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Version: December 04, 2024 Commercial & Industrial Energy Storage Systems



## **One-Stop C&I ESS Provider**

## **Commercial & Industrial** Energy Storage Systems

Unlock Great Power & Profit for Your Projects



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## ROYPOW, Your Trusted Partner

# Contents

About Us

DG Mate Series

PowerCompact Series

EnergyThor Series



## ROYPOW For One-stop New Energy Solutions

- R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions
- Fully automatic production lines, a full range of test equipment and an advanced MES
- Covering Low-Speed Vehicles' Batteries, Industrial Batteries, as well as Residential ESS, Commercial & Industrial ESS, and Mobile ESS
- Self-development of power electronics technologies, including PCS, BMS, and EMS



### Quality Control Certificates:

- Environmental Management System: ISO 14001:2015
- ✓ Occupational Health and Safety Management System: ISO45001:2018
- 🗸 Quality Management System: ISO 9001:2015. IATF16949:2016
- Information Security Management System: ISO/IEC 27001:2022
- ✓ Social Accountability Management System: SA8000:2014
- ✓ Hazardous Substance Process Management: IECQ QC 080000



### Product Certifications:



### **R&D** and Manufacturing Highlights

As a result of these investments, ROYPOW is capable of "end-to-end" integrated delivery, making our products out-perform the industry norms.

Fully Automatic **Production Lines**  BMS, PCS, EMS All Designed in House

### **Global Sales and Service Network**

**Timely Delivery** 

Hassle-free

ROYPOW has comprehensively unfolded its overseas market layout to ensure the localization of R&D, manufacturing, marketing and service, becoming one of your most reliable and valuable partners.



## Upgrading to New Technology, with Our Turnkey Solutions.

With years of dedication to new energy solutions, we are proud to offer customers professional solutions for:

- > Low-speed Vehicle Batteries
- > Battery Systems for Off-highway Applications
- Residential Energy Storage Systems
- > Mobile Energy Storage Systems







Advanced MES System

After-sales Service



Fast Response **Technical Support** 

- > Industrial Batteries
- > Battery Systems for Emerging Applications
- > Commercial & Industrial Energy Storage Systems
- > Chargers

Introduction of ROYPOW C&I ESS

## **ROYPOW C&I ESS Solutions**

Committed to providing cutting-edge energy storage solutions to the world, ROYPOW has developed safe, efficient, and economical commercial and industrial energy storage systems for the growing demands, helping to optimize the energy structure, enhance the reliability of the power system, reduce the cost of energy use, etc.



The solutions include:



# DG Mate Series

DG + ESS Solution

Designed to work with the diesel generators and make them more efficient and energy-saving. It can powerfully save more than 30% of fuel consumption, significantly saving your total cost of ownership for C&I energy applications.



Orange / Yellow

/ Gray Optional

## PowerCompact Series Mobile Energy Storage System

Integrated with powerful technologies and functions into a compact, easy-to-transport cabinet for small and medium commercial and industrial sites. The power and capacity can be customized to fit specific demands.

## EnergyThor Series Liquid Cooling Energy Storage System

Equipped with advanced liquid cooling technologies, it guarantees an extended battery life and features high efficiency, enhanced safety, and flexible scalability. Designed to fit the needs of C&I self-consumption projects, small power plants, and more.



Why DG Mate Series?

### **High Power Motors**

have been widely used in industries such as construction, mechanical manufacturing, mining, rail transit, etrochemical, etc

![](_page_4_Picture_4.jpeg)

# How to choose a DG

![](_page_4_Figure_6.jpeg)

![](_page_4_Picture_7.jpeg)

![](_page_4_Picture_8.jpeg)

![](_page_4_Picture_9.jpeg)

No need to purchase high capacity DG due to the mutual power output from X250KT

![](_page_4_Picture_11.jpeg)

DG Mate Series X250KT

# X250KT

**250 kW** Output Diesel Generator + Energy Storage System Solution

### 30% Savings on Diesel Fuel Consumption

ROYPOW X250KT intelligently and efficiently manages the output power of the engine at 50% to 70% of the rated power of the DG, ensuring that the DG operates at the lowest fuel consumption rate and helping achieve fuel consumption reduction.

