

# UTILITY-SCALE ESS SOLUTION

DEYE WINTER WS SERIES



## Ultimate Safety

- 3+3 Fire Protection System
- 3+3 Electrical Safety Safeguards
- AC Leakage & DC Insulation detection
- High-Voltage Interlock



## Versatile Applications

- Peak Shaving & Energy Arbitrage
- Virtual Power Plant (VPP) Ready
- Off-Grid & Microgrid Capable
- PV and BESS DC Coupling
- Hybrid Solar-BESS-Diesel Systems



## High Energy Density

- 4300kWh in 20' BESS Container
- 1125kW PCS, 1800kW PV in Mppt Stacked Module



## Seamless Scalability

- Modular Architecture
- Flexible 2/4h Energy Storage Solutions
- Compact Design, High Energy Density



## Smart Cloud Management

- AI-Powered Load Optimization
- 24/7 Remote Monitoring & O&M
- Real-Time Battery Health & Safety Alerts
- Cloud-Connected Ecosystem



## Cluster Management

- One Cluster Management, High Availability, More Friendly to the Cell

**IP54**

Protection Rating  
Battery enclosure IP55  
PCS enclosure IP54

**1800kW**

PV DC Coupling

**6 Levels**

Fire Protection



|              |                      |
|--------------|----------------------|
| <b>Model</b> | <b>WS-L4300-BC-3</b> |
|--------------|----------------------|

|                   |  |
|-------------------|--|
| <b>DC Battery</b> |  |
|-------------------|--|

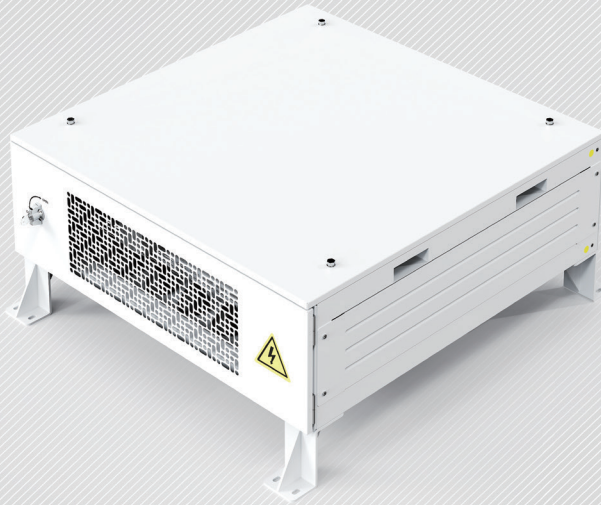
|                                     |                     |
|-------------------------------------|---------------------|
| Battery Type                        | LiFePO <sub>4</sub> |
| Nominal Capacity ( Cell )           | 314Ah               |
| Nominal Energy                      | 4340kWh             |
| PACK Configuration                  | 1P48S               |
| RACK Configuration                  | 18 × 1P240S         |
| Nominal DC Voltage                  | 768Vdc              |
| DC Voltage Range                    | 648Vdc ~ 876Vdc     |
| Charge and discharge rate           | ≤0.5P               |
| Max. Charging / Discharging Current | 3150A ( 18 × 175A ) |
| No. of DC Output                    | 18                  |

|               |  |
|---------------|--|
| <b>System</b> |  |
|---------------|--|

|                          |                             |
|--------------------------|-----------------------------|
| Operating Temperature    | -30℃ ~ +55℃                 |
| Storage Temperature      | -30℃ ~ +60℃                 |
| Humidity                 | 0 ~ 95% ( No condensation ) |
| Type of cooling          | Liquid cooling              |
| Fire Suppression         | Aerosol、Water               |
| Ingress Protection       | IP55                        |
| Anticorrosion grade      | C4-M (Optional C5)          |
| Altitude                 | ≤2000m                      |
| Communication            | CAN、RS485、TCP、DIDO          |
| Weight                   | 38000kg                     |
| Dimensions ( W × D × H ) | 6058 × 2438 × 2896mm        |

