SINERGY

Inverter module: CEC-S 5K
Battery pack: CEC-S B 5K

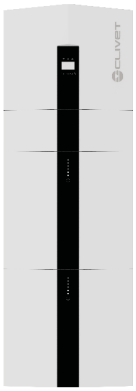
NEW PRODUCT

Electric storage system

Sinergy 51.05

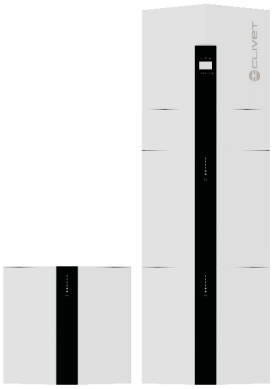
5 kWh =
1 inverter module
1 5 kWh battery pack

Sinergy 51.10



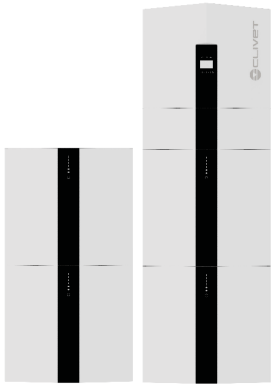
10 kWh =
1 inverter module
2 5 kWh battery packs

Sinergy 51.15



15 kWh =
1 inverter module
3 5 kWh battery packs

Sinergy 51.20



20 kWh =
1 inverter module
4 5 kWh battery packs

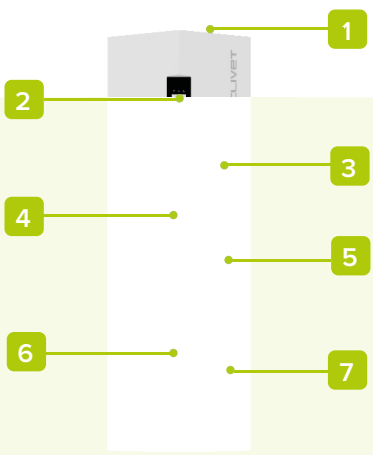
- ✓ 5 kW single-phase 230Vac hybrid inverter
- ✓ Modular system with up to 4 storage tanks for capacities of 5/10/15/20 kWh
- ✓ Dual MPPT input for 6.2 kW photovoltaic system
- ✓ On-grid function and integrated 5 kW back-up output for connecting loads in the event of a power failure
- ✓ «Anti-islanding» protection system
- ✓ 10,000 charging / discharging cycles
- ✓ Extended operating range from -25 °C to +60 °C
- ✓ IP65 protection rating

self-consumption optimisation

The SINERGY storage system is Clivet's solution for storing the electricity produced by the photovoltaic system during daylight hours and using it to power the air-conditioning and domestic hot water production system during the night or in the event of a grid power failure. Combined with the CONTROL4 NRG energy assistant, the SINERGY series of electric accumulators ensures maximum self-consumption and energy independence in the home.

SINERGY is suitable for both new and existing installations. Thanks to the high degree of protection and operating range, SINERGY can be installed outdoors.

The special construction technology of the lithium iron-phosphate cell batteries provides a system life of up to 10,000 charging and discharging cycles.



1. 5 kW Hybrid inverter including 2 6.2 kW MPPT inputs
2. Display
3. Cable entry for connection to the system
4. Battery pack charge level indicator
5. 5 kWh battery pack including BMS (battery management system)
6. Battery pack charge level indicator
7. 5 kWh battery pack including BMS (battery management system)

Operating mode

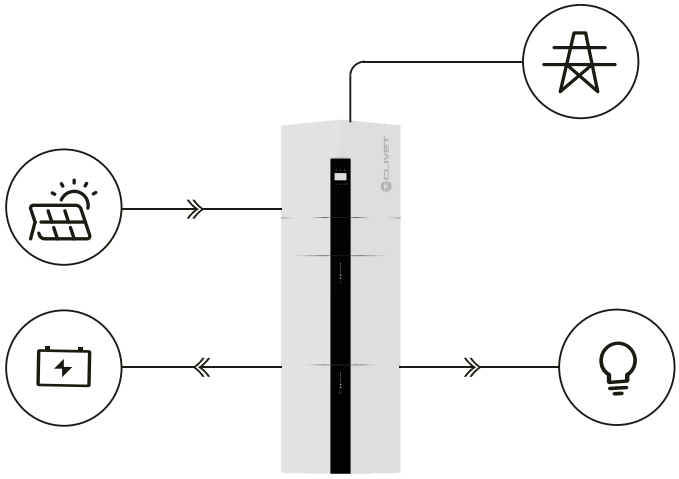
Self-consumption

The energy generated by the solar panels will be used in the following order:

1. to supply domestic loads
2. to charge the battery
3. Charging via grid again

When there is no sun, the battery will support the load to improve self-consumption.

