

C&I All-in-One ESS

Cut your electricity bill with solar + storage — and ride through every outage
Hybrid inverter and battery in one cabinet · 20–125 kW · 220–520 kWh

ON-GRID SERIES

20–125

KW INVERTER RANGE

220–520

KWH BATTERY RANGE

98%

MAX EFFICIENCY

×20

PARALLEL · MW-SCALE

One cabinet. Lower bills. Power that stays on.

Hybrid inverter, battery, BMS and cooling come pre-integrated and factory-tested — on site you just connect the AC and DC terminals. A **built-in Static Transfer Switch (STS) keeps critical loads running with a <10 ms switch to backup** when the grid drops — transfer switching (STS + ATS) is built in, nothing separate to buy or wire. It manages grid, solar, battery and generator together, and runs in self-consumption, time-of-use or peak-shaving mode to cut your electricity bill. Start with one unit and scale to 20 in parallel as you grow.



All-in-One ESS

Battery cabinet with side-mounted hybrid inverter — factory-integrated and pre-wired

⚡ Hybrid Inverter

20–50 kW Series: 4 MPPT / 2 strings per MPPT, 950×635×315 mm, >80 kg

80–125 kW Series: 8 MPPT / 2 strings per MPPT, 1120×760×365 mm, 135 kg
DC/AC Ratio 2:1 · Built-in STS · IP65 · DC & AC Type II SPD

🔋 Battery Cabinet

220/240/260 kWh: 1324×2415×1440 mm, <2.71 T
LFP 314 Ah cells · 0.5C · Intelligent air cooling · IP54 · C4 anti-corrosion

8 Pre-configured System Packages

From **20 kW / 220 kWh** for small commercial buildings to **125 kW / 520 kWh** for industrial facilities. Each package is factory-tested and pre-wired — just connect AC/DC terminals on-site. One-click EMS commissioning with automatic system recognition. **Scalable up to 20 units in parallel for MW-class systems.**

Key Advantages

☀️ More Solar, Less Loss

MPPT is built into the inverter (DC-coupled) for up to 98% efficiency — vs ~95% on typical AC-coupled designs. 2:1 DC/AC ratio captures more from an oversized PV array.

☁️ Smart Energy Management

Local screen, cloud platform and VPP-ready. Set self-consumption, time-of-use, peak shaving and export limits.

🔄 Seamless Backup (built-in STS)

Switches to battery in under 10 ms when the grid drops — no separate transfer switch to buy or wire. Works with a generator too.

🔥 Fire Protection 2.0

Two-stage aerosol suppression at pack and cabinet level, plus CO and smoke detectors and an explosion-relief panel.

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TECHNICAL SPECIFICATIONS

C&I Hybrid Inverter APOLLO MTP-620x — 20–125 kW

PV + BAT + Backup STS · Built-in MPPT · DC/AC Ratio 2:1 · IP65 · <10 ms Source Transfer (STS)



C&I Hybrid Inverter

PV + battery + backup STS in one IP65 unit · built-in MPPT

MTP-621x–625x — 20–50 kW Series			4 MPPT · 180–800V Battery · IP65		
	20 kW	25 kW	30 kW	40 kW	50 kW
Nominal AC Power	20 kW	25 kW	30 kW	40 kW	50 kW
Rated AC Current	29 A	36 A	43 A	58 A	72 A
Max. PV Power	40 kWp	50 kWp	60 kWp	80 kWp	100 kWp
MPPT Full Load Voltage	300–800 V	350–800 V	400–800 V	500–800 V	600–800 V
Max. DC Power (Battery)	22 kW	27.5 kW	33 kW	44 kW	55 kW
MPPT Voltage Range	250–950 V (Max. 1000 V)				
No. of MPPT / Strings	4 / 2 per MPPT				
Max. Current per MPPT	45 A				
Battery Voltage Range	150–900 V				
Battery Rated Voltage Range	180–800 V				
Dimension (W×H×D)	950 × 635 × 315 mm				
Weight	>80 kg				

MTP-628x–6212x — 80–125 kW Series		8 MPPT · 250–850V Battery · IP65	
	80 kW	100 kW	125 kW
Nominal AC Power	80 kW	100 kW	125 kW
Rated AC Current	116 A	144 A	181 A
Max. PV Power	160 kWp	200 kWp	250 kWp
MPPT Full Load Voltage	450–800 V	550–800 V	700–800 V
Max. DC Power (Battery)	88 kW	110 kW	137 kW
MPPT Voltage Range	250–950 V (Max. 1000 V)		
No. of MPPT / Strings	8 / 2 per MPPT		
Max. Current per MPPT	45 A		
Battery Voltage Range	200–950 V		
Battery Rated Voltage Range	250–850 V		
Dimension (W×H×D)	1120 × 760 × 365 mm		
Weight	~135 kg		