| Model                                   |  | WS-PCS1125-2-A                |
|-----------------------------------------|--|-------------------------------|
| PCS Data                                |  |                               |
| AC Rated Power                          |  | 1125kW ( 9 × 125kW )          |
| AC Rated Voltage / Frequency            |  | 400Vac / 50Hz ( 3L+N+PE )     |
| AC Rated Current                        |  | 1624A ( 9 × 180.4A )          |
| Power Factor                            |  | -1 ~ +1                       |
| Battery Input Voltage Range             |  | 630Vdc ~ 1000Vdc              |
| Max. Charging / Discharging Current     |  | 1710A ( 9 × 190A )            |
| System Data                             |  |                               |
| General Data                            |  |                               |
| Operating Temperature                   |  | -25°C ~ +55°C                 |
| Humidity                                |  | 0 ~ 95% ( No condensation )   |
| Ingress Protection                      |  | IP54                          |
| Anticorrosion grade                     |  | C4-M (Optional C5)            |
| Altitude                                |  | ≤2000m                        |
| Weight                                  |  | ≤4000kg                       |
| Dimensions ( W × D × H )                |  | 1750 × 1120 × 2450mm          |
| Model                                   |  | WS-TS1000-2-A                 |
| Grid Side Data                          |  |                               |
| Rated AC Input/Output Active Power (kw) |  | 1000                          |
| Rated AC Input/Output Current(A)        |  | 1450                          |
| Rated input/Output Voltage(V)           |  | 220/380,230/400 (three phase) |
| Grid Connection Form                    |  | 3L/N/PE                       |
| Rated input/Output Grid Frequency       |  | 50Hz/60Hz                     |
| Load Side Data                          |  |                               |
| Rated AC Input/Output Active Power(kw)  |  | 1000                          |
| Rated AC Input/Output Current           |  | 1450                          |
| Rated Input/Output Voltage(V)           |  | 220/380,230/400(three phase)  |
| Grid Connection Form                    |  | 3L/N/PE                       |
| Rated input/Output Grid Frequency       |  | 50Hz/60Hz                     |
| GEN Side Data                           |  |                               |
| Rated AC Input/Output Active Power (kW) |  | 1000                          |
| Rated AC input/Output Current(A)        |  | 1450                          |
| Rated Input/Output Voltage(V)           |  | 220/380,230/400 (three phase) |
| Grid Connection Form                    |  | 3L/N/PE                       |
| Rated input/Output Grid Frequency       |  | 50Hz/60Hz                     |
| System Data                             |  |                               |
| Dimension ( W x D x H, mm )             |  | 2000 × 1200 × 2450mm          |
| Weight Appr. ( kg )                     |  | 1600                          |
| System Operating temperature range      |  | -20°C ~ 55°C                  |
| Max. working altitude ( m )             |  | ≤3000                         |
| IP Rating of Enclosure                  |  | IP54                          |
| Switching Time (ms)                     |  | ≤20                           |

