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Residential BESS Solutions

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Firefly OS home storage all-in-one machine is independently researched, developed, and produced by Chengdu Tecloman Energy Storage Technology Co., Ltd. It adopts a new cell Pack design and product molding style, integrating the quantitative cell system and the optical storage all-in-one machine organically, constituting a complete home storage system product.

Firefly OS home storage all-in-one machine consists of an equivalent standard cell system (10 kWh, 15 kWh), organically combined photovoltaic storage all-in-one machine (single-phase 5~8 kW, three-phase 10~20 kW, and North America 8 kW), intelligent power distribution box (single-phase, three-phase, and North America split-phase) with unified style design, and other standard products.

Product Overview

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High Integration
All-in-one and high integration structure design can meet the installation and use in different situations.

High Scalability
High scalability and can support parallel scaling up to 75 kWh.

High Safety
Built-in active aerosol fire extinguishing device for home safety.

Fine Appearance
Fine appearance design can be more suitable for home decoration style.

Full Electric Control
Leading management system for integrated and coordinated management of cell, grid, photovoltaic, and loads.

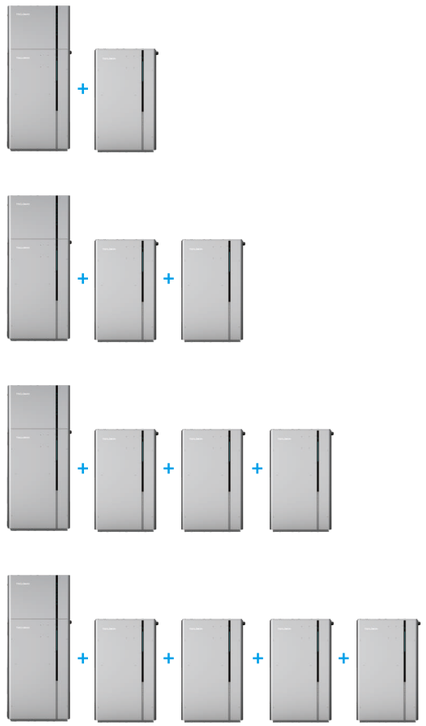
High Compatibility
Product models cover Europe, Australia, Africa, and North America and are compatible with single-phase, three-phase, and split-phase grid systems.

Product Features

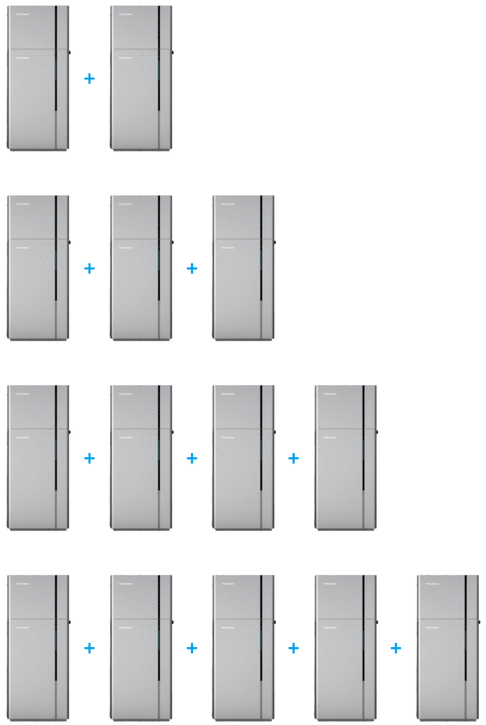
Safety is especially important in domestic scenarios. Therefore, the cell system adopts lithium iron phosphate cells as the basic unit and is composed of low-voltage groups. It has high compatibility and scalability and also supports parallel scaling, with a maximum capacity of 75 kWh.

According to the market demand, Tecloman has developed three product models compatible with European single-phase, European three-phase, and North American split-phase for customers to select.

