Karnot Energy Solutions Inc

karnot
LOW CARBON HEAT PUMPS
AIR | WATER | STEAM | CO2

iVOLT SOLAR
SOLAR + BATTERY ENERGY SYSTEMS

PANELS | HYBRID INVERTERS | LiFePO4 BATTERIES | MOUNTING & INSTALLATION

RoHS CE IEC EN 61215 EN 61730 UN38.3

ENGINEERED FOR PHILIPPINE ROOFTOPS

Karnot Energy Solutions Inc. — solar, storage and heat pumps, designed, installed and serviced from Pangasinan.

Karnot Energy Solutions Inc. is a Philippine clean-energy engineering company, SEC-registered in 2025 and based in Mapandan, Pangasinan. iVOLT is our solar line: N-type panels, hybrid inverters and LiFePO4 batteries, sized from your own electricity bill and installed by Karnot engineers to the Philippine Electrical Code.

Every iVOLT system is zero-export. Nothing is pushed to the grid, so there is no net-metering paperwork, no utility application and no waiting. The system serves your own loads first, stores the excess in the battery, and the grid simply tops up what is left.
Brownout? The battery keeps the essentials running.

01 Panels harvest
the Philippine sun — among the best solar resources in Asia.

02 Hybrid inverter
feeds your loads first, all day.

03 Battery stores
the surplus for the evening and for brownouts.

04 Grid tops up
only what is left. Nothing is exported.

Sized from your bill
We size the array and battery from your actual monthly kWh — not a guess. Rightsized systems pay back.

Installed and serviced
Karnot engineers design, install and commission to the Philippine Electrical Code, and answer the phone afterwards.

One supplier
Panels, inverter, battery, mounting and protection — one system, one warranty, one number to call.

Karnot's planned Philippine facility, Mapandan, Pangasinan.

ENERGY INDEPENDENCE KITS

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Complete, installed systems at a fixed price. The figures below are what each kit takes off a typical electricity bill — bank financing is available, and in most homes the saving covers the repayment.

HOME

Starter 3 kW

3 kW array · hybrid inverter · 5.12 kWh LiFePO4 · installed

cuts your bill ≈ ₱4,300/month*

₱205,000 installed

MOST POPULAR

Core 5 kW

5 kW array · hybrid inverter · 5.12 kWh LiFePO4 · installed

cuts your bill ≈ ₱7,200/month*

₱278,000 installed

HOME / SMALL BUSINESS

Core 10 kW

10 kW array · hybrid inverter · 10.24 kWh LiFePO4 · installed

cuts your bill ≈ ₱14,500/month*

₱480,000 installed

*Typical Luzon yield of 4.2 kWh per kWp per day, fully self-consumed at ₱11.50/kWh. Your roof and your bill decide the real figure — we size from both. Prices include installation within Luzon and exclude VAT.

Solar + heat pump kits — for businesses that heat water, the two together beat either one alone.

COMMERCIAL

AquaHERO Hot Water Kit

· 4.96 kW array · hybrid (zero-export)
· AquaHERO 288 L R290 water heater
· battery optional

saves up to ₱32,000/month*

at full output — ≈1,750 L/day of hot water vs a 95%-efficient electric heater at ₱13/kWh

COMMERCIAL

iHEAT Kit 9.5 kW

6.2 kW array · hybrid · iHEAT 9.5 kW R290 heat pump · battery optional

saves ≈ ₱11,000/month*

solar share, 22-hour operation

COMMERCIAL

iHEAT Kits 11.5–18.5 kW

7.4–12.4 kW arrays · hybrid · iHEAT R290 heat pump · battery optional

saves ≈ ₱13,200 - ₱22,000/month*

solar share, 22-hour operation

Every kit includes:

- Structural mounting for your roof type • DC and AC protection (breakers, spd, isolators)
- UV-resistant cabling and conduit • Earthing and bonding
- PEC-compliant installation, testing and commissioning by Karnot Engineers
- Monitoring app • Workmanship warranty.

iVOLT PV MODULES

N-type bifacial dual-glass modules — the current standard for hot, humid climates: lower degradation than older P-type panels, power from both faces, and a glass back that shrugs off Philippine rain and salt air.

N-type cells

Higher efficiency and roughly half the first-year degradation of P-type. More kWh per square metre of roof, for longer.

Bifacial dual-glass

Generates from both faces — worth extra yield over light roofs — and the glass-glass laminate carries a 30-year structural life.