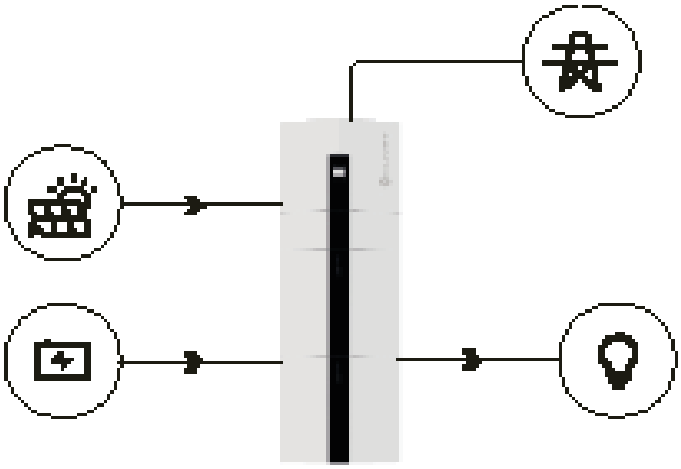
If the power supply from the batteries is not enough, the grid will supply the load demand.



Battery charging priority

In this mode, the battery is only used as a backup power supply when the grid fails, and as long as the grid works, the batteries will not be used to supply the loads.

The battery will be charged with the energy generated by the photovoltaic system or by the grid.



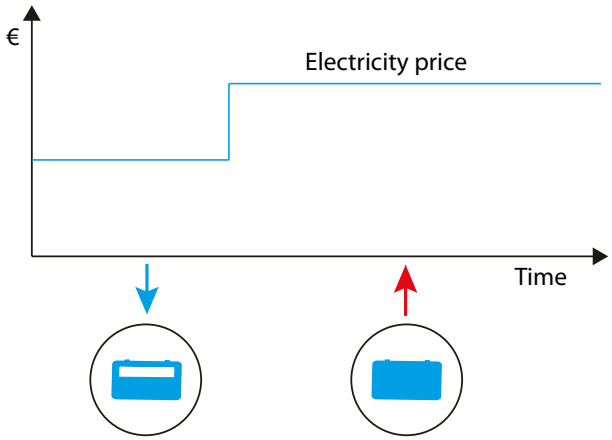
Recharging using a time slot

This mode is used to activate the timed charge and discharge functions.

Used to charge the battery from the grid in the absence of a photovoltaic system.

Two (2) charge and discharge time slots (adjacent)
time slot 1 – charge and discharge
time slot 2 – charge and discharge

Example:
fascia 1 – 8.00..12.00 (charge) and 12.00..16.00 (discharge)
fascia 2 – 16.00..24.00 (charge) and 00.00..8.00 (discharge)



BATTERY PACK Technical Characteristics

Physical

Battery type	LFP (LiFeO4)
Weight	54 kg
Dimensions W x H x D	540 x 490 x 255 mm
IP protection	IP65
Warranty	10 years

Operation

Maximum charge/discharge power	50A/80A
Rated DC Power	4.096 W
Maximum charge/discharge power	2.825 W / 4.096 W
Operating temperature range	0..50°C charging
Operating temperature range	'-10..50°C discharging
Humidity	0°C ~ 95% (non condensante)

Electrical Data

Energy capacity	5,12 kWh
Usable capacity	4,6 kWh
Depth of discharge (DoD)	0,9
Nominal Voltage	51,2 V
DC Circuit Breakers	125A
Operating Voltage Range	44,8 - 56,6 V
Internal Resistance	<20mΩ
Cycle life (charge/discharge)	10.000 cycles

BMS

Modules connection	Up to 4 modules
Capacity	100-400 Ah
Power consumption	<2 W

Safety (cells)
Pack: IEC/EN 62619;UN38.3
Cell: IEC/EN 62619;UN38.3;UL1973

INVERTER Technical Characteristics

PV String Input

Max. DC Voltage	580V
Nominal Voltage	400V
MPPT Voltage Range	80V-560V
Start Voltage	130V
MPPT string inputs	2
Strings Per MPP Tracker	1
Max. Input Current Per MPPT	15A
Max. Short-circuit Current Per MPPT	18A

AC Output (Grid)

Nominal AC Output Power	4.999 W
Max. AC Apparent P ower	7.360VA (from grid)
Max. AC Output Power	5'000 W (1)
Nominal AC Voltage	230Vac
AC Grid Frequency Range	50/60 Hz ±5 Hz
Max. Output Current	22A (2)
Max. Input Current	22A (2)
Power Factor (cosΦ)	0.8 leading - 0.8 lagging
THDi	< 3%

Battery Input

Battery type	LFP (LiFePO4)
Nominal Battery Voltage	48V
Max. Charging Voltage Range	40-60V
Max. Charging Current	100A
Max. Discharging Current	100A
Battery Capacity	100-400 Ah

AC Output (Backup)

Max. Output Apparent Power	5.000 VA
Peak Output Apparent Power	6.900 VA 10sec
Max. Output Current	20A
Nominal Output Voltage	230V
Nominal Output Frequency	50/60 Hz
Output THDv (@Linear Load)	<3% (Linear Load)

