CHINT
CHINT ELECTRIC
Empower the World

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CHINT
CHINT ELECTRIC

Residential Energy
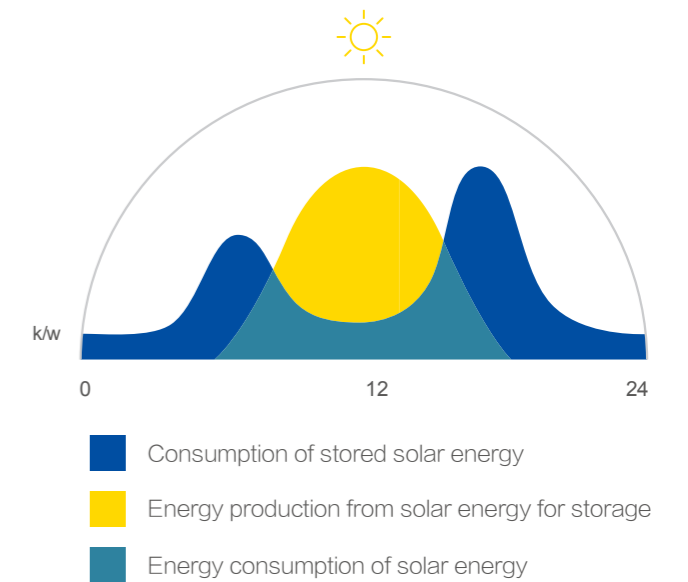Storage Solution

Residential Storage Solution

CHINT as Top 500 companies in China keeps working on energy solution. In order to response to fluctuation of solar policy and energy requirement, CHINT recommends to use storage solution.

The rechargeable battery systems store electricity from solar arrays or the electric grid during the day and make it available to your home in the evening.

- Peak Shaving/Peak-cut
- Self-consumption
- Uninterruptible Power System

This can be a great option for home owners to benefit from the gap between peak solar and peak demand, increase solar self-consumption, save electricity bill from the TOU charge and store electricity from the grid when electricity rates are low, also they can use as a backup during power outages.

k/w

0   12   24

■ Consumption of stored solar energy

■ Energy production from solar energy for storage

■ Energy consumption of solar energy

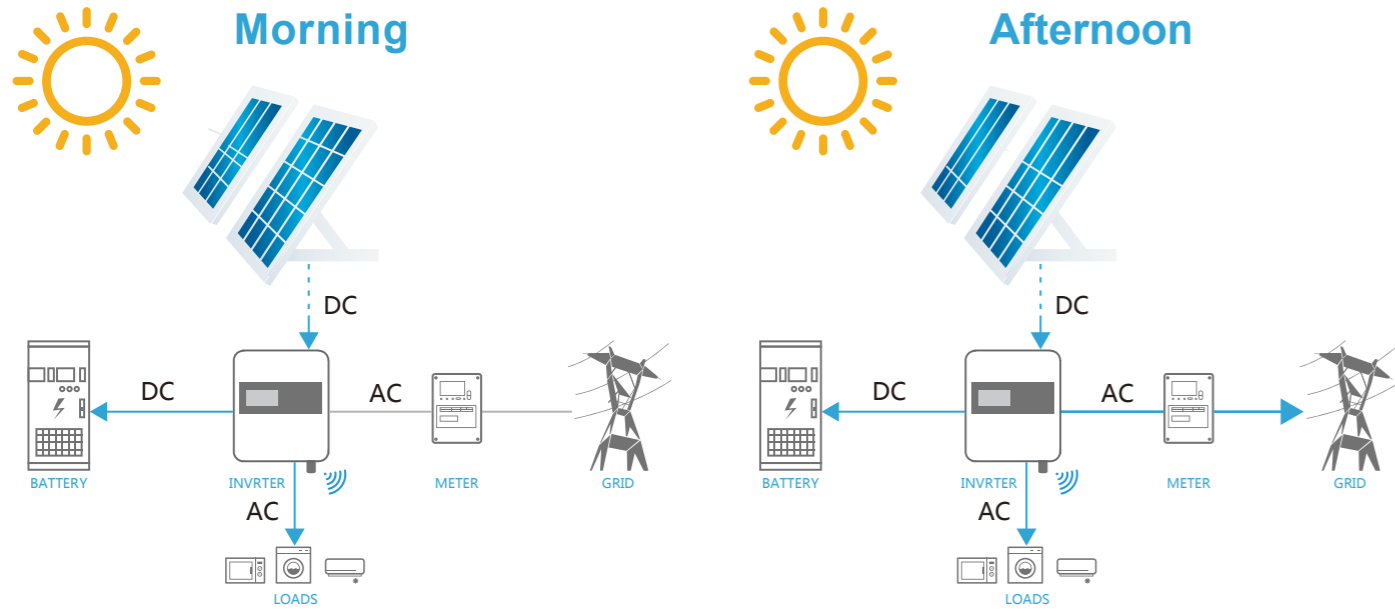## FEATURES —— Solve the power generation problem of PV inverter