| Model                            | MS-EMS                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>System</b>                    |                                                                                                                                                                                                                                                                                                                                                                              |
| Configuration                    | EMS controller, lightning protection module, switch power supply, UPS module, switch                                                                                                                                                                                                                                                                                         |
| Function                         | <p>Basic functions : peak valley arbitrage, anti backflow, main transformer overload protection, load tracking, demand control, backup power function, phase separation control, SOC balancing, Deye Cloud monitoring</p> <p>Advanced features : load forecasting, production planning, electricity price planning, optimal economic curve</p>                               |
| <b>Communicate</b>               |                                                                                                                                                                                                                                                                                                                                                                              |
| Ethernet ( 5 channels )          | 10 / 100 / 1000 Mbps                                                                                                                                                                                                                                                                                                                                                         |
| Fiber optic port ( 2 channels )  | 1Gbps                                                                                                                                                                                                                                                                                                                                                                        |
| USB ( 2 channels )               | Host                                                                                                                                                                                                                                                                                                                                                                         |
| CAN ( 3 channels )               | Isolation, with 2 channels supporting CAN-FD                                                                                                                                                                                                                                                                                                                                 |
| RS485 ( 8 channels )             | Isolation                                                                                                                                                                                                                                                                                                                                                                    |
| RS232 ( 3 channels )             | 2 isolated channels, 1 non isolated debugging channel ( DB9 socket )                                                                                                                                                                                                                                                                                                         |
| TF Card ( 1 channel )            | Standard TF card holder                                                                                                                                                                                                                                                                                                                                                      |
| LVDS ( 1 channel )               | The physical interface is DVI ( including 1 USB for touch )                                                                                                                                                                                                                                                                                                                  |
| M. 2 Interfaces ( 1 channel )    | PCIe2.0 X1, Scalable SSD ( standard 1TB )                                                                                                                                                                                                                                                                                                                                    |
| MiniPCle Interface ( 1 channel ) | 4G card with expandable USB communication protocol ( standard )                                                                                                                                                                                                                                                                                                              |
| Nano SIM Interface ( 1 channel ) | Used in conjunction with the miniPCle expansion 4G module                                                                                                                                                                                                                                                                                                                    |
| DI ( 17 channels )               | Optocoupler isolation                                                                                                                                                                                                                                                                                                                                                        |
| DO ( 8 channels )                | Relay isolation                                                                                                                                                                                                                                                                                                                                                              |
| WLAN                             | 802.11 b / AC g n, HT 20 / 40, 2.4 GHz 5 GHz                                                                                                                                                                                                                                                                                                                                 |
| 4G Antenna                       | Support multi country frequency bands                                                                                                                                                                                                                                                                                                                                        |
| <b>Power Supply</b>              |                                                                                                                                                                                                                                                                                                                                                                              |
| Communication Input              | 220Vac                                                                                                                                                                                                                                                                                                                                                                       |
| DC IN                            | 24Vdc                                                                                                                                                                                                                                                                                                                                                                        |
| UPS Backup Power                 | 24Vdc                                                                                                                                                                                                                                                                                                                                                                        |
| Consumption                      | Max 25W                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Environmental parameters</b>  |                                                                                                                                                                                                                                                                                                                                                                              |
| Operation Temperature            | -15°C ~ +50°C                                                                                                                                                                                                                                                                                                                                                                |
| Storage Temperature              | -15°C ~ +50°C                                                                                                                                                                                                                                                                                                                                                                |
| Working Humidity                 | 5% ~ 95%                                                                                                                                                                                                                                                                                                                                                                     |
| Max. Working Altitude ( m )      | ≤3000m                                                                                                                                                                                                                                                                                                                                                                       |
| IP Rating of Enclosure           | IP54                                                                                                                                                                                                                                                                                                                                                                         |
| Anti-Corrosion Grade             | C4-M (Optional C5)                                                                                                                                                                                                                                                                                                                                                           |
| <b>Mechanical parameters</b>     |                                                                                                                                                                                                                                                                                                                                                                              |
| Dimension ( W × D × H, mm )      | 488 × 188 × 588                                                                                                                                                                                                                                                                                                                                                              |
| Weight Appr. ( kg )              | ≤24.5kg                                                                                                                                                                                                                                                                                                                                                                      |
| Installation Location            | Indoor or outdoor, wall-mounted                                                                                                                                                                                                                                                                                                                                              |
| Box Material                     | Metal                                                                                                                                                                                                                                                                                                                                                                        |
| Incoming Specifications          | <p>AC power cord : Recommended wire diameter 1.5mm<sup>2</sup></p> <p>DC power cord : Recommended wire diameter of 1.5mm<sup>2</sup></p> <p>Eight core Ethernet cable: Recommended CAT5e Ethernet cable</p> <p>RS485 : Recommended 0.75mm<sup>2</sup>~1.5mm<sup>2</sup> outdoor UV protection with shielding layer twisted pair cable length&lt;1000m ( baud rate 9600 )</p> |

