Results: Multiple operating modes are available for users and meet kinds of application demand.

Competitive Analysis | Versatile Functionality



TOU mode

- Users can set time-of-use schedules to control when the system charges and discharges, helping to reduce costs.
- Average electricity price on 24/7/30 : 24 cents/kWh;
- Min price : 15.28 cents/kWh from 14:00 to 15:00 ; Max price : 35.21cents/kWh from 20:00 to 21:00;
- If a household stores 2.24 kWh during off-peak hours and uses it during peak times daily, the Economic mode can help save between **€71 and €165**.

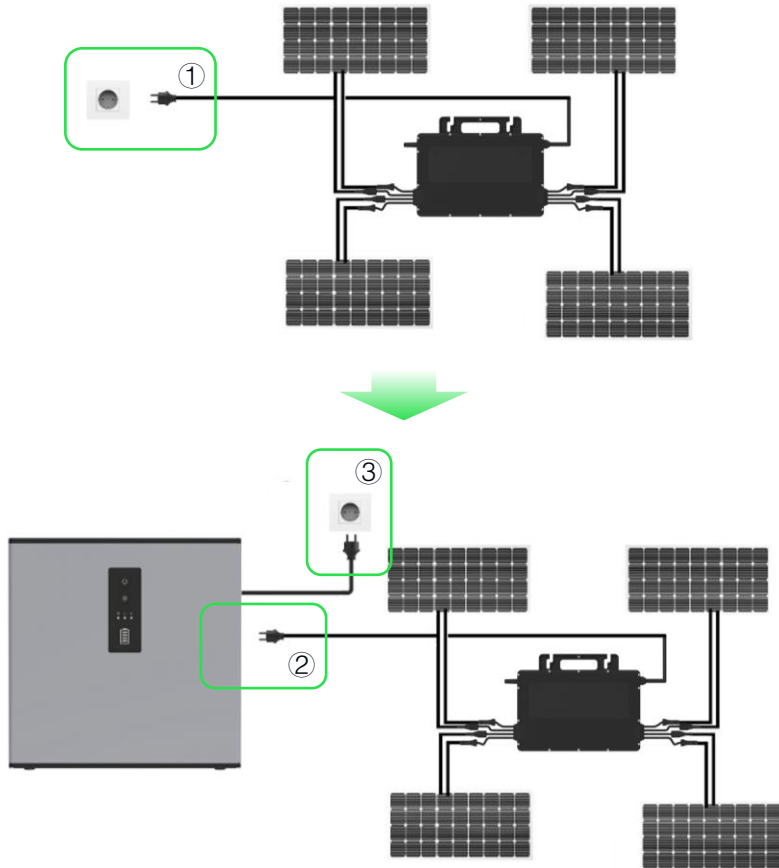


Competitive Analysis | Ultra Convenient & Compatible

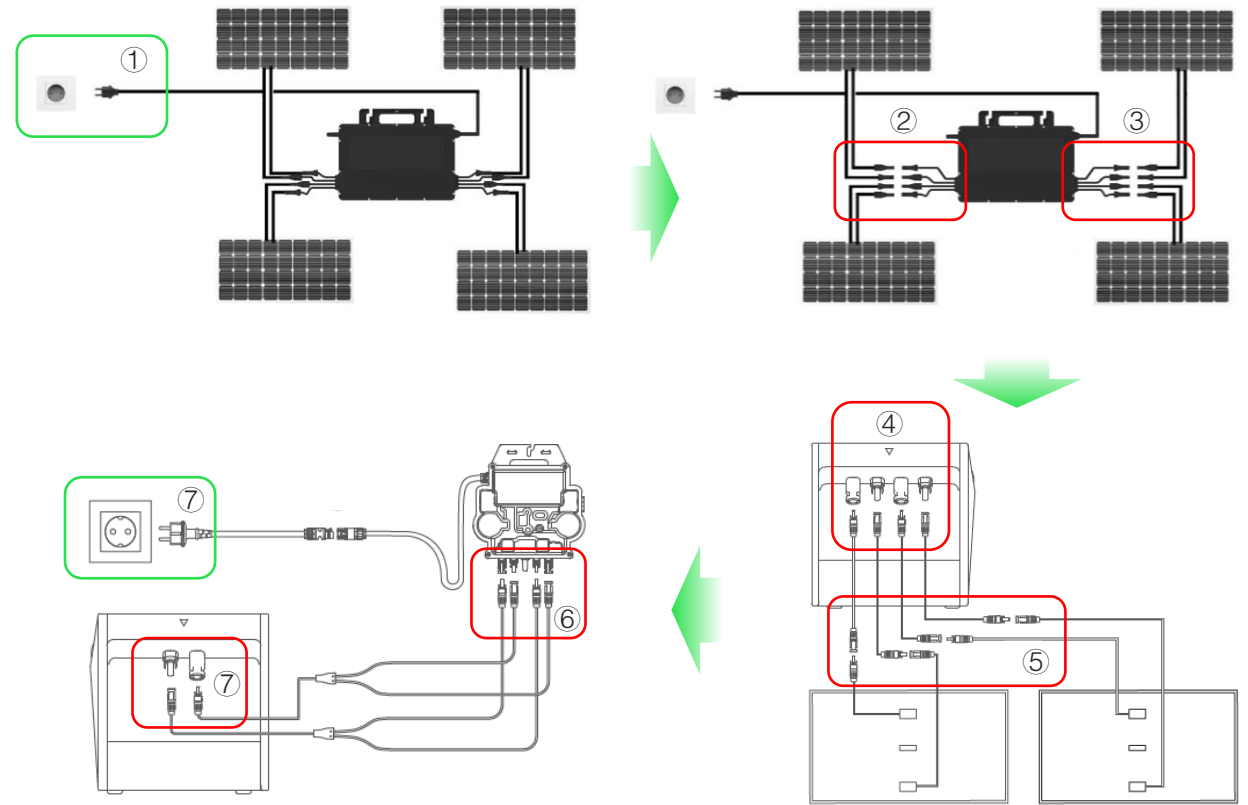
Extremely easy to install

Note: ○ means easy connection & disconnection ; ○ means difficult connection & disconnection

MS - A2 's solution (AC Coupled):



Mainstream solutions in the market (DC Coupled):