- Hybrid storage: stock PV energy into batteries which can also be charged by grid to improve self-consumption.
- Peak shaving: batteries can supply power at peak time and be charged by grid when electricity is at a lower price.
- UPS power supply: when grid is fault or PV energy is insufficient, batteries can supply the energy.

System configuration with Chint RESS

DC

DC   AC

BATTERY   INVRTER   METER   GRID

AC

LOADS

Residential Energy Storage Solution
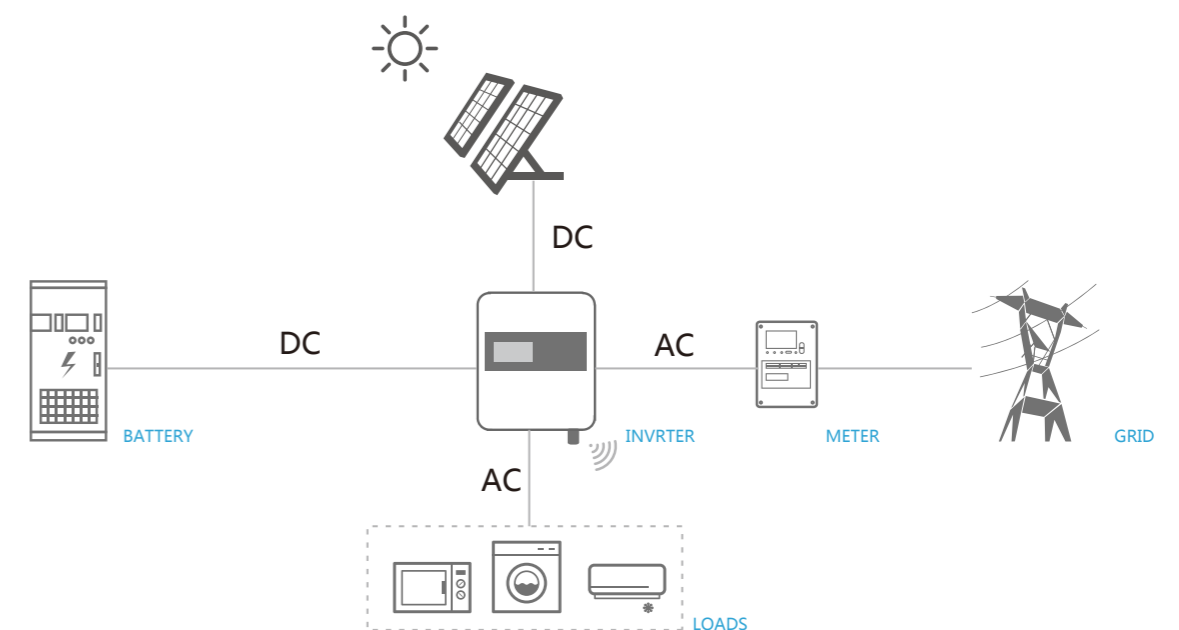
PEAK SHAVING

Suitable to the area whose peak and valley price vary widely

Morning

DC

BATTERY   DC   INVRTER   AC   METER   GRID

AC

LOADS

Energy from PV panels will be provided to AC load first. Then, the redundant energy will be used to charge batteries. If the sunlight is insufficient, supplement will come from grid. However, supplement will come from batteries whe electricity is at a higher price.