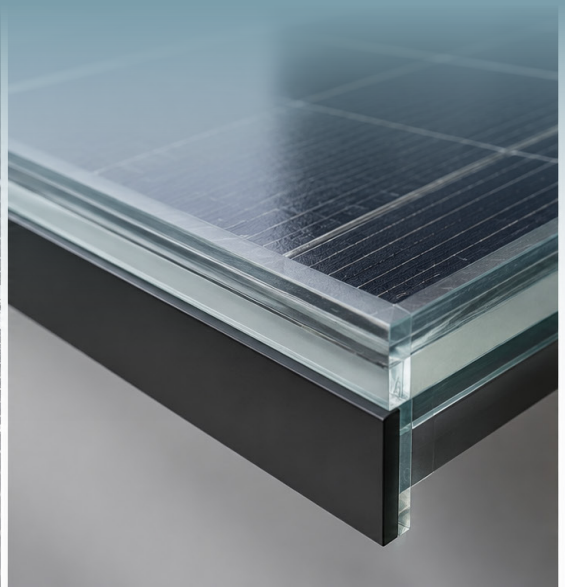
Typhoon-rated mounting

Always installed on engineered rail or clip systems rated for Philippine wind zones (page 7).

SPECIFICATIONS

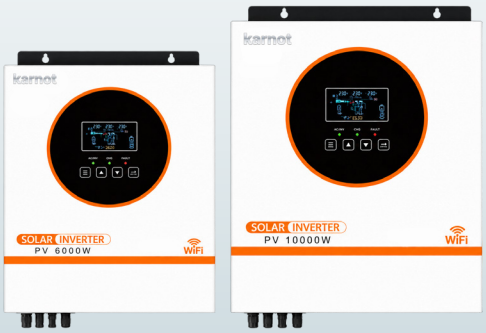
Model	Rated power	Cell type	Efficiency	Voc	Vmp	Imp	Dimensions	Weight	Power warranty
Karnot PV 550	550 W	N-type bifacial dual-glass	21.29%	50.27 V	41.58 V	13.23 A	2278×1134×30 mm	32.0 kg	30 yr
Karnot PV 620	620 W	N-type bifacial dual-glass	22.95%	49.08 V	40.74 V	15.22 A	2382×1134×30 mm	32.4 kg	30 yr
Karnot PV 650	650 W	N-type bifacial dual-glass	24.06%	50.26 V	42.57 V	15.27 A	2382×1134×30 mm	32.5 kg	30 yr
Karnot PV 725	725 W	N-type bifacial dual-glass	23.34%	49.20 V	41.00 V	17.69 A	2384×1303×33 mm	37.5 kg	30 yr

All modules IEC 61215 / IEC 61730 certified; bifacial modules carry a 30-year linear power warranty.



iVOLT HYBRID INVERTERS

One machine runs the whole system: MPPT solar input, battery charging, grid top-up & brownout backup — configured zero-export as standard. Residential single-phase from 1.6 kW to 12 kW; commercial three-phase from 8 kW to 1 MW.



RESIDENTIAL — SINGLE-PHASE, 230 V

Model	AC output	Max PV input	Max PV voltage	MPPTs
Karnot Hybrid 1.6	1.6 kW	2.0 kW	450 V	1
Karnot Hybrid 3.2	3.2 kW	3.5 kW	450 V	1
Karnot Hybrid 4.0	4.0 kW	4.5 kW	450 V	1
Karnot Hybrid 4.5	4.5 kW	5.0 kW	450 V	1
Karnot Hybrid 6.0	6.0 kW	7.0–7.8 kW	450–500 V	1–2
Karnot Hybrid 8.0	8.0 kW	10.4 kW	500 V	2
Karnot Hybrid 10	10 kW	13 kW	500 V	2
Karnot Hybrid 11	11 kW	14 kW	500 V	2
Karnot Hybrid 12	12 kW	15.6 kW	500 V	2

COMMERCIAL — THREE-PHASE, 380–400 V

Model	AC output	Max PV input	Max PV voltage	MPPTs
Karnot Hybrid 8T / 10T / 12T	8 / 10 / 12 kW	10.4–15.6 kW	500 V	2
Karnot Commercial 15T / 20T / 30T	15 / 20 / 30 kW	19.5–39 kW	800–1000 V	2–3
Karnot Commercial 50T / 75T / 100T	50 / 75 / 100 kW	65–130 kW	1000 V	4–6
Karnot Commercial 125T – 1MW	125–1000 kW	163–1300 kW	1100 V	8–40

Zero-export as standard

CT clamps meter the incomer; the inverter throttles so nothing flows to the grid. No net-metering paperwork.

Brownout backup

Seamless switch to battery for the essentials — lights, fridge, Wi-Fi, tills — when the grid drops.

App monitoring

Generation, consumption and battery state on your phone; Karnot Engineers see faults before you do.

iVOLT LiFePO4 BATTERIES

Lithium iron phosphate — the safe lithium chemistry: no cobalt, stable to well beyond Philippine ambient temperatures, and 6,000 cycles at 90% depth of discharge. Wall-mounted for homes; stacking racks for commercial banks.