![](_page_5_Figure_5.jpeg)

Relationship between engine power and fuel consumption

Saving

**Fuel Consumption** 

### 250 kW Output

LITTLE LE

9

ROYPOW X250KT supports up to 250 kW continuous power output for 30 seconds to address the issues of high motor startup currents and load impacts, extending the lifespan of diesel generators, reducing failure rates, and decreasing maintenance frequency and costs.

## Advantages of X250KT DG + ESS Solution

![](_page_5_Picture_10.jpeg)

All-In-One Integrated Battery + SEMS + SPCS

Hybrid Mode Uninterrupted Power Supply

Up to 4 Sets in Parallel Scalable Power and Capacity to Support Demanding Load

![](_page_5_Figure_15.jpeg)

A

**Plug and Play** No Additional Complex Installation Required

Ð

Rapid Deployment Support Lifting and Forklift Transporation

![](_page_5_Picture_19.jpeg)

![](_page_5_Picture_20.jpeg)

AC **AC-Coupling** 

Connect to Diesel Generators, Grid, and PV

![](_page_5_Picture_24.jpeg)

Intelligent Management

Remote Monitoring via App and Web

![](_page_5_Picture_27.jpeg)

### **Excellent Adaptability**

Stable Performance in Harsh Environments

![](_page_6_Figure_0.jpeg)

![](_page_6_Figure_1.jpeg)

## Technical Specifications

reennear ope			
Model	X250KT-U/A	Х250КТ-Е/А	
AC Output Data (On-g	rid Mode)		
Rated Power	150 kW	150 kW	
Max. Rated / Apparent Power	250 kW / 280 kVA <sup>[1]</sup>	250 kW / 280 kVA <sup>[1]</sup>	
Rated Voltage	480 V (±15%)	400 ∨ (±15%)	
Rated Current	183 A	220 A	
Grid Frequency	60 Hz	50 Hz	
AC Connection	3 W + N	3 W + N	
THDI	≤ 3%	≤ 3%	
Power Factor	-] ~ +]	-] ~ +]	
AC Output Data (Off-gr	id Mode)		
Rated Power	250 kW	250 kW	
Max. Rated / Apparent Power	250 kW / 250 kVA [1]	250 kW / 250 kVA [1]	
Rated Voltage / Frequency	480 V / 60 Hz	400 V / 50 Hz	
THDV (Linear Load)	≤3%	≤3%	
Battery Data			
Battery Chemistry	LiFePO4	LiFePO4	
Nominal Energy	153.6 kWh	153.6 kWh	
Working Voltage Range	600V ~ 876V	600 V ~ 876 V	
Nominal Charging Current	100 A	100 A	
Nominal Discharging Current	200 A	200 A	
Max. Discharging Current	300 A	300 A	
DOD	90%	90%	
Compatible Diesel Gen	erator		
Rated Power	≤400 kVA	≤400 kVA	
Rated Voltage	480 V	400 V	
Rated Frequency	60 Hz	50 Hz	
General			
Parallel Capable	Yes ( Up to 4)	Yes ( Up to 4)	
EMS	SEMS3000 12 inch LCD Touch Panel	SEMS3000 12 inch LCD Touch Panel	
Ingress Rating	NEMA 3R	IP54	
Тороlоду	Transformer	Transformer	
Working Temperature	-4 ~ 131°F (-20 ~ 55°C)	-4 ~ 122°F (-20 ~ 50°C)	
Storage Temperature	-40 ~ 149°F (-40 ~ 65°C)	-40 ~ 149°F (-40 ~ 65°C)	
Relative Humidity	5 ~ 95% (No condensing)	5 ~ 95% (No condensing)	
System Noise	<65 dB	<65dB	
Cooling	Intelligent temperature control (Battery room) Air cooling (Inverter room)		
Fire Suppression System	Included	Included	
Altitude	5,000 (>3,000 derating)	5,000 (>3,000 derating)	

[1] Depends on the output power of the battery system All pictures shown are for reference only and data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions. Only authorized performance may vary according to local conditions.