Scaling Method One:

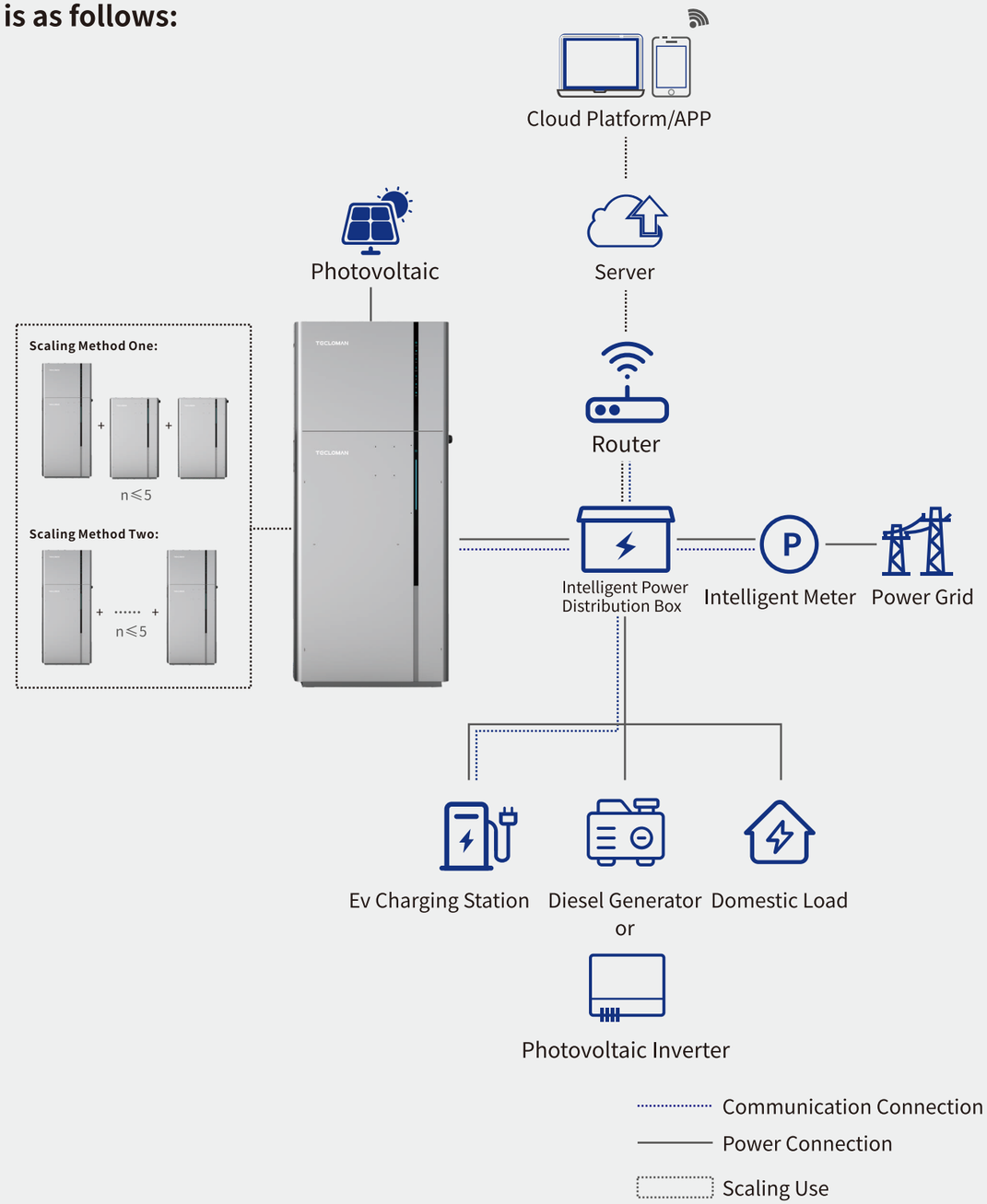


Scaling Method Two:



System Topologies

The system connection scheme is as follows:



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Photovoltaic panels on the roof generate electricity through photovoltaics during the day when the sun is shining.

Photovoltaics prioritize power supply to loads, and excess power is stored in energy storage devices.