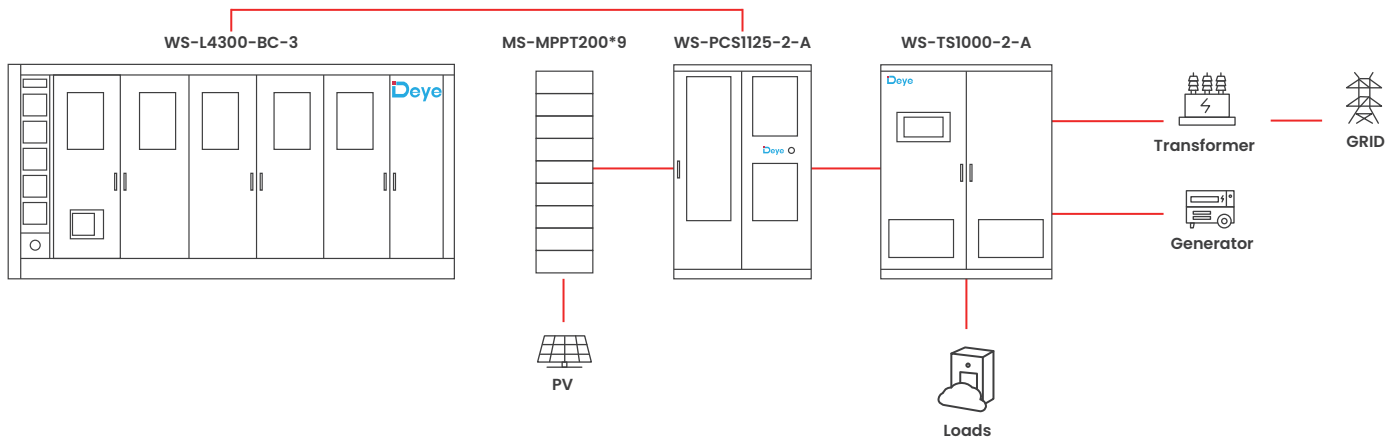


## MS-MPPT200-2

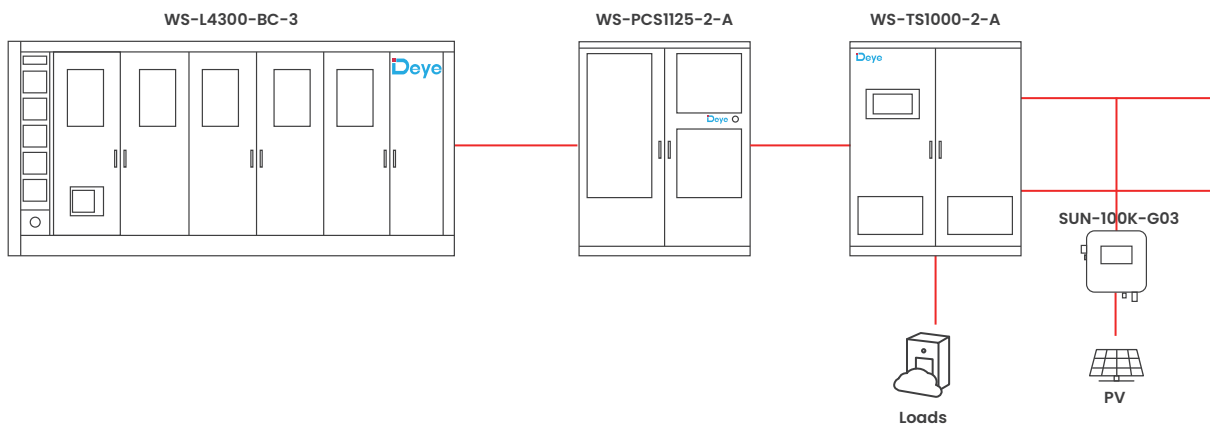
| Model                                   | MS-MPPT200-2            |
|-----------------------------------------|-------------------------|
| <b>PV String Input Data</b>             |                         |
| Max. PV Input Power (kW)                | 200                     |
| Max. PV Input Voltage (V)               | 800                     |
| Start-up Voltage (V)                    | 200                     |
| MPPT Voltage Range (V)                  | 180-750                 |
| Full Load MPPT Voltage Range (V)        | 450-750                 |
| Rated PV Input Voltage (V)              | 600                     |
| Max. Operating PV Input Current (A)     | 40+40+40+40+40+40+40+40 |
| Max. Input Short-Circuit Current (A)    | 60+60+60+60+60+60+60+60 |
| No. of MPP Trackers                     | 8                       |
| <b>Efficiency</b>                       |                         |
| Max. Efficiency                         | >99%                    |
| MPPT Efficiency                         | >99.9%                  |
| <b>Equipment Protection</b>             |                         |
| DC input reverse protection             | YES                     |
| DC ARC protection                       | Optional                |
| Anti-PID(Potential Induced Degradation) | Optional                |
| DC Switch                               | YES                     |