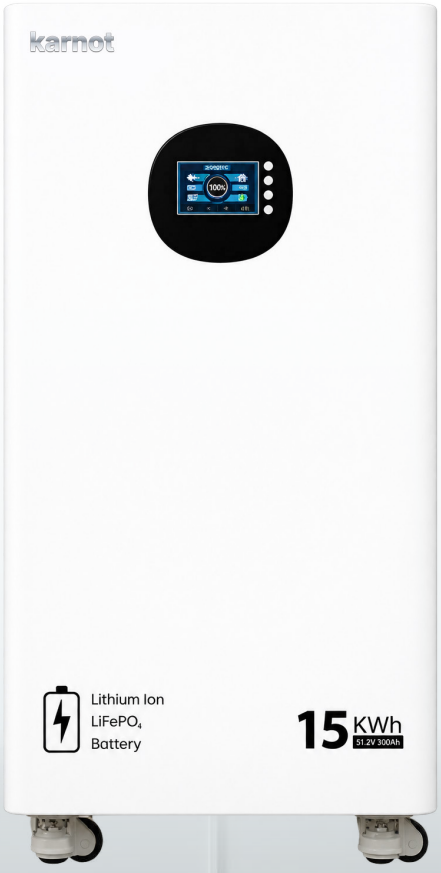
WALL-MOUNTED — HOMES & SMALL BUSINESS

Model	Capacity	Voltage	Max discharge	Depth of discharge	Cycle life
Karnot Wall 2.5	2.56 kWh	25.6 V	2.5 kW	90%	6,000
Karnot Wall 5	5.12 kWh	51.2 V	5 kW	90%	6,000
Karnot Wall 7L	7.17 kWh	25.6 V	7 kW	90%	6,000
Karnot Wall 7.5	7.68 kWh	51.2 V	7 kW	90%	6,000
Karnot Wall 10	10.24 kWh	51.2 V	8 kW	90%	6,000
Karnot Wall 16	16.08 kWh	51.2 V	[TBC]	90%	6,000

RACK — COMMERCIAL

Model	Capacity	Voltage	Max discharge	Depth of discharge	Cycle life
Karnot Rack 16	16.08 kWh	51.2 V	12 kW	90%	6,000
Karnot Rack 20	20.48 kWh	51.2 V	15 kW	90%	6,000
Karnot Rack 32	32.15 kWh	51.2 V	[TBC]	90%	6,000

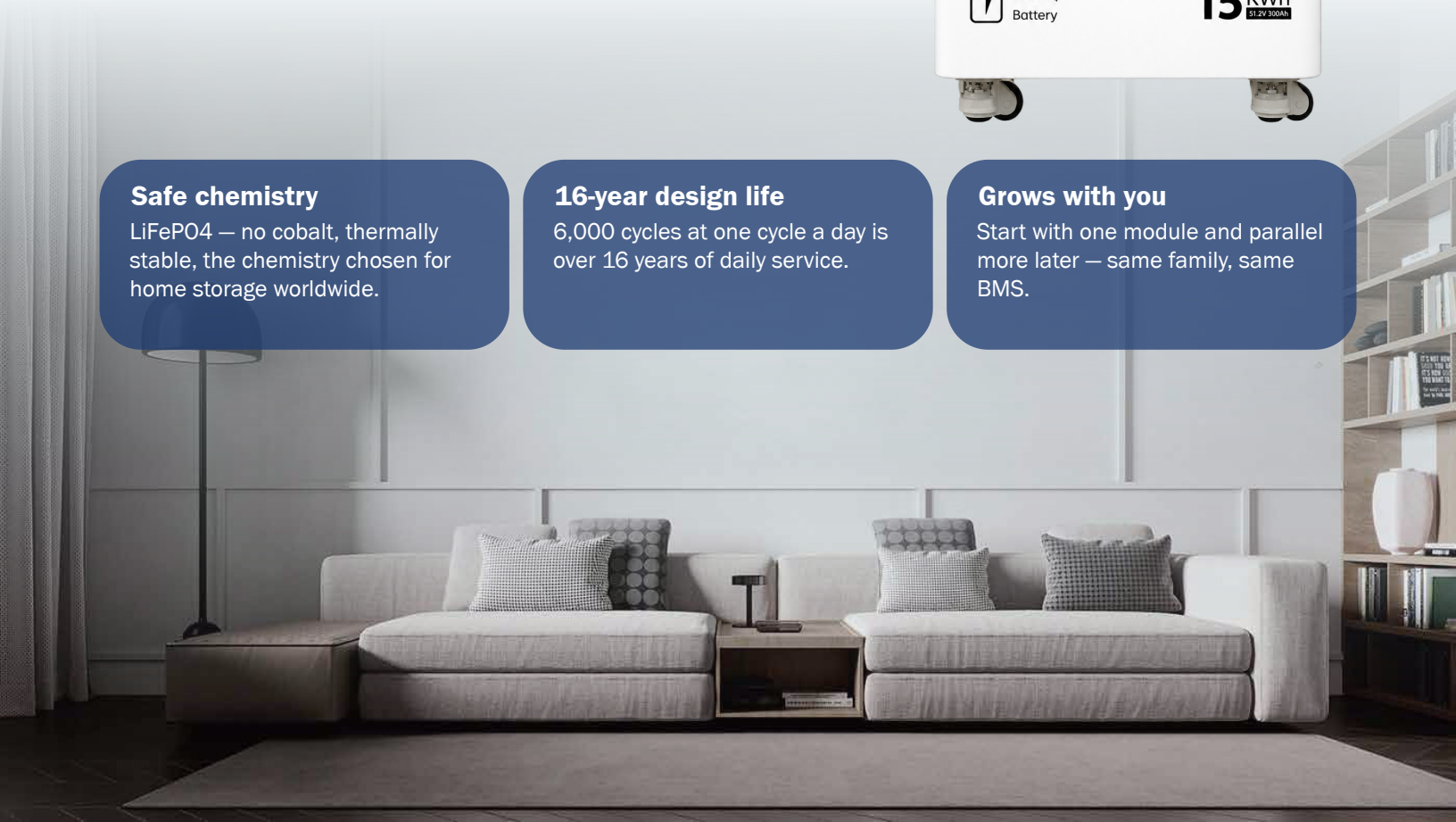
Racks parallel into banks for larger stores of energy. BMS with cell balancing, over/under-voltage, over-current and temperature protection built in.