Household storage units to power household loads during night/emergency power outages.

Mains electricity/household storage driven air conditioning system maintains whole house cooling and heating balance.

Photovoltaic Power Generation

Energy Storage to Supply Electricity

Power Supply for Air Conditioning

Application Scenarios

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Firefly Os High-pressure System for Higher Performance

Multiple Cell Systems in Parallel Can Be Scaled up to 75 Kwh.

98.6%
Photovoltaic grid efficiency up to

96.8%
Cell grid efficiency up to

99.9%
MPPT efficiency up to

Advantage I

Wifl+ Bluetooth Dual-channel Wireless Communication Modular Design, Plug-and-Play

Product Advantages

Advantage II

Ultra-high DC Input Short-circuit Current and Rated Current

Advantage III

Fuselage Size Optimization Reduces Mounting Space

Advantage IV

Ultra-low Startup and Shutdown Voltages

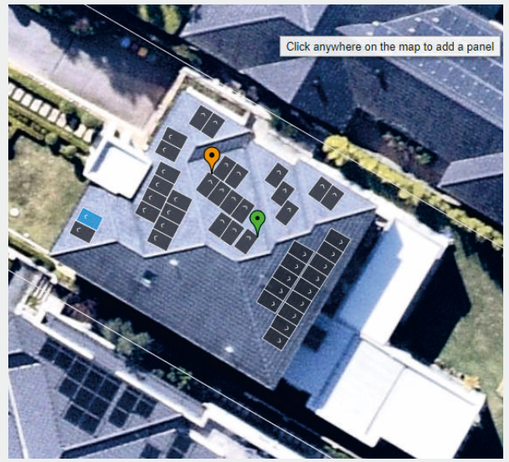
Advantage V

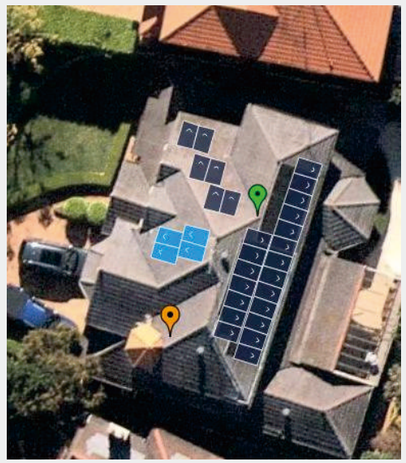
Ultra-high MPPT Efficiency, Standard Efficiency, and European Efficiency