Certifications

Weight

Dimensions, LxWxH

Orange/Yellow / Gray Optional

1 (23 ıy, CE / UN38.3

UL1973 / UL1741 / UL9540A / FCC Part 15 Class B / UN38.3

90.55 x 68.90 x 94.49 inch (2,300 x 1,750 x 2,400 mm)

10,361.72 lbs (4,700 kg)

12 are allowed to operate or make adjustments to the batteries. We reserve the right to make revisions as well as product alterations and improvements at any time without prior notice.

# X65KT

65 kW Output Diesel Generator + Energy Storage System Solution

![](_page_7_Figure_3.jpeg)

![](_page_7_Figure_4.jpeg)

**Rapid Deployment** Support Lifting and Forklift Transporation

![](_page_7_Figure_6.jpeg)

Up to 4 Sets in Parallel Scalable Power and Capacity to Support Demanding Load

![](_page_7_Figure_8.jpeg)

![](_page_7_Figure_9.jpeg)

AC-Coupling Connect to Diesel Generators, Grid, and PV

![](_page_7_Figure_11.jpeg)

Intelligent Management

Remote Monitoring via App and Web

Saving

**Fuel Consumption** 

![](_page_7_Figure_13.jpeg)

**Technical Specifications** 

Model	X65KT-U/A	X65KT-E/A
AC Output Data (On-gri	d Mode)	
Rated Power	65 kW	65 kW
Apparent Power	71.5 kVA	71.5 kVA
Rated Voltage	480 V (±15%)	400 V
Rated Current	79 A	95 A
Grid Frequency	60 Hz	50 Hz
AC Connection	3 W + N	3 W + N
THDI	≤ 3%	≤ 3%
Power Factor	-] ~ +]	-] ~ +]
AC Output Data (Off-grid	Mode)	
Rated / Apparent Power	65 kW / 71.5 kVA	65 kW / 71.5 kVA
Rated Voltage / Frequency	480V / 60Hz	400V / 50Hz
THDV (Linear Load)	≤3%	≤3%
Battery Data		
Battery Chemistry	LiFePO4	LiFePO4
Nominal Energy	76.8 kWh	76.8 kWh
Nominal Charging Current	50 A	50 A
Nominal Discharging Current	100 A	100 A
Working Voltage Range	600 V ~ 876 V	600 V ~ 876 V
Max. Output Power	65 kW	65 kW
DOD	90%	90%
Compatible Diesel Gener	rator	
Rated Power	≤120 kVA	≤120 kVA
Rated Voltage	480 V	400 V
Rated Frequency	60 Hz	50 Hz
General		
Parallel Capable	Yes ( Up to 4)	Yes ( Up to 4)
EMS	SEMS3000 12 inch LCD Touch Panel	SEMS3000 12 inch LCD Touch Pane
Ingress Rating	NEMA 3R	IP54
Тороlоду	Transformer	Transformer
Working Temperature	4 ~ 131°F (-20 ~ 55°C)	4 ~ 122°F (-20 ~ 55°C)
Storage Temperature	104 ~ 149°F (-40 ~ 65°C)	104 ~ 149°F (-40 ~ 65°C)
Relative Humidity	5 ~ 95% (No condensing)	5 ~ 95% (No condensing)
System Noise	<65 dB	<65 dB
Cooling	Intelligent temperature control (Battery	room) Air cooling (Inverter room)
Fire Suppression System	Included	Included
Altitude	5,000 (>3,000 derating)	5,000 (>3,000 derating)
Certifications	UL1973 / UL1741 / UL9540A / FCC Part 15 Class B / UN38.3	CE / UN38.3
Dimensions, W x H x D	45.27 x 78.74 x 49.21 inch (1150 x 2000 x 1250 mm)	
Weight	2,866 lbs (1,300 KG)	

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Orange/ Yellow / Gray Optional

### 

## **Mobile Commercial** & Industrial **Energy Storage Systems**

Easier Transporation, Faster Deployment, Reliable Supply.