Safe chemistry
LiFePO4 — no cobalt, thermally stable, the chemistry chosen for home storage worldwide.

16-year design life
6,000 cycles at one cycle a day is over 16 years of daily service.

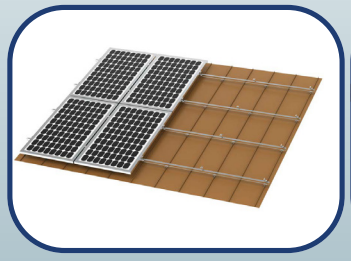
Grows with you
Start with one module and parallel more later — same family, same BMS.



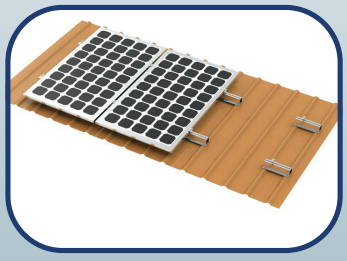
MOUNTING & INSTALLATION

Panels are only as good as what holds them down. Karnot uses engineered aluminium and hot-dip galvanised steel mounting systems selected for the roof and for Philippine wind zones — and installs everything to the Philippine Electrical Code.

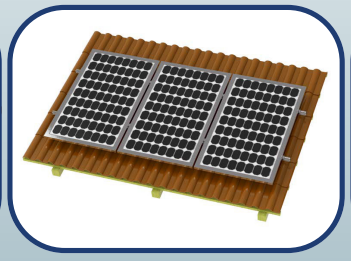
MOUNTING SYSTEMS — ONE FOR EVERY ROOF



Tin roof — cliplock, no roof penetration



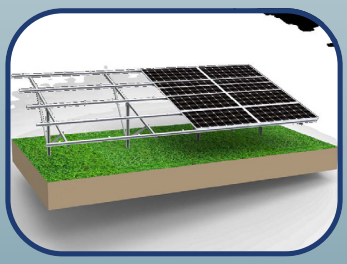
Metal roof — L-foot and rail



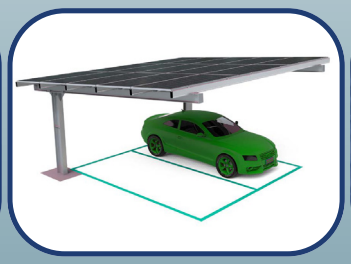
Tile roof — stainless hooks

Flat concrete roof — ballast, no drilling

Ground mount — steel or aluminium



Single post — carparks, odd plots



Solar carport — shade that pays

Ground screws — fast, no concrete

ELECTRICAL INSTALLATION — DONE PROPERLY

Protection & switchgear

DC fuses and isolators · AC breakers and isolators (Schneider) · surge protection on DC and AC sides · residual-current protection · labelled distribution enclosure · PEC warning labels.

Cabling & earthing

UV-resistant 4/6 mm² PV cable · MC4 connectors rated 1000 V · UV-resistant conduit · 16 mm² earth bonding with busbar and lugs · CT clamps for zero-export metering · Modbus comms to the monitoring app.

Every installation is tested, commissioned and documented by Karnot engineers — and covered by a workmanship warranty.

Reference installations — the mounting systems we use.

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