Common Electrical Specifications — Both Series	
AC Input Voltage	230/400 Vac, 220/380 Vac, 3L+N+PE (–15% +10%)
AC Input Frequency	50 Hz / 60 Hz (±5 Hz)
AC Output Voltage	230/400 Vac, 220/380 Vac, 3L+N+PE
AC Output Frequency	50 Hz / 60 Hz (±5 Hz)
THD	< 3%
Max. Efficiency	98%
Battery Inputs	2
IP / Surge Protection	IP65 / DC Type II, AC Type II

Standards & Compliance

EN 62477 · EN 62109 · EN 62920 · IEC 61000 · IEC 61727 · IEC 62116 · Communication: RS-485, CAN, Ethernet

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Battery Cabinet — LFP Air-Cooled

LiFePO4 314 Ah cells · 220–260 kWh per cabinet · Intelligent air cooling · IP54 · IEC 62619 · IEC 63056



LFP Battery Cabinet

Air-cooled outdoor cabinet with integrated EMS, BMS and multi-level fire protection · IP54 · C4 anti-corrosion

Battery Cabinet — 220 / 240 / 260 kWh		11–13 Battery Packs · <2.71 T · IP54	
	220 kWh	240 kWh	260 kWh
Total Battery Capacity	221.05 kWh	241.15 kWh	261.24 kWh
Number of Modules	11	12	13
Weight	< 2.71 T		
Battery Module Capacity	20.09 kWh		
Cell Type	LFP (LiFePO4) · 314 Ah		
Charge / Discharge Rate	0.5C		
Dimension (W×H×D)	1324 × 2415 × 1440 mm		
IP / Corrosion Rating	IP54 / C4		
Operating Temperature	-30°C to +50°C		
Max. Altitude	< 3000 m		

Safety & Protection Features

 Multi-Level Fire Protection 2-level thermal trigger aerosol (pack + cabinet). Explosion relief panel auto-releases internal pressure.	 Early Warning System CO detector, smoke detector, sound & light alarm. Smart ventilation linkage monitors thermal runaway precursors.
 Intelligent Air Cooling Smart temperature control logic. Lower upfront cost vs liquid cooling. Simpler structure for quicker maintenance.	 Tier 1 LFP Cells Ultra-life span >8,000 cycles. 10-year performance warranty. Certified to IEC 62619 and IEC 63056.

Communication & Standards
CAN · TCP · Ethernet · RS-485 · IEC 63056 · IEC 62619 · IEC 62477 · IEC 62040 · IEC 61000 · EN 62477 · EN 62040

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SYSTEM CONFIGURATIONS

Pre-configured ESS — 8 Packages

Factory-tested & pre-wired · Hybrid Inverter + Battery Cabinet + EMS + HVAC · On-site: connect AC/DC terminals only

System1 — Hybrid Inverter 20–125 kW · BESS 220–520 kWh

	20 kW /221 kWh	25 kW /442 kWh	30 kW /482 kWh	40 kW /482 kWh	50 kW /522 kWh
Inverter AC Power	20 kW	25 kW	30 kW	40 kW	50 kW
Rated AC Current	29 A	36 A	43 A	58 A	72 A
Max. PV Power	40 kWp	50 kWp	60 kWp	80 kWp	100 kWp
MPPT Full Load Voltage	300–800 V	350–800 V	400–800 V	500–800 V	600–800 V
Max. DC Power (Battery)	22 kW	27.5 kW	33 kW	44 kW	55 kW
Battery Type	LFP (LiFePO4) · 314 Ah				
Battery Rack Capacity	221.05 kWh	221.05 kWh	241.15 kWh	241.15 kWh	261.24 kWh
Number of Racks	1	2	2	2	2
Total Battery Capacity	221.05 kWh	442.10 kWh	482.30 kWh	482.30 kWh	522.48 kWh
Battery Voltage Range	150–900 V				
Weight / Cabinet	<2.53 T	<2.53 T	<2.66 T	<2.66 T	<2.71 T

