Micro Hybrid Energy Storage System

# MICRO HYBRID ESS

Suitable for on-grid, off-grid, and portable use

**SUN-BK80/160/200/250-2.56KWH-EU-AM4-18/32L**



IP65



**Hybrid Grid-Tied Mode**
Self-consumption



**Off-Grid Mode**
Standalone & portable energy storage



**AC-Coupled Mode**
Upgrade the existing PV balcony system to ESS

### Plug and Play
Installs easily with any standard socket

### Wireless Zero-Export Function
Precise control & ultra-low latency

### Time-of-Use Electricity Strategy
Sets up 6 time periods for charging/discharging

### 96.5% Conversion Efficiency
Low energy loss

### UPS-Grade Backup Power
≤4ms on-grid/off-grid switchover

### Strong Performance
Up to 2.5kW rated AC power

### Intelligent Load Control
Supports smart plug, smart switch, smart EV charger

### IP65 Protection Rating
10-year warranty

### 99% PV Module Compatibility
Max. 5760W PV access power

### Portable Design
Reliable power for outdoor trips

### Remote O&M
Control via Deye Cloud App

### Local Bluetooth Communication
Supports offline control

# Micro Hybrid Energy Storage System

Max. 5760W PV power input

2.56kWh LFP Battery

Max. 2500W On-grid & Off-grid operation





| Model | SUN-BK80-2.56KWH -EU-AM4-18L | SUN-BK160-2.56KWH -EU-AM4-18L | SUN-BK200-2.56KWH -EU-AM4-18L | SUN-BK250-2.56KWH -EU-AM4-18L |
|---|---|---|---|---|
| **Battery Input Data** | | | | |
| Battery Type | $LiFePO_4$ | | | |
| Battery Voltage Range(V) | 44.8-57.6 V | | | |
| Battery Nominal Energy (Wh) | 2560Wh | | | |
| Max.Charging/Discharging Current(A) | 50A | | | |
| Charging Strategy for Li-ion Battery | Self-adaption to BMS | | | |
| **PV String Input Data** | | | | |
| Max. PV access power (W) | 4400W | | | |
| Max. Operating PV Input Current (A) | 18+18+18+18A | | | |
| Max. Input Short-Circuit Current (A) | 27+27+27+27A | | | |
| Rated PV Input voltage (V) | 42.5V | | | |
| Start-up Voltage (V) | 25Vdc | | | |
| MPPT voltage range (V) | 20 ~ 55V | | | |
| No. of MPP Trackers/No. of Strings MPP Tracker | 4/1+1+1+1 | | | |
| **AC Input/Output Data** | | | | |
| Rated AC Input/Output Active Power（W） | 800W | 1600W | 2000W | 2500W |
| Max. AC Input/Output Active Power（W） | 880W | 1760W | 2200W | 2750W |
| Max. off grid power (W) | 2500W | | | |
| Rated AC Input/Output Current（A） | 3.7A / 3.5A | 7.3A / 7.0A | 9.1A / 8.7A | 11.4A / 10.9A |
| Max. AC Input/Output Current（A） | 4A / 3.9A | 8A / 7.7A | 10A / 9.6A | 12.5A / 12A |
| Peak Power (off-grid) (W) | 2 times of rated power,10s | | | |
| AC Input / Output Frequency and Voltage | 50Hz ( 45Hz ~ 55Hz ) , 60Hz ( 55Hz ~ 65Hz ) , L + N + PE , 220 / 230 Vac | | | |
| Power Factor Adjustment Range | 0.8 leading-0.8lagging | | | |
| Max. Continuous AC Passthrough (grid to load)(A) | 30A | | | |
| DC Injection Current | <0.5%In | | | |
| **Efficiency** | | | | |
| Max. Efficiency | 96.5% | | | |
| Euro Efficiency | 96.0% | | | |
| MPPT Efficiency | >99% | | | |
| **Equipment Protection** | | | | |
| Integrated | DC reverse polarity protection, AC Output Overcurrent Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, Thermal Protection, Insulation Impedance detection, Anti-islanding protection | | | |
| Surge Protection Level | TYPE II(DC),TYPE II(AC) | | | |
| **General Data** | | | | |
| Max. Inverter Parallel NO. | 3 pcs (up to 7.5 kW rated output) | | | |
| Communication Interface | Wi-Fi, Bluetooth, LoRa | | | |
| Operating Temperature Range (°C) | -10°C ~ 55°C, >45°C Derating, (-20°C~55°C with heating, optional) | | | |
| Permissible Altitude (m) | 2000m | | | |
| Ingress Protection(IP) Rating | IP 65 | | | |
| Cabinet Size (W X H X D) | 560 × 330 × 210mm | | | |
| Weight (kg) | 30kg | | | |
| Permissible Ambient Humidity | 0% ~ 95% ( No Condensing ) | | | |
| Warranty | 10 years | | | |
| Grid Regulation | VDE 4105, IEC 61727/62116, VDE 0126, AS 4777.2, CEI 0-21, EN 50549-1, G98, C10-11, UNE 217002 | | | |
| Safety EMC/Standard | IEC 62619, UN38.3, IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 61000-6-1/2/3/4 | | | |

