

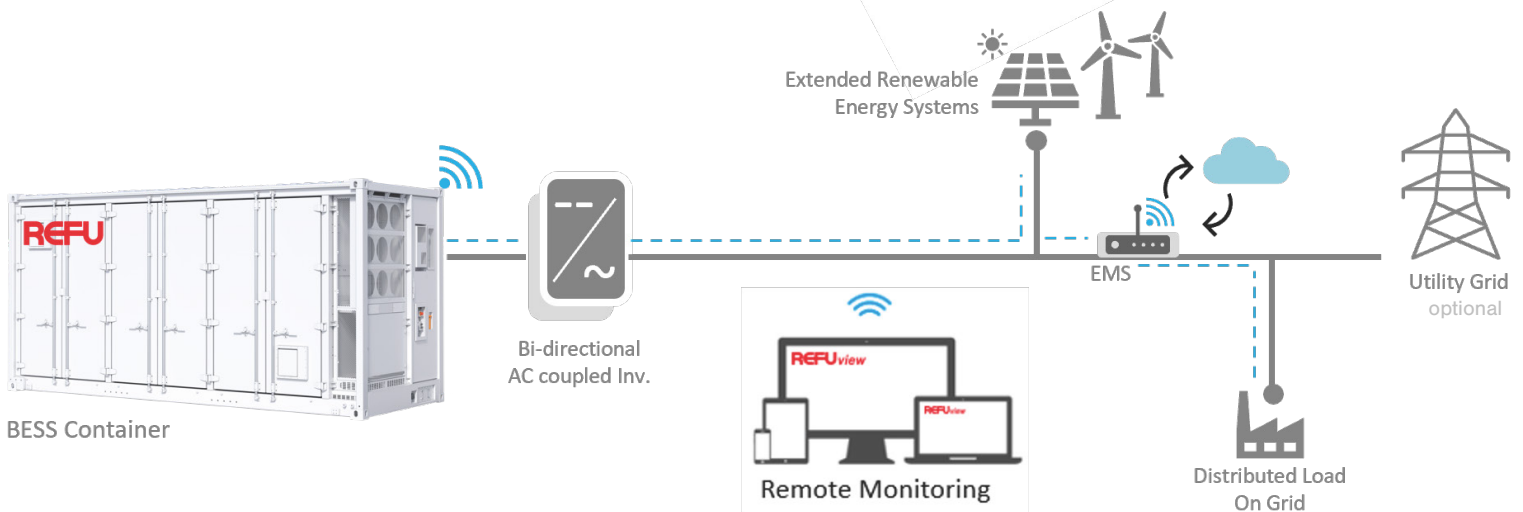
REFU**bess**

1.9 ~ 3.7 MWh



Big in Size. Powerful in Energy Storage.

REFU**bess** is your safe storage generator designed for large scale storage applications such as grid stabilization, peak shaving and stand-alone / off-grid back systems.



Profitability

- Better profits - dynamic tariff / arbitrage.
- Investment deferral (peak shaving and grid stability).

Installation & Service

- One stop solution
- Minimal civil work saves time
- Easy service with remote update option



Availability

- Can be used for mini grid / standalone systems.
- Easily replace DG systems for high-capacity factories.
- Ensures higher availability - where grids are unreliable.

Reliability

- Active cooling for safety against thermal runaway.
- Design with high data security at each level.
- 5/10 years warranty.



Technical Data
Art. No.

REFU**ess** 3.7M
470P37M

REFU**ess** 1.9M
470P19M

BATTERY STACK ASSEMBLY DATA

Cell combinations	416S – 10P	416S – 5P
Interconnections	Rack of 8 modules X 10	Rack of 8 modules X 5
Battery chemistry	LiFePO ₄	

BATTERY ELECTRICAL DATA (at 25°C)

Rated energy capacity (kWh) at 100%DOD	3727.36	
Rated Power (kW)	1863.68	
Max. Power (kW)	3727.36	
Recommended C-rate	≤ 0.5C	
Nominal system voltage (V)	1331.2	
Capacity (Ah)	2800	1400
Min. Operating voltage (V)	1164.8	
Max. Operating voltage (V)	1497.6	
Charging / Discharging current (A)	1400	700
Peak charging / Discharging current (A)	2800	700

BATTERY PERFORMANCE

Max. Charging / Discharging efficiency (%)	≥92
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BATTERY PROTECTION

Thermal management	Active heating and cooling, Fire suppression system (FSS)
Over charging protection	Over charge voltage, over charging current
Over discharging protection	Under voltage, over discharge current, deep sleep
Safety protections	reverse polarity, short circuit, over / under temperature, thermal runaway
Ingress protection	IP54

BATTERY GENERAL DATA

Environmental operating conditions	Temp(°C): -30 ... +55 (> 45 derating) ; Humidity (%): 5...90 ; Altitude: ≤3000 m
Enclosure size(mm) / weight(kg)	Dimensions (LxDxH): 6058 X 2438 X 2896 / Weight: ≤3500
Cooling / Heating management	Liquid
Insulation standard (Ω/V)	≥1000
Auxiliary power supply (W)	Average: 18kW, Max: 29kW
Cycle life	≤5500
Warranty	10 Years

BATTERY COMPLIANCE & STANDARDS

Cell level	UN38.3, UL1973, IEC62619, UL9540A, GB/T 36276
System level	IEC62477, IEC62619, IEC 62933-5-2, IEC63056, UL1973, UL9540A

PCS SPECIFICATIONS*

Nominal power rating (kVA) per module**	215
Number of modules (power range) kVA**	1 ~ 8 (215 ~ 1725) kVA
AC output voltage (V)	690 [-15% - 10%] ; 3P
AC output frequency (Hz)	50 (45 – 55) / 60 (55 – 65)
THDi / PF	≤3%* / 0.99(-1 ~ 1)
DC / AC overload (%)	10
DC operating voltage (V)	1070 ~ 1500 (full discharge to charge)
Peak efficiency (%)	98.5
Number of Branch connections**	1 – 8
Operating temperature (°C)	-20 ~ 60 (derating over 50°C)
Dimensions (W*H*D) (mm)	2200 x 2160 x 1300
Weight per module (kg)	Base structure (1456) + module (93)
Certifications	EN50549-2, VDE4110, VDE4120, G99, IEC62477/61000/62109

COMMUNICATION**

RS485 / CAN / TCP-IP / Ethernet	yes / yes / yes / yes
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*THDi at rated power.

**Number of modules connected in a matrix with multiple branches or a single Branch with multiple modules.

***Inverter and battery can communicate with REFUview monitoring portal.

*The PCS cabinet is installed outside the battery storage (20ft) container for 3.7MWh system and inside for 1.9MWh system.