System2 — Hybrid Inverter 80–125 kW · BESS 220–520 kWh

	80 kW /442 kWh	100 kW /482 kWh	125 kW /522 kWh
Inverter AC Power	80 kW	100 kW	125 kW
Rated AC Current	116 A	144 A	181 A
Max. PV Power	160 kWp	200 kWp	250 kWp
MPPT Full Load Voltage	450–800 V	550–800 V	700–800 V
Max. DC Power (Battery)	88 kW	110 kW	137 kW
Battery Type	LFP (LiFePO4) · 314 Ah		
Battery Rack Capacity	221.05 kWh	241.15 kWh	261.24 kWh
Number of Racks	2	2	2
Total Battery Capacity	442.10 kWh	482.30 kWh	522.48 kWh
Battery Voltage Range	200–950 V		
Weight / Cabinet	<2.53 T	<2.53 T	<2.71 T

Common Specifications — All ESS Packages

LFP (LiFePO4) · 314 Ah cells · 20.09 kWh per module · 0.5C charge/discharge · Intelligent air cooling · IP54 battery cabinet · C4 anti-corrosion · –30°C to +50°C · Max 3000 m altitude · CAN & TCP communication

Inverter Cabinet (included in all sets)

Inverter Cab. (20–50kW)	950 × 635 × 315 mm · >80 kg · IP65
Inverter Cab. (80–125kW)	1120 × 760 × 365 mm · 135 kg · IP65

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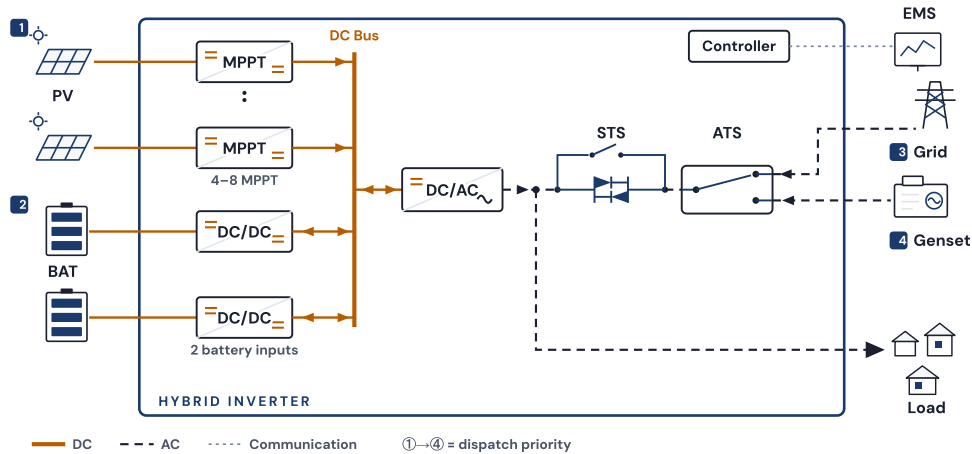
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Built for Real-World C&I Deployment

Multi-energy gateway with built-in STS · Advanced load management · Multi-level EMS · Easy installation

System Diagram — How the Hybrid Inverter Works



The system serves the load from ① PV and ② battery first, imports from the ③ grid only when needed, and keeps the ④ genset as backup. The ATS selects the external source (Grid ↔ Genset); the solid-state STS ties that source to the load bus and disconnects in <10 ms on outage — the Load, fed from the inverter side, never drops.

Built-in STS & ATS — Source Transfer & Backup

STS — Static Transfer Switch is built into every inverter, between the load bus and the source side, so the system switches between battery and generator in under 10 ms — no external STS to buy or install. Solid-state thyristor switching with no moving parts: transfer takes about a quarter of an AC cycle, so the load never notices. It runs fully off-grid on a generator too (PV + battery + generator).

ATS — Automatic Transfer Switch sits between the two external sources, selecting Grid or Genset before power reaches the STS — break-before-make, so the two sources are never paralleled. If the grid fails and the battery runs low, the EMS brings the genset in as the backup source. A mechanical ATS transfers in 100 ms to a few seconds — the fast STS, not the ATS, is what keeps the load alive.

Built for tough industrial loads: inrush-current suppression tames the surge from motors and other inductive loads. Phase-independent control handles up to 100% unbalanced load (max 50% of capacity on one phase), and EV charging is scheduled to make the most of available power.

Operating Modes & Grid Services

Self-Consumption

Maximise on-site PV usage, minimise grid import. Anti-backflow control available.

Time of Use (TOU)

Charge during off-peak, discharge during peak. Automatic tariff-based scheduling.

Peak Shaving

Reduce demand charges by capping peak grid import. Demand control built-in.

Off-Grid / Backup

PV-Battery or PV-Battery-Genset modes. <10 ms STS switch on grid outage.