Advantage VI

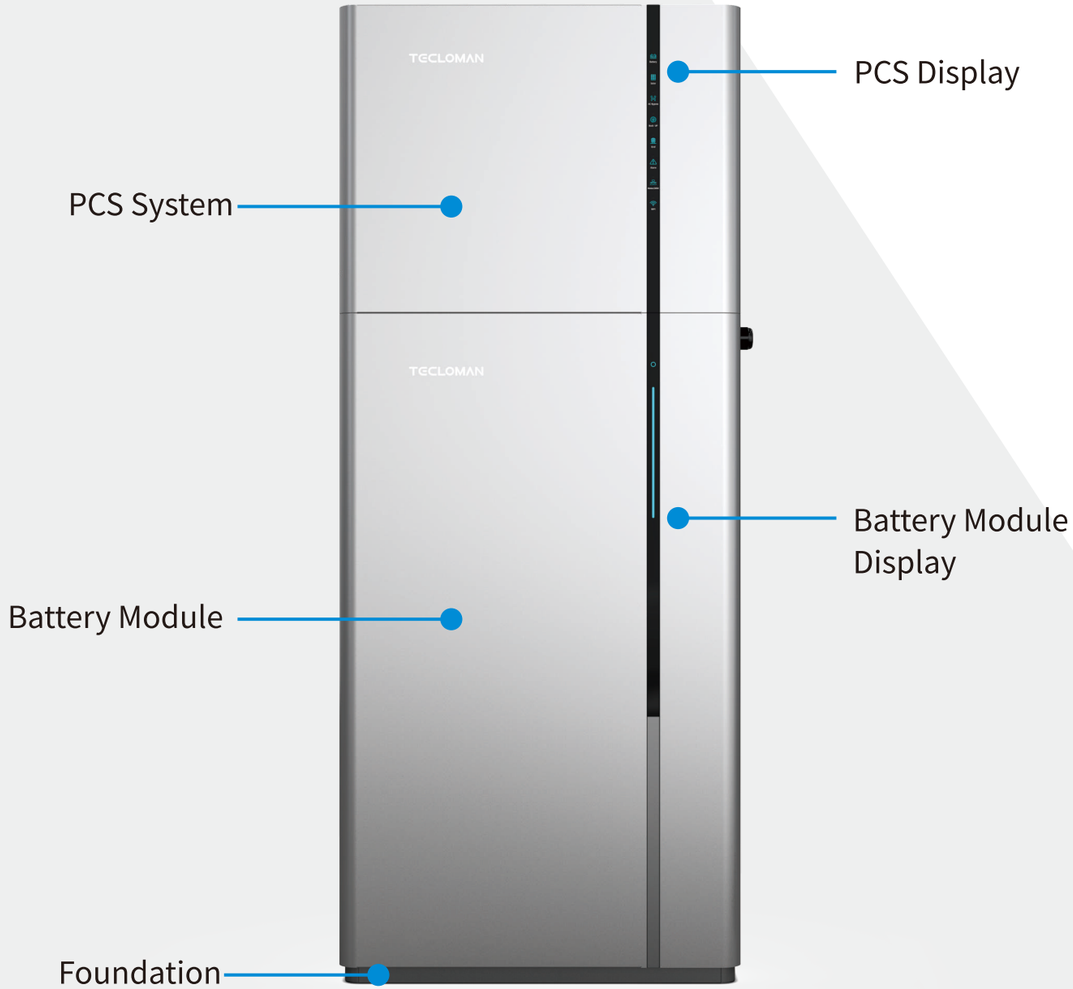
Broader MPPT Voltage Range

Multiplexed MPPT and Multiplexed String for more Complex Installations

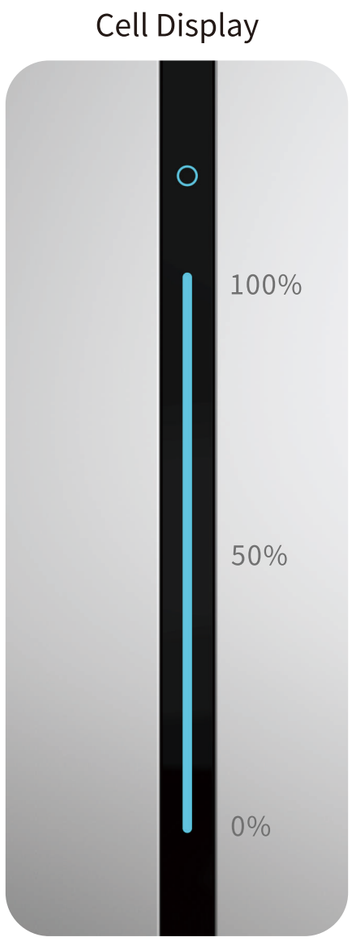




In practical installations, roofs can be irregular with complex orientations (as shown in the figure). Therefore, inverters with multiplexed MPPTs mean that the photovoltaic module arrangement can have multiple orientations, greatly improving roof coverage.



View PCS Status in Real-time



View Cell SOC Level and Status in Real-time

Product Details

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Tecloman Smart O&M Cloud System is a professional remote operation and maintenance monitoring platform independently developed for energy storage products, which adopts self-developed edge computing terminals for bi-directional data communication, and encrypts and decrypts the transmitted data through encryption algorithms to ensure the security of communication.

Users can view the equipment operation status, alarm records, historical data and other information at any time through browser, applet or APP, and can also perform remote parameter setting, control, timing, firmware upgrading and other operations on the equipment, realizing the monitoring and operation and maintenance of the whole life cycle of the equipment.