| Surge Protection Level                  | TYPE II                 |
| <b>General Data</b>                     |                         |
| Ingress Protection(IP) Rating           | IP65                    |
| Over Voltage Category                   | OVC I                   |
| Cabinet Size[W×H×D] (mm)                | 543x198x700             |
| Weight (kg)                             | 70                      |
| Type Of Cooling                         | Intelligent air cooling |
| Safety EMC/Standard                     | IEC/EN 62109-1          |
| <b>DC Output Data</b>                   |                         |
| DC Output Voltage Range(V)              | 630-1000                |
| Max. DC Output Current(A)               | 200                     |

# Typical Application Scenarios

## PV-BESS DC-Coupled Solution



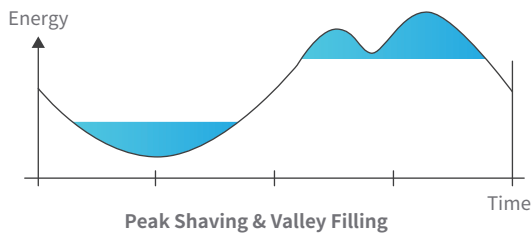
## PV-BESS AC-Coupled Solution



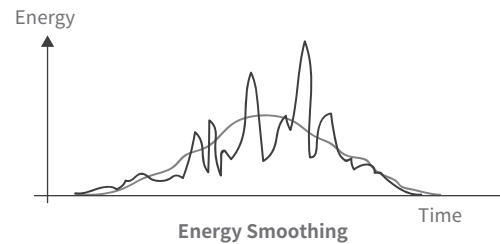
## Application Scenarios

### Ideal for medium to large C&I microgrid applications

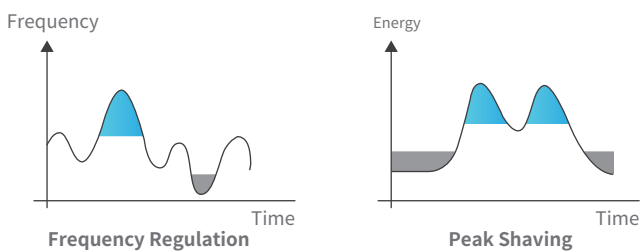
#### 1. Applied in medium to large-scale C&I applications (Peak Shaving & Valley Filling)



#### 2. Integrated with renewable energy storage systems to smooth power output



#### 3. Used for Peak Shaving and Frequency Regulation on the power generation side



#### 4. Participates in virtual power plants to provide ancillary power services (electricity trading)