# Micro Hybrid Energy Storage System

Max. 5760W PV power input

2.56kWh LFP Battery

Max. 2500W On-grid & Off-grid operation





| Model | SUN-BK80-2.56KWH -EU-AM4-32L | SUN-BK160-2.56KWH -EU-AM4-32L | SUN-BK200-2.56KWH -EU-AM4-32L | SUN-BK250-2.56KWH -EU-AM4-32L |
|---|---|---|---|---|
| **Battery Input Data** | | | | |
| Battery Type | $LiFePO_4$ | | | |
| Battery Voltage Range(V) | 44.8-57.6 V | | | |
| Battery Nominal Energy (Wh) | 2560Wh | | | |
| Max.Charging/Discharging Current(A) | 50A | | | |
| Charging Strategy for Li-ion Battery | Self-adaption to BMS | | | |
| **PV String Input Data** | | | | |
| Max. PV access power (W) | 5760W | | | |
| Max. Operating PV Input Current (A) | 32+32+32+32A | | | |
| Max. Input Short-Circuit Current (A) | 48+48+48+48A | | | |
| Rated PV Input voltage (V) | 42.5V | | | |
| Start-up Voltage (V) | 25Vdc | | | |
| MPPT voltage range (V) | 20 ~ 55V | | | |
| No. of MPP Trackers/No. of Strings MPP Tracker | 4/1+1+1+1 | | | |
| **AC Input/Output Data** | | | | |
| Rated AC Input/Output Active Power（W） | 800W | 1600W | 2000W | 2500W |
| Max. AC Input/Output Active Power（W） | 880W | 1760W | 2200W | 2750W |
| Max. off grid power (W) | 2500W | | | |
| Rated AC Input/Output Current（A） | 3.7A / 3.5A | 7.3A / 7.0A | 9.1A / 8.7A | 11.4A / 10.9A |
| Max. AC Input/Output Current（A） | 4A / 3.9A | 8A / 7.7A | 10A / 9.6A | 12.5A / 12A |
| Peak Power (off-grid) (W) | 2 times of rated power,10s | | | |
| AC Input / Output Frequency and Voltage | 50Hz ( 45Hz ~ 55Hz ) , 60Hz ( 55Hz ~ 65Hz ) , L + N + PE , 220 / 230 Vac | | | |
| Power Factor Adjustment Range | 0.8 leading-0.8lagging | | | |
| Max. Continuous AC Passthrough (grid to load)(A) | 30A | | | |
| DC Injection Current | <0.5%In | | | |
| **Efficiency** | | | | |
| Max. Efficiency | 96.5% | | | |
| Euro Efficiency | 96.0% | | | |
| MPPT Efficiency | >99% | | | |
| **Equipment Protection** | | | | |
| Integrated | DC reverse polarity protection, AC Output Overcurrent Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, Thermal Protection, Insulation Impedance detection, Anti-islanding protection | | | |
| Surge Protection Level | TYPE II(DC),TYPE II(AC) | | | |
| **General Data** | | | | |
| Max. Inverter Parallel NO. | 3 pcs (up to 7.5 kW rated output) | | | |
| Communication Interface | Wi-Fi, Bluetooth, LoRa | | | |
| Operating Temperature Range (°C) | -10°C ~ 55°C, >45°C Derating, (-20°C~55°C with heating, optional) | | | |
| Permissible Altitude (m) | 2000m | | | |
| Ingress Protection(IP) Rating | IP 65 | | | |
| Cabinet Size (W X H X D) | 560 × 330 × 210mm | | | |
| Weight (kg) | 30kg | | | |
| Permissible Ambient Humidity | 0% ~ 95% ( No Condensing ) | | | |
| Warranty | 10 years | | | |
| Grid Regulation | VDE 4105, IEC 61727/62116, VDE 0126, AS 4777.2, CEI 0-21, EN 50549-1, G98, C10-11, UNE 217002 | | | |
| Safety EMC/Standard | IEC 62619, UN38.3, IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 61000-6-1/2/3/4 | | | |