Results: *Incredibly easy to install, significantly reducing both installation time and costs*

Competitive Analysis | Ultra Convenient & Compatible

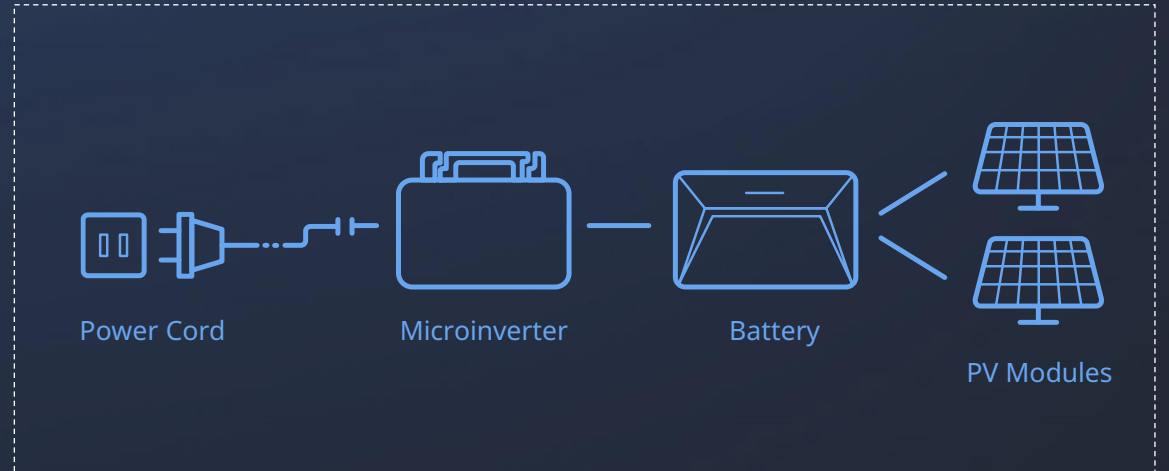
Compatible with all microinverters

Hoy***' MS – A**:



- World's first AC-coupled balcony storage solution
- Compatible with all microinverters

DC – Coupled solutions in market :



In a typical DC-coupled solution, the storage inverter has to match the DC power inflow from the PV modules with the MPPT algorithm of the microinverter. So it will have some potential problems when the storage connects with different microinverters.

Results: Easy to use and compatible with all microinverters.

Competitive Analysis | Ultra Convenient & Compatible

Compatibility Issue Case Study

Background: Customer used Hoymiles HMS-1600 with a DC-coupled storage solution for their home solar system.