Advantages of Mobile Energy Storage System

![](_page_8_Picture_4.jpeg)

### Zero Compromise

Advanced energy-dense lithium iron phosphate technologies ensure maximized available power in the smallest package. Meets NFPA855, EN50549, and UL standards.

![](_page_8_Picture_7.jpeg)

### **Compact Design**

A compact 1.2 m<sup>3</sup> design makes this series the ideal power solution where space on site is premium. Up to 2 units for parallel use.

![](_page_8_Picture_10.jpeg)

### **Efficient Transportation** and Deployment

4 lifting points and fork pockets on every side ensure the ROYPOW power packs can be easily and safely maneuvered to wherever you need it.

![](_page_8_Picture_13.jpeg)

### **Built to Last**

With a robust enclosure, the PowerCompact series provides maximum protection and durability and withstands the toughest applications for secure power.

![](_page_8_Picture_16.jpeg)

### **Flexible Charging**

Compatible with multiple charging sources, including diesel generators, the grid, and PV.

![](_page_8_Picture_20.jpeg)

### **Generator Connection**

Can be connected to diesel/gasoline generators. Support automatic control, starting charging when low and shutting off once fully charged.

## **PowerCompact Series** System Composition

![](_page_9_Figure_1.jpeg)

![](_page_9_Picture_2.jpeg)

## **Specifications**

### Model

AC Output (Discharging)		
Rated Power	15 kW (90 kW / 6 in Parallel)	
Rated Voltage / Frequency	380 V / 400 V 50 / 60 Hz	
Rated Current	3 x 21.8 A	
Single-Phase	220 / 230 VAC	
Apparent Power	22500 kVA	
AC Connection	3W+N	
Overload Capacity	120% @10min / 200% @10S	
AC Input (Charging)		
Rated Power	15 kW	
Rated Voltage / Current	380 V / 400 V 22.5 A	
Single Phase / Current	220 V / 230 V 22 A (Optional)	
THDI	≤3%	
AC Connection	3W+ N	
Battery		
Battery Chemistry	LiFePO4	
DoD	90%	
Rated Capacity	30 kWh (Max. 180 kWh / 6 in Parallel)	
Voltage	550 ~ 950 VDC	
DC Input (PV)		
Max. Power	30 kW	
Number of MPPT / Number of MPPT Input	2-2	
Max. Input Current	30 A / 30 A	
MPPT Voltage Range	160 ~ 950 V	
Number of String per MPPT	2/2	
Start-up Voltage	180 V	
Physical		
Ingress Rating	IP54	
Scalability	Max. 6 in Parallel	
Relative Humidity	0 ~ 100% Non-condensing	
Fire Suppression System	Hot Aerosol (Cell & Cabinet)	
Max. Efficiency	98% (PV to AC); 94.5% (BAT to AC)	
Topology Operating Ambient	Transformerless	
Temperature	-20 ~ 50°C (-4 ~ 122°F)	
Noise Emission (dB)	≤ 70	
Cooling	Natural Cooling	
Altitude (m)	4000 (>2000 Derating)	
Weight (kg)	≤350 KG	
Dimensions (LxWxH)	1100 x 1100 x 1000 mm	
Standard Compliance	EN50549, AS4777.2, VDE4105, G99, IEEE1547, NB/T 32004,	

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### PC15KT

IEC62109, NB/T 32004, UL1741, IEC61000, NB/T 32004

## **On-/Off-Grid Commercial & Industrial Energy Storage System**

High Output, High Efficiency, High Safety.

## Advantages of Liquid Cooling Energy Storage System

![](_page_10_Picture_4.jpeg)

### **Efficient Thermal** Management Solution

Advanced liquid cooling system effectively reduces temperature rise and improves system temperature consistency, which helps guarantee high efficiency and long lifespan.

![](_page_10_Picture_7.jpeg)

### **Balancing Friendly** Structure Design

Packed with large-capacity 314 Ah cells, which reduces the number of packs for a more compact battery pack design and improves the internal structural balance issues.

.

![](_page_10_Picture_10.jpeg)

### **Flexible Configuration**

Modular design allows for multiple configurations of DC-DC converters to meet specific power needs and maximize cost-effectiveness for your investment.