Efficiency

Max. PV Efficiency	97,0%

Protection

DC Switch	Bipolar DC Switch (125A/Pole)
Anti-islanding Prote ction	YES
Output Over Current	YES
DC Reverse Polarity Protection	YES
String Fault Detection	YES
AC/DC Surge Protection	DC type II; AC type III
Insulation Detection	YES
AC Short Circuit Protection	YES

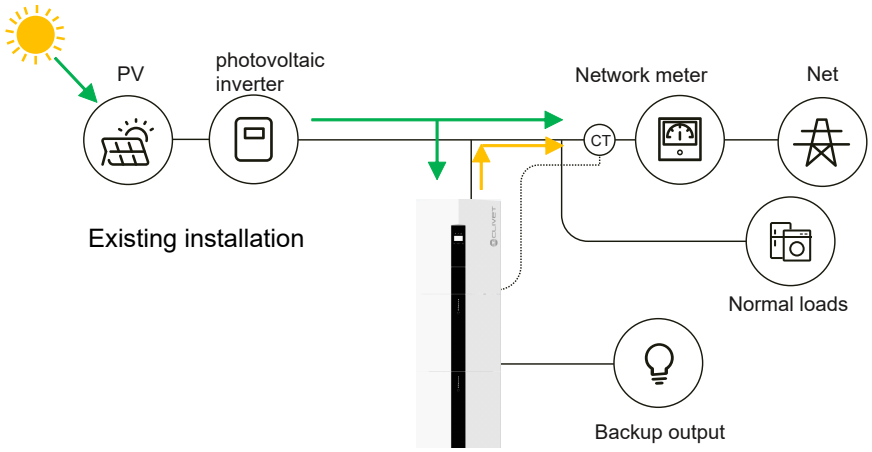
General Specifications

Dimensions W x H x D	540 x 590 x 255 mm
Weight	32 kg
Operating Temperature Range	-25°C ~ +60°C
Humidity	0°C ~ 95% (non condensing)
Noise (dB)	<25
Cooling Type	Natural convection
Max. Operation Altitude	2.000 m
IP Class	IP65
Communication	RS485
Display	LCD

Certification & Standard
IEC/EN 62109-1&2;IEC/EN61000-6-1;IEC/EN61000-6-2;EN61000-6-3; IEC/EN61000-6-4;IEC/EN61000-3-11;
EN61000-3-12;IEC60529;IEC 60068;IEC61683;IEC62116;IEC61727;EN50549-1;
AS 4777.2;NRS 097;VDE-AR-N-4105;CEI0-21;G98;G99;C10/C11
NOTE
1. Nominal AC output power is 4999W for Australia and 4600W for Germany and South Africa
2. Maximum output current is 21.7A for Australia and 20A for Germany and South Africa

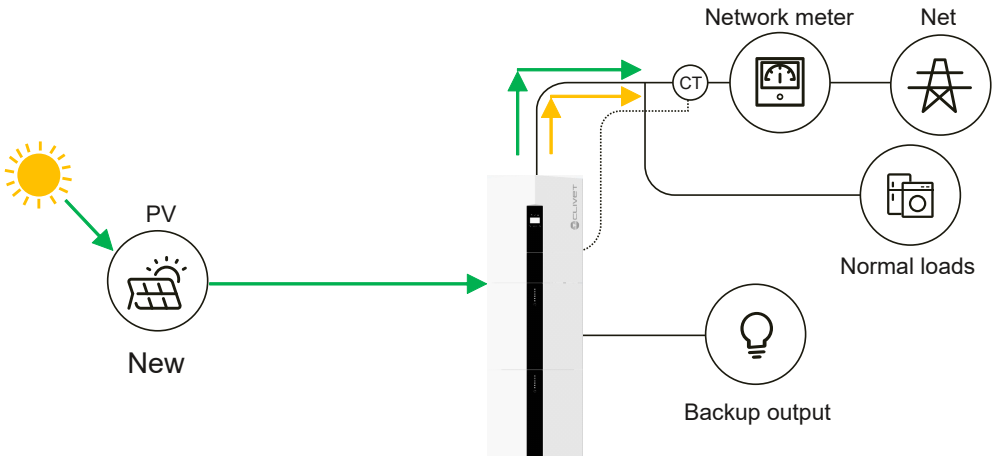
Existing system

Connection to an existing system is made without replacing existing inverters and photovoltaic panels.
The SINERGY system automatically stores the energy produced by the panels when it is not used by users connected to the grid.
The photovoltaic inverter inputs are not used in this case.
Installation is direct to the home network without additional wiring and/or connections.



New system

In new installations, the photovoltaic system strings can be connected directly to the two direct current inputs in Clivet's SINERGY inverter.
The inverter has 2 string inputs for a total of 6.2kW.
This configuration keeps the photovoltaic inverter costs low.



full installation

SINERGY makes it possible to extend the photovoltaic range and have more installed power.
In this type of installation, the new photovoltaic system can be installed without changing the existing system.
The inverter has 2 string inputs for a total of 6.2kW.
Newly installed panels can be connected directly to the two direct current inputs in Clivet's SINERGY inverter.