# Battery Modules




| Model | AE-F2.56 |
|---|---|
| **Battery Technical Specification** | |
| Battery Chemistry | $LiFePO_4$ |
| Battery Nominal Voltage | 51.2V |
| Battery Nominal Energy | 2560Wh |
| Max. Charging / Discharging Current | 50A |
| Battery Operating Voltage | 44.8V ~ 57.6V |
| Battery Cycle Life | ≥6,000 (@25°C±2°C, 70%EOL) |
| Max. Stack NO. | 5 pcs (up to 12.8kWh ) |
| Parallel Capability | 40 pcs* |
| **Other Technical Specification** | |
| Display | LED ( SOC, Alarm ) |
| Communication Interfaces | LoRa |
| Dimension ( W × D × H ) (mm) | 450 × 210 × 244 (without terminal) |
| Ingress Protection(IP) Rating | IP 65 |
| Weight Approximate | 22±3kg |
| Operating Temperature Range | -10°C~55°C ( -20°C~55°C with heating, optional) |
| Max. Operating Altitude | 2000m |
| Relative Humidity | 0% ~ 95% ( No Condensing ) |
| Certification | UN38.3, IEC 62619, CE |
| Installation Style | Floor-Mounted,Stacked-Mounted |
| Warranty | 10 years |

*Maximum 40 Pieces AE-F2.56 Packs in Parallel, Up to 102.4kWh.

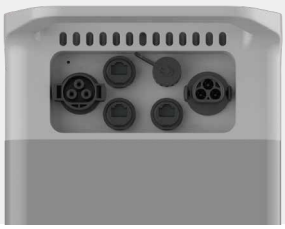
## Optional Interfaces:

Parallel communication port & load port

RS485 port

CT port

Note: Optional interfaces are not field-upgradable and must be selected at the time of order with the required hardware.



## Optional Accessory:

Deye Wireless CT
(Model: SUN-SMART-CT01)

Installed in the distribution box to monitor power consumption, enabling wireless zero-export control.



# Deye Cloud
# Intelligent Energy Management

Efficiency Optimization

Real-Time Monitoring

User-Friendly




## SCENARIO-BASED ENERGY MANAGEMENT SOLUTIONS

Utilize energy in every outdoor adventure or household needs. Embrace effortless energy experience that's both eco-friendly and budget-friendly with our intelligent assistant.

**Scenario 1 :**

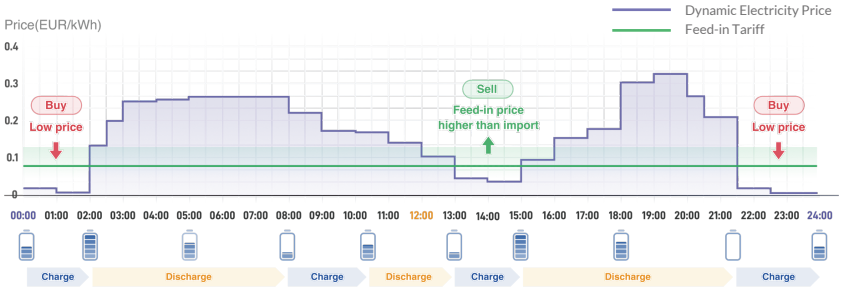
Compact Balcony Solar Plant
Automated Energy-Saving Strategies

**Scenario 2 :**

Camping Power Solution
Empower Your Outdoor Adventure

**Scenario 3 :**

Reliable Home Emergency Power Source
Ensure You Stay Powered Up When You Need It Most




### One-Tap Setup, Real-Time Optimization

#### Flexible Scheduling

Sets up 6 customizable charging/discharging time slots to utilize time-of-use electricity pricing and reduce costs.

#### Deye Copilot Function

Enables Deye Cloud to access local dynamic electricity prices and intelligently decide the optimal time for electricity trading.

* Selling electricity back to grid is available where local regulations permit.

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Join Deye's Intelligent Energy Revolution and Start Saving Today!

# What Can It Power

## Max. 2.5 kW/ 2.56 kWh

1 Inverter + 1 Battery Design




## Typical Device Runtime

No Electricity Anxiety for Emergency Power Backup

| Phone | Laptop | Light | TV | Camera |
|---|---|---|---|---|
| **135** Times | **23** Times | **3** Days | **7.5** Hours | **133** Times |

| UAV | Microwave | Mini Refrigerator | Wi-Fi Router | Space Heater |
|---|---|---|---|---|
| **20** Times | **1.8** Hours | **1-2** Days | **3** Days | **25** Hours |

* The data above is for reference only. Actual runtime may vary with use.

## Compatible Appliances

| Kitchen Appliances | Household Appliances | Office & Entertainment | Lighting & Small Electronics |
|---|---|---|---|
| Electric kettle **1800W** | Hair dryer **1800W** | Wi-Fi router **10W** | Light **10W DC** |
| Microwave oven **1000W** | Vacuum cleaner **1000W** | Laptop **60W** | Phone charger **25W** |
| Blender **500W** | Air purifier **100W** | Printer **50W** | Fan **40W** |
| Rice cooker **800W** | Space heater **1500W** | Projector **300W** | Loudspeaker **60W** |
| Air fryer **1500W** | Washing machine **500W** | Television **120W** | Tablet **45W** |

### Key Power Note:

The rated powers above are for reference only. All devices with a rated power of ≤2500W are compatible.
Operational Safety: Ensure the total power of all devices running simultaneously stays under 2500W.

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