![](_page_10_Picture_13.jpeg)

### **Reliable Fire** Suppression Solution

Multi-level safety protection includes battery-level fire suppression, cabinet-level fire suppression, flammable gas emission, and explosion-proof design to prevent combustion and ensure stable operation.

![](_page_10_Picture_16.jpeg)

**7 YEARS** 

### **High Reliability**

The liquid-cooled system is manufactured in the industry-leading automotive-grade manufacturing workshop for enhanced quality and durability.

![](_page_10_Picture_20.jpeg)

### Intelligent Management

Intelligent Energy Management System (EMS) supports remote performance and status monitoring through web to enhance the reliability of system operation.

## **EnergyThor Series** System Composition

![](_page_11_Picture_1.jpeg)

![](_page_11_Picture_2.jpeg)

### **Specifications**

Model	X120/90/60/30KT-U/A	X120/90/60/30KT-E/A
AC Output (On-grid)		
Rated Power	30 kW/60 kW/90 kW/120 kW	30 kW/60 kW/90 kW/120 kW
Rated Voltage / Frequency	480 V (±15) / 60 Hz	400 VAC / 50 Hz
THDI	≤3%	≤3%
Apparent Power	33 kVA x N (N=1~4 adjustable)	33 kVA x N (N=1~4 adjustable)
AC Connection	3P3W + PE	3P3W + N + PE
Power Factor	-0.8 ~ + 1	-0.8 ~ + 1
AC Output (Off-grid)		
Rated Power	30 kW x N (N=1~4 adjustable)	30 kW x N (N=1~4 adjustable)
Rated Voltage / Frequency	480 V (±5) / 60Hz	400 VAC / 50Hz
THDI	≤3%	≤3%
Backup Switch Time	20 ms	20 ms
Apparent Power	33 kVA x N (N=1~4 adjustable)	33 kVA x N (N=1~4 adjustable)
AC Connection	3P3W + PE	3P3W + N + PE
Power Factor	-0.8 ~ + 1	-0.8 ~ + 1
Over Capacity	110%~120%, 10 min 120%~130%,1 min 130%~150%,200 ms >150%,100 ms	110%~120%, 10 min 120%~130%,1 min 130%~150%,200 ms >150%,100 ms
Battery		
Battery Chemistry	LiFePO4	LiFePO4
DoD	90%	90%
Rated Capacity	209 kWh	209 kWh
DC Input (PV)		
Max. Power	45 kW x N (N=1~4 adjustable)	45 kW x N (N=1~4 adjustable)
Number of MPPT / Number of MPP	T Input 3 x N	3 × N
Max. Input Current	35 A / 35 A / 35 A	35 A / 35 A / 35 A
MPPT Voltage Range	200 ~ 750 V	200 ~ 750 V
Number of String per MPPT	2	2
Start-up voltage	250 V	250 V
Physical		
Ingress Rating	NEMA 3R	IP54
Scalability	Max. 2 in parallel	Max. 2 in parallel
Relative Humidity	0 ~ 100% non-condensing	0 ~ 100% non-condensing
Fire Suppression System	Hot aerosol (cell & cabinet)	Hot aerosol (cell & cabinet)
Max. Efficiency	93.5%	93.5%
Тороlоду	Transformer	Transformer
Operating Ambient Temperature	-20 ~ 50° <b>C</b> (-4 ~ 122° <b>F</b> )	-20 ~ 50°C (-4 ~ 122°F)
Noise Emission (dB)	≤70	≤70
Cooling	Liquid cooling	Liquid cooling
Altitude (m)	4000 (>2000 derating)	4000 (>2000 derating)
Weight (kg)	≤3 ton	≤3 ton
Dimensions, LxWxH	1450 x 1900 x 2250 mm	1450 x 1900 x 2250 mm
Standard Compliance	UL9540 / UL9540A / FCC / UL1973 / UL1741 / UL1741SA / IEEE1547 / CA RULE 21	EN50549, AS4777.2, VDE4105, G99, IEEE1547, NB/T 3200 IEC62109, NB/T 32004, UL1741, IEC61000, NB/T 32004

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