Afternoon

DC

BATTERY   DC   INVRTER   AC   METER   GRID

AC

LOADS

Surplus energy will be exported into the grid when batteries are fully charged and system self-consumption has been achieved.

Evening

DC

BATTERY   DC   INVRTER   AC   METER   GRID

AC

LOADS
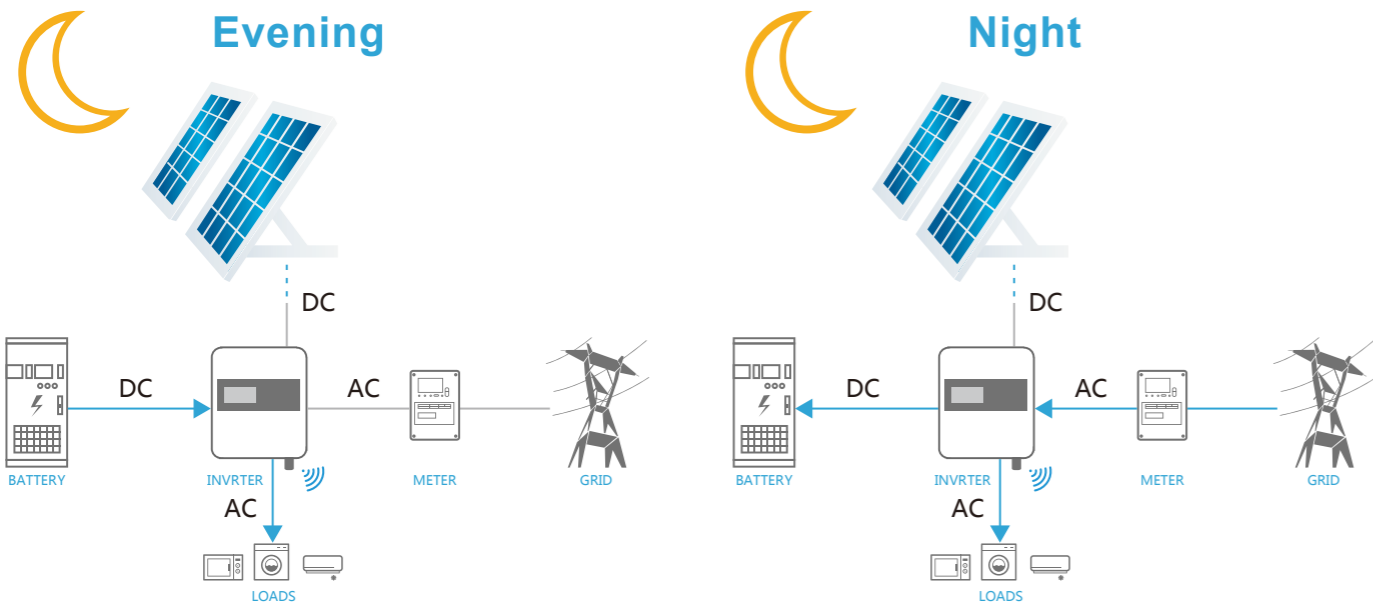
Batteries will power the AC load after sunset to avoid peak time.

Night

DC

BATTERY   DC   INVRTER   AC   METER   GRID

AC

LOADS

If the battery capacity is insufficient for self-use, electricity will be supplied from the grid. However, grid will power AC load and batteries when electricity is at a lower price.