Multi-Level Energy Management System

Level 1: Local EMS

Real-time data display, operation mode setting (manual, self-consumption, TOU, peak shifting), SOC calibration, anti-backflow & demand control, power factor compensation.

Level 2: Master EMS

Support up to 20 local EMS units. Remote monitoring via Ethernet/WiFi.

Level 3: Cloud + VPP

Multi-level account management (Web APP). KPI analysis, remote upgrade. 3rd-party VPP integration for spot price control, ancillary services, and grid stability.

Easy Installation & Commissioning

All-in-one design with pre-installed power, battery, BMS, and HVAC — just connect AC/DC terminals. Optimized cabinet with bottom cable entry and forklift slots. **One-click commissioning via EMS** with automatic system recognition. Remote monitoring and diagnostics.

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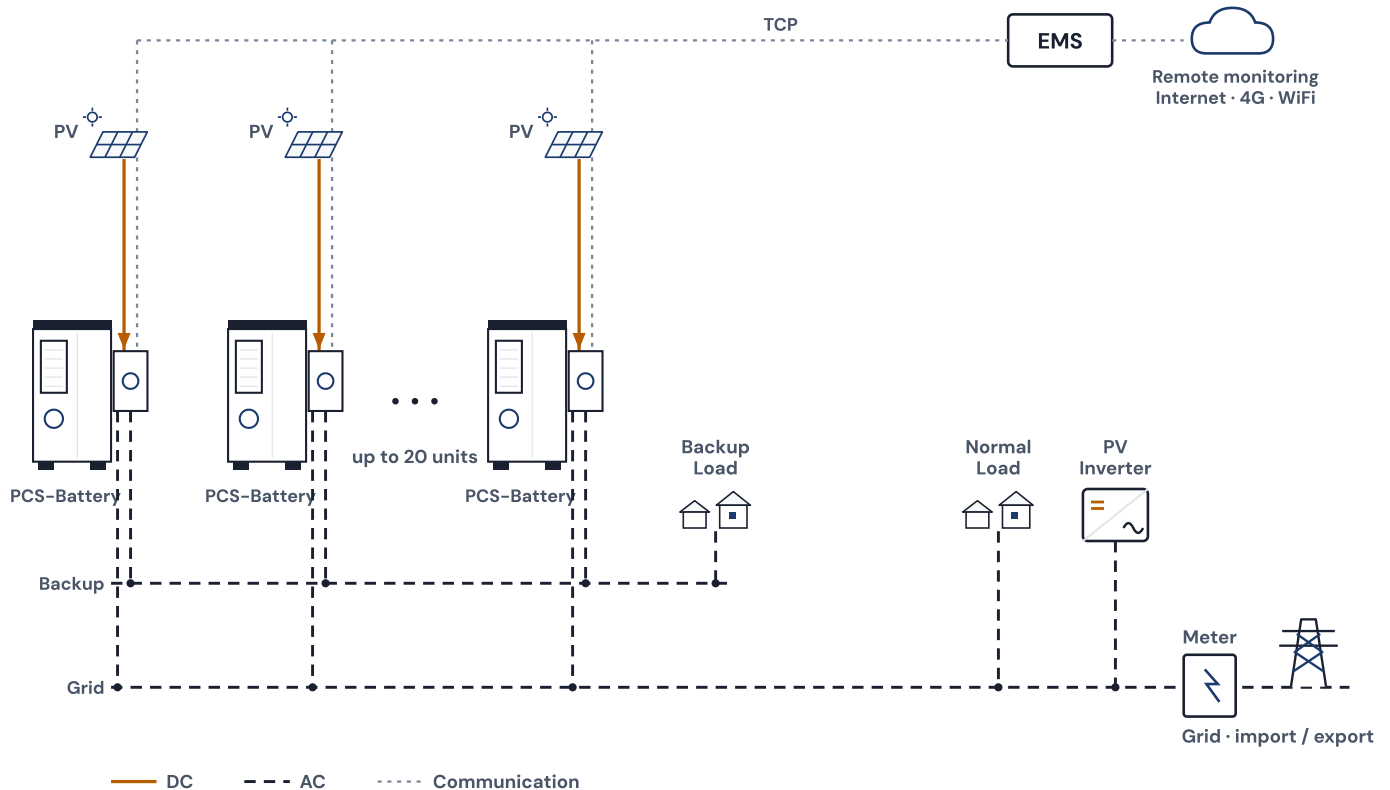
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Parallel Operation — up to 20 units

Separate grid & backup ports · EMS as communication hub · MW-class from modular blocks

On-