Tecloman Smart O&M Cloud System

- Full-time data monitoring + beidou positioning, Remote visualization of equipment status and location
- Intelligent operation strategy, can be customized Strategy, to achieve automatic control of equipment
- Intelligent O&M, intelligent equipment health status Assessment based on historical data
- Fault alarm information active push, support public, Sms,email multiple message reminder function

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Firefly OS

RESS(INV+BAT Integrated)

- BH-OS-10/15
- Hybrid-OS-E5~8K-S
- Hybrid-OS-E10~20T
- Hybrid-OS-US7.6K

Product Overview

Firefly OS is independently developed and produced by Tecloman. Adopting a new battery Pack design and product molding style, the all-in-one quantitative battery system is organically combined with the optical storage all-in-one machine to form a complete home storage system product. The Firefly OS home storage system consists of standardized battery system (10kWh, 15kWh), integrated photovoltaic storage system (single-phase 5kW, three-phase 10kW, 15kW & North America 8kW), intelligent distribution box (single-phase, three-phase & North America split-phase), OEM home charging post and other standard products.

- Integrated and highly integrated structural design to meet the installation and use in different situations;
- High scalability, support parallel expansion, can be a separate battery system parallel expansion of power, can also be a system parallel at the same time to increase the number of power and power;
- Support multi-platform access such as WIFI, Bluetooth, cloud platform, and multi-dimensional after-sales service system.
- Available models for Europe, Australia, Africa, and North America are compatible with single-phase, three-phase, and split-phase grid systems;
- Compatible with floor-standing and wall-mounted installation, suitable for home installation scenarios with high space utilization.
- A leading management system is built into the system, which coordinates and manages the battery, grid, PV, and loads in a unified manner, providing rich and intuitive data and total control of home electricity usage;
- Built-in active fire extinguishing device with perfluorocarbon and ketone to ensure safe use in the home;

Cell System Model	BH-OS-10	BH-OS-15
Cell Type	Ferrous Lithium Phosphate	
Rated Capacity	10kWh	15kWh
Available Capacity*1	9.4kWh	14.25kWh
Depth of Discharge	Maximum 95%, adjustable	
Rated Voltage	204.8Vdc	307.2Vdc
Operating Voltage Range	179.2 ~ 230.4 Vdc	268.8 ~ 345.6 Vdc
Dimension (W*D*H)	742×176×1200mm	
Weight	Approximately 120kg	Approximately 180kg
Maximum Continuous Charge/Discharge Power	10kW	15kW
Maximum Continuous Charge/Discharge Current	50A/1C	
Operating Temperature Range*2	-20~50°C discharge; 0.5°C charge	
Relative Humidity	5% ~ 95%	
Protection Class	IP65	
Installation Method	Floor to Wall/Wall Mount	
Communication	CAN / RS485 / WIFI / Ethernet	
Cell Cycle Times	＜6000 times @ 0.5C / 25°C / 90%DOD	
Certification Standards	IEC62619、CE、UN38.3、UL1973、UL9540A、FCC	
Parallel Scaling	5 units in parallel up to 75 kWh	

Note: *1. Test conditions: 25°C±2°C, 0.5°C, etc;

*2. The cell temperature is too high and too low, and the cell performance is degraded.