Note: Power supplier priority − PV > grid > batteries
Power usage priority − AC Loads > batteries > grid

SELF-CONSUMPTION

Suitable to the area whose electricity price is quite expensive and feed-in tariff decreases sharply

Illumination intensity decrease

Load	☀	☀	☀	🔋	🔋	⚡
Batteries	☀	☀				
Grid	☀					
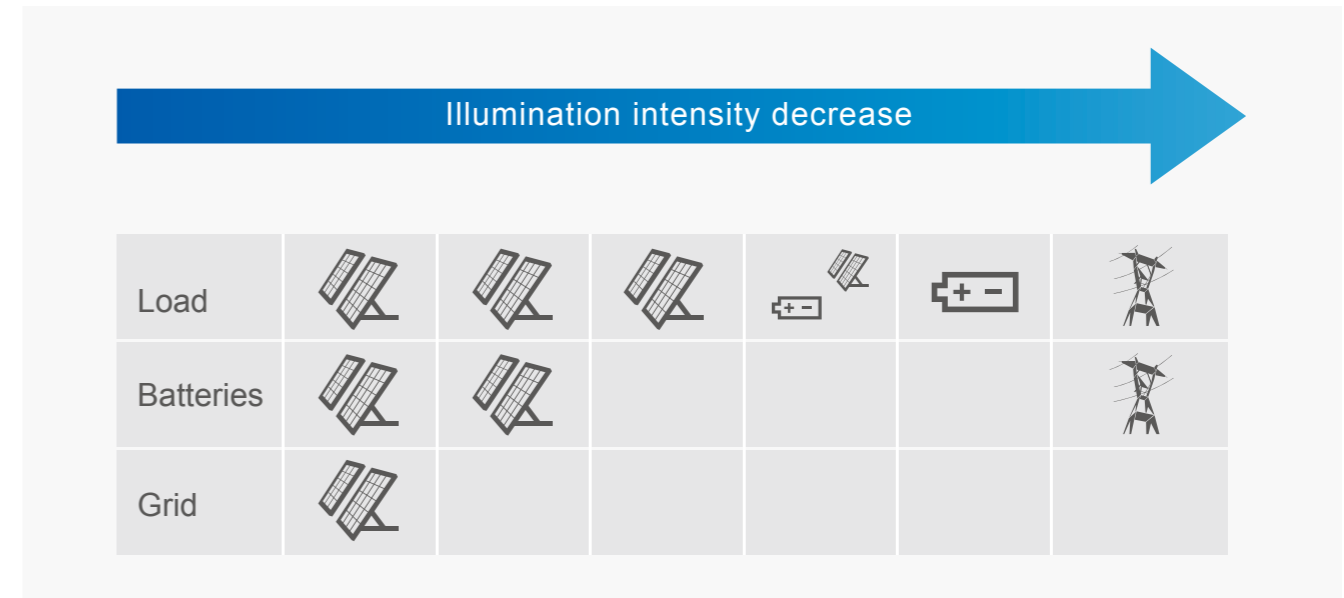
Note: Power supplier priority − PV > batteries > grid