Issue 1 : Hardware damage

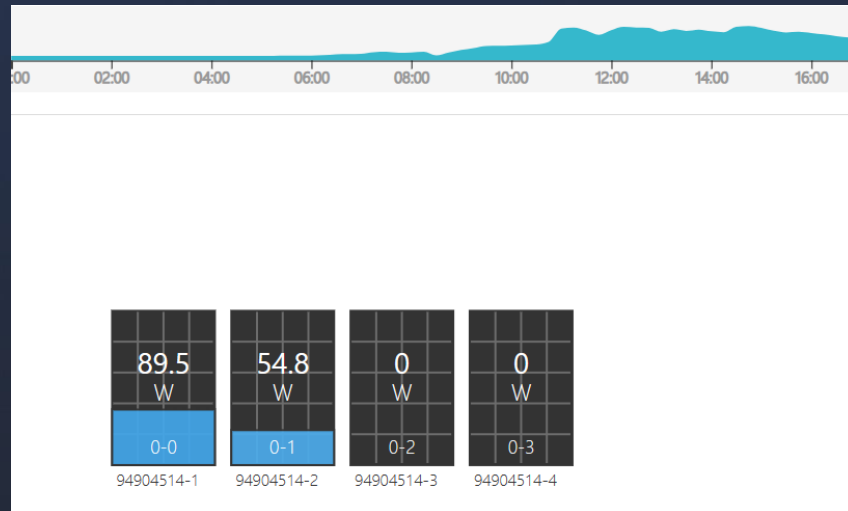
Hoymiles' user manual:

Each input of the inverter is connected to one PV module. Do not connect batteries or other sources of power supply. The inverter can be used only if all the technical parameters are observed and applied.

APS' user manual:

Each PV panel must be carefully connected to the same channel.
Make sure to not split positive and negative DC cables into two different input channels: microinverter will become damaged and warranty will not apply.

Issue 2 : Impact on module power generation



Issue 3 : Inaccurate power generation data



Case number : **500+**

Result : *The typical DC-coupled solution will have some potential problems when the storage devices connects with different microinverters.*

Competitive Analysis | Premium Quality and Durability

High protection level



Hoymiles' MS – A2

- Industrial – grade protection
- **IP65** rating & **10 years** warranty

Competitors

Zen*** (A**1500):
IP31 rating; requires a cool, dry place



E** (Sol***):
IP44 rating

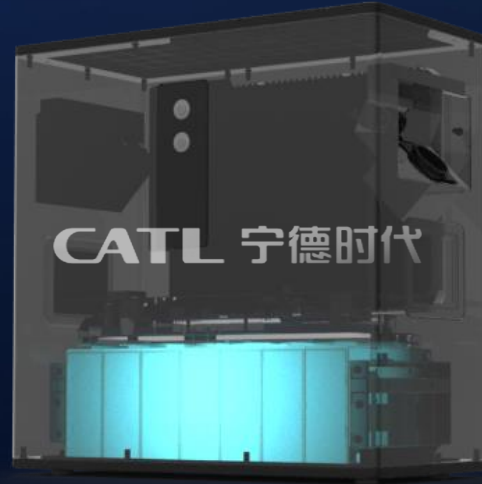


Eco*** (Battery in Balcony system):
IP54 rating



Competitive Analysis | Premium Quality and Durability

High-quality Battery Cells



Hoymiles' MS – A2

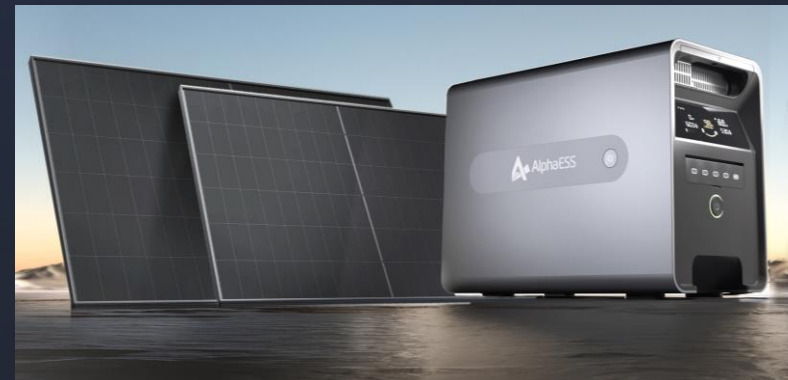
- CATL battery cells
- 6000+ life cycles (80% SOC)

Competitors

Zen*** AB1000 & 2000 series battery:
3000+ life cycles



Alp*** Vita*** series battery:
3000+ life cycles



04 Product Highlights

Open Energy For All

| Product Highlights

Versatile Functionality

- TOU mode for optimal charging
- Expandable battery capacity
- Portable power station
- Self-heating function

Ultra Convenient & Compatible

- Extremely easy to install
- Compatible with all microinverters

Premium Quality and Durability

- High protection level
- Premium battery cells with long lifecycles



THANK YOU

Hoymiles Power Electronics Inc.

[hoymiles.com](https://www.hoymiles.com)