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Inverter Model	Hybrid-OS-E5K-S	Hybrid-OS-E8K-S	Hybrid-OS-E10T	Hybrid-OS-E15T	Hybrid-OS-E20T
Photovoltaic Input					
Maximum Input Power	10kW	16kW	16kW	24kW	32kW
Maximum Access Voltage	600Vdc		110Vdc		
MPPT Voltage Range	80~580Vdc		100~1080Vdc		
Number of MPPTs / Number of MPPT Access Strings Per Channel	2, 1/2		2/2		
Maximum Input Current	18/36A		36/36A		
Maximum Short-circuit Current	22/44A		44/44A		
AC Output (Grid Side)					
Rated Output Power	5kW	8kW	10kW	15kW	20kW
Maximum Output Current	21.7A	34.8A	14.5A	21.7A	29A
Rated Output Current	21.7A	34.8A	14.5A	21.7A	29A
Operating Phase	1P		3P		
Rated Voltage	220 / 230Vac		220/380, 230/400, 240/415, 312~520Vac		
Operating Voltage Range	180~300Vac		180~300Vac		
Rated Frequency	50 / 60Hz		50 / 60Hz		
Operating Frequency Range	45 ~ 55 / 55 ~ 65Hz		45 ~ 55 / 55 ~ 65Hz		
Power Factor	>0.99		>0.99		
THDi	<3%		<3%		
AC Output (Off-grid Side)					
Rated Output Power	5kW	8kW	10kW	15kW	20kW
Maximum Peak Output Power	8kW	9.6kW	20kW	22.5kW	24kW
Switching Time between Parallel and Off-grid	<10ms		<10ms		
Rated Output Voltage/Range (L/N/PE)	220/230/240V, 180~300Vac		220/380, 230/400, 240/415, 312~520Vac		
Rated Frequency	50 / 60Hz		50 / 60Hz		
Rated Output Current	21.7A	34.8A	14.5A	21.7A	29A
Total Voltage Harmonic Distortion Rate (@ Linear Load)	<2%		<2%		
Efficiency					
Maximum Efficiency	98.6%		98.8%		
European Efficiency/CEC Efficiency (North America)	98.1%		98.3%		
Basic Parameters					
Weight	Approximately 20kg				
Dimension (W×D×H)	742×200×597mm				
Operating Temperature	-25~60°C				
IP Rating	IP65				
Heat Dissipation Methods	Intelligent Air-cooled				
External Communication	WIFI, Bluetooth, RS485, and CAN				
Certification					
Safety Regulation	IEC-62109-1/-2,IEC-62477-1,IEC-61000-6-1/-3 (under certification)				
Grid-connection	AS/NZS 4777.2:2020, EN50549-1:2019, G98:2021, G99:2021, VDE-AR-N 4105 (under certification)				

Inverter Model	Hybrid-OS-US7.6K
Photovoltaic Input	
Maximum Input Power	11.4kW
Maximum Access Voltage	600Vdc
MPPT Voltage Range	80~550Vdc / 360Vdc
Number of MPPTs / Number of MPPT Access Strings Per Channel	3 / 1
Maximum Input Current	15.5A / 15.5A / 15.5A
Maximum Short-circuit Current	26A / 26A / 26A
AC Output (Grid Side)	
Rated Output Power	7.6kW
Maximum Output Current	31.7A
Rated Output Current	31.7A
Operating Phase	1P
Rated Voltage	240Vac
Operating Voltage Range	211.2 ~ 264Vac
Rated Frequency	60Hz
Operating Frequency Range	55 ~ 65Hz
Power Factor	>0.99
THDi	<3%
AC Output (Off-grid Side)	
Rated Output Power	7.6kW
Maximum Peak Output Power	8.36kw
Switching Time between Parallel and Off-grid	<10ms
Rated Output Voltage/Range (L/N/PE)	220/380, 230/400, 240/415, 312~520Vac
Rated Frequency	50 / 60Hz
Rated Output Current	31.7A
Total Voltage Harmonic Distortion Rate (@ Linear Load)	<2%
Efficiency	
Maximum Efficiency	97.6%
European Efficiency/CEC Efficiency (North America)	97%
Basic Parameters	
Weight	Approximately 20kg
Dimension (W×D×H)	742×200×597mm
Operating Temperature	-25~60°C
IP Rating	IP65
Heat Dissipation Methods	Intelligent Air-cooled
External Communication	WIFI, Bluetooth, RS485, and CAN
Certification	
Safety Regulation	IEC-62109-1/-2,IEC-62477-1,IEC-61000-6-1/-3 (under certification)
Grid-connection	AS/NZS 4777.2:2020, EN50549-1:2019, G98:2021, G99:2021, VDE-AR-N 4105 (under certification)