UNSTABLE GRID

Suitable to the area whose electricity is lacking or grid is unstable

Illumination intensity decrease

Load	☀	☀	☀	☀	⚡	🔋	⚡	🔋
Batteries	☀	☀	☀	⚡	⚡			
Grid	☀							
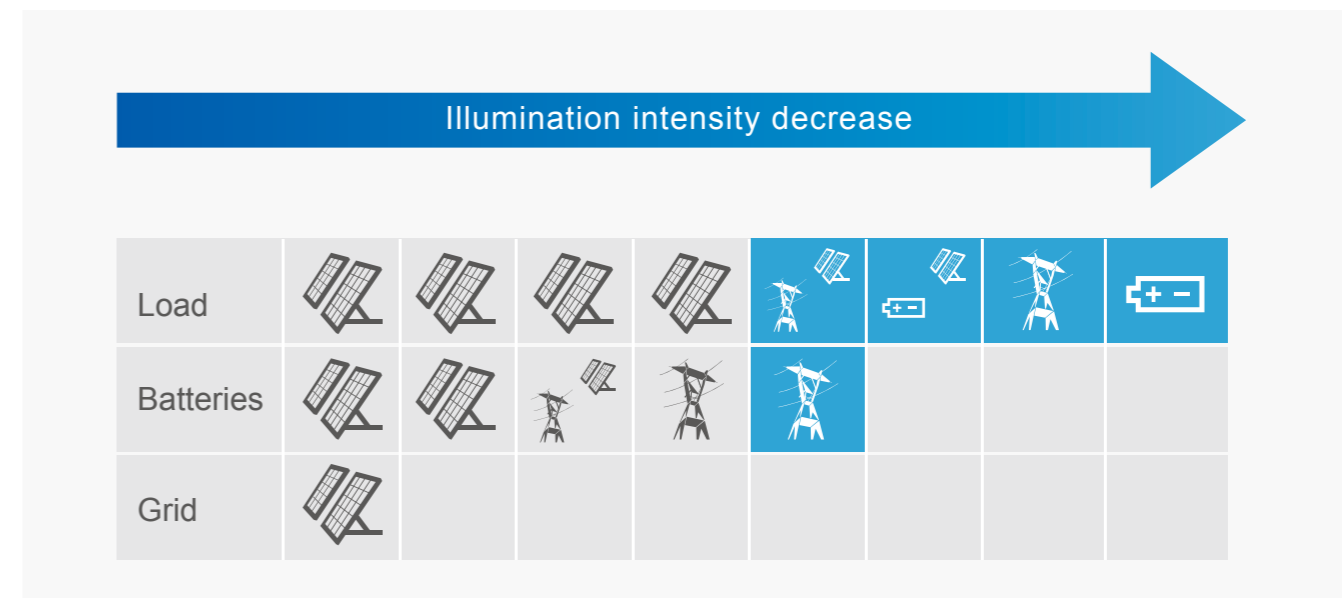
Note: Power supplier priority − PV > batteries > grid

If grid is stable, prefer to use grid power, otherwise prefer to batteries energy.

Self-Powered Home

The Chint residential ESS is an energy storage solution that utilizes high energy density lithium-ion battery technology, to store energy at a residential level for self-consumption of solar power generation and backup power for your home.

It system lightweight and consists of Chint lithium battery modules, battery management system (BMS) and battery thermal management system (BTMS) which designed to allow floor-stand installation and wall mounted installation at indoor application.

BMS

Power on/off

Plug

SOC indicator light

Li-ion Battery Module

（50*150*130mm）

Control Box

Feature

- Safe, reliable, rechargeable lithium ion battery with management system built in.
- 3.3/6.5/9.8kWh energy capacities optional for daily energy cycle applications.
- Battery capacity can be sized to meet individual needs for future expansion
- Compatible with most new PV installation or retrofit of existing PV system
- Solar self-consumption & Back Up power
- Floor-stand easy installation or wall mounted
- 10 years Warranty, 10 years lifespan design (90% DOD)

Residential ESS

Models	HESS 3.3	HESS 6.5	HESS 9.8
Total Energy [kWh]	3.3kWh	6.5kWh	9.8kWh
Usable Energy [kWh]	2.9kwh	5.9kWh	8.8kWh
Capacity [Ah]	63	126	189
Nominal Voltage [V]	51.8	51.8	51.8
Voltage Range [V]	42-58.8	42-58.8	42-58.8
Dimension [WxDxH, mm]	445×118×467	445×118×700	445×118×940
Weight [kg]	32	52	84
Enclosure Protection Rating	IP20		
Communication	CAN/RS485		
Ambient Temperature [℃]	-10-45		
Certificates — Cell	UL1642/IEC 62133		
Certificates — Product	UL1973/TUV(IEC62619)/CE		

Residential Storage Inverter

Technical Data	CPS ECH3K-G	CPS ECH3.6K-G	CPS ECH5K-G
Battery Input Data			
Battery Type[*1]	Li-Ion or Lead-acid	Li-Ion or Lead-acid	Li-Ion or Lead-acid
Nominal Battery Voltage (V)	48	48	48
Max. Charging Voltage (V)	≤ 60 (Confgurable)	≤ 60 (Confgurable)	≤ 60 (Confgurable)
Max. Charging Current (A)[*1]	50	50	50
Max. Discharging Current (A)[*1]	50	50	50
Battery Capacity (Ah)[*2]	50~2000	50~2000	50~2000
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	Self-adaption to BMS	Self-adaption to BMS
PV String Input Data			
Max. DC Input Power (W)	3900	4600	6500
Max. DC Input Voltage (V)[*3]	550	550	550
MPPT Range (V)	100~500	100~500	100~500
Start-up Voltage (V)[*4]	150	150	150
MPPT Range for Full Load (V)	280~500	170~500	230~500
Nominal DC Input Voltage (V)	360	360	360
Max. Input Current (A)	11	11/11	11/11
Max. Short Current (A)	13.8	13.8/13.8	13.8/13.8
No. of MPP Trackers	1	2	2
No. of Strings per MPP Tracker	1	1	1
AC Output Data (On-grid)			
Nominal Apparent Power Output to Utility Grid (VA)	3000	3680	5000[*5]
Max. Apparent Power Output to Utility Grid (VA)[*6]	3000	3680	5000
Max. Apparent Power from Utility Grid (VA)	5300	5300	5300
Nominal Output Voltage (V)	230	230	230
Nominal Output Frequency (Hz)	50/60	50/60	50/60
Max. AC Current Output to Utility Grid (A)	13.6	16	22.8[*7]
Max. AC Current From Utility Grid (A)	23.6	23.6	23.6
Output Power Factor	~1(Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)	<3%	<3%	<3%
AC Output Data (Back-up)			
Max. Output Apparent Power (VA)	2300	2300	2300
Peak Output Apparent Power (VA)[*8]	3500, 10sec	3500, 10sec	3500, 10sec
Automatic Switch Time (ms)	10	10	10
Max. Output Current (A)	10	10	10
Nominal Output Voltage (V)	230 (± 2%)	230 (± 2%)	230 (± 2%)
Nominal Output Frequency (Hz)	50/60 (± 0.2%)	50/60 (± 0.2%)	50/60 (± 0.2%)
Output THDv (@Linear Load)	<3%	<3%	<3%
Efciency			
Max. Efciency	97.60%	97.60%	97.60%
Max. Battery to Load Efciency	94.50%	94.50%	94.50%
Euro Efciency	97.00%	97.00%	97.00%
Protection			
Anti-islanding Protection		Integrated	
PV String Input Reverse Polarity Protection		Integrated	
Insulation Resistor Detection		Integrated	
Residual Current Monitoring Unit		Integrated	
Output Over Current Protection		Integrated	
Output Short Protection		Integrated	
Output Over Voltage Protection		Integrated	
General Data			
Operating Temperature Range (°C)	-25~60	-25~60	-25~60
Relative Humidity	0~95%	0~95%	0~95%
Operating Altitude (m)	≤ 4000	≤ 4000	≤ 4000
Cooling	Natural Convection		
Noise (dB)	<25	<25	<25
User Interface	LED & APP	LED & APP	LED & APP
Communication with BMS[*9]	RS485; CAN	RS485; CAN	RS485; CAN
Communication with Meter	RS485	RS485	RS485
Communicaiton with Portal	Wi-Fi	Wi-Fi	Wi-Fi
Weight (kg)	16	17	17
Size (Width*Height*Depth mm)	347*432*175	347*432*175	347*432*175
Mounting	Wall Bracket	Wall Bracket	Wall Bracket
Protection Degree	IP65	IP65	IP65
Standby Self Consumption (W)	<13	<13	<13
Topology	High Frequency Isolation		
Certifcations & Standards			
Grid Regulation	AS/NZS 4777.2:2015, G83/2, G100, CEI 0-21, VDE4105-AR-N, VDE0126-1-1, NRS 097-2-1, RD1699, UNE206006, EN50438		
Safety Regulation	IEC/EN62109-1&-2, IEC62040-1		
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4, EN 61000-4-16 EN 61000-4-18, EN 61000-4-29		

*1: Lead-acid battery use refers to Approved Battery Options Statement .The actual charge and discharge current also depends on the battery.
*2: Under off-grid mode, then battery capacity should be more than 100Ah.*3: Maximum operating dc voltage is 530V.
*4: When there is no battery connected, inverter starts feeding in only if string voltage is higher than 200V.
*5: 4600 for VDE0126-1-1&VDE-AR-N4105 & CEI 0-21(GW5048-EM).
*6: For CEI 0-21 GW3048-EM is 3300, GW3648-EM is 4050, GW5048-EM is 5100; for VDE-AR-N4105 GW5048-EM is 4600.
*7: 21.7A for AS4777.2.*8: Can be reached only if PV and battery power is enough.*9: The standard configuration is CAN.

Smart & efficiency

- Integrated photovoltaic storage management system;
- Can be used for both off-grid and on-grid modes;
- Can control bi-directional flow of electricity;
- The efficiency of battery charging/discharging reaches 94.5%

Easy operation

- Automatic switch time is shorter than 8ms;
- Integrate ability to switch working state automatically and manually;
- Wireless communication, can realize local/remote monitoring via computer and mobile phone

Safe & reliability

- IP65 high ingress protection, applicable to outdoor installation;
- Battery and PV、Grid high-frequency isolation;
- Lighter than other storage inverters on the market;

Residential Storage Inverter (AC-coupling)

Technical Data	CPS ECH3.6K-GB	CPS ECH5K-GB
Battery Input Data		
Battery Type	Li-Ion or Lead-acid	Li-Ion or Lead-acid
Nominal Battery Voltage (V)	48	48
Max. Charging Voltage (V)	≤ 60 (Confgurable)	≤ 60 (Confgurable)
Max. Charging Current (A)[*1]	75	100
Max. Discharging Current (A)[*1]	75	100
Battery Capacity (Ah)[*2]	50~2000	50~2000
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	Self-adaption to BMS
AC Output Data (On-grid)		
Nominal Power Output to Utility Grid (W)	3680	5000[*3]
Max. Apparent Power Output to Utility Grid (VA)[*4]	3680	5000
Max. Apparent Power from Utility Grid (VA)	7360	9200
Nominal Output Voltage (V)	230	230
Nominal Ouput Frequency (Hz)	50/60	50/60
Max. AC Current Output to Utility Grid (A)	16	22.8[*5]
Max. AC Current From Utility Grid (A)	32	40
Output Power Factor	~1(Adjustable from 0.8 leading to 0.8 lagging)	
Output THDi (@Nominal Output)	<3%	<3%
AC Output Data (Back-up)		
Max. Output Apparent Power (VA)[*6]	3680	5000
Peak Output Apparent Power (VA)[*6]	4416, 10sec	55001, 0sec
Automatic Switch Time (ms)	<10	<10
Nominal Output Voltage (V)	230 (± 2%)	230 (± 2%)
Nominal Output Frequency (Hz)	50/60 (± 0.2%)	50/60 (± 0.2%)
Max. Output Current (A)	16	22.8
Output THDv (@Linear Load)	<3%	<3%
Efciency		
Max. Efciency	95.50%	
Protection		
Anti-islanding Protection	Integrated	
Output Over Current Protection	Integrated	
Output Short Protection	Integrated	
Output Over Voltage Protection	Integrated	
General Data		
Operating Temperature Range (° C)	-25~60	
Relative Humidity	0~95%	
Operating Altitude (m)	≤ 4000	
Cooling Natural	Convection	
Noise (dB)	<25	
User Interface	LED & APP	
Communicaiton with BMS	RS485; CAN	
Communicaiton with Meter	RS485	
Communicaiton with Portal	Wi-Fi	
Weight (kg)	18.5	
Size (Width*Height*Depth mm)	347*432*190	
Mounting	Wall Bracket	
Protection Degree	IP65	
Standby Self Consumption (W)	<15	
Topology	High Frequency Isolation	
Certifcations & Standards		
Grid Regulation	AS/NZS 4777.2:2015, G83/2, G100, CEI0-21; RD1699; UNE206006; VDE4105-AR-N; VDE0126-1-1; EN50438	
Safety Regulation	IEC62477-1, IEC62040-1	
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-4-16 EN 61000-4-18, EN 61000-4-29	

*1: lead acid battery use refers to battery compatible statement（Not all lead acid batteries are compatible）
The actual charge and discharge current also depends on the battery
*2: Battery capacity could be not less than 100Ah where the back-up function is to be applied.
*3: 4600 for VDE0126-1-1&VDE-AR-N 4105 and CEI 0-21
*4: For CEI 0-21 GW3600S-BP is 4050，GW5000S-BP is 5100; for VDE-AR-N4105 GW5000S-BP is 4600
*5: 21.7A for AS4777.2
*6: Can be reached only if battery capacity is enough, otherwise will shut down.
*7: The standard configuration is CAN

Smart & efficiency

- Can be compatible with any single-phase PV inverter;
- Integrated Peak load clipping function, UPS function;
- Off-grid THDv is better than 3%, can connect to inductive load;
- Both off-grid and on-grid two outputs

Easy operation

- Automatic switch time is shorter than 10ms;
- Wireless communication, can realize local/remote monitoring via computer and mobile phone;
- Smart Meter can be used for single-phase or three-phase detection

Safe & reliability

- IP65 high ingress protection, applicable to outdoor installation;
- Battery and AC electric isolation;
- Fanless squelch design

Your Partner for Energy Storage

Production from ONE SOURCE

For a production company, innovation means modern machine facility and rational production. The ChintESS has built fully integrated and automatic production line from battery cell to battery pack with 200MWH annual production capacity.
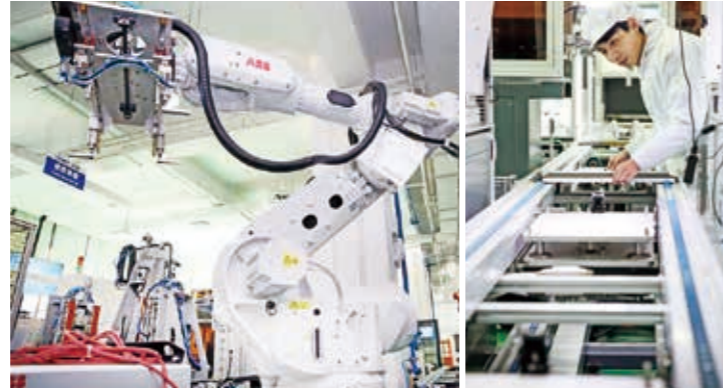
We Care about Safety

There is no compromise on safety. Starting with constant material tests, onto production and delivery, and ending with integrated safety electronics and safe operation, our energy storage systems provide safety and reliability thanks to the smart concept of cell chemistry and intelligent energy and battery management systems.

With the years experience in battery storage section and the 30+years whole electronic and renew-able industry chain of Chint group, our products have spread to more than 100 countries globally through our distribution network which intended to be expanded on ESS products. Contact one of Chint ESS sales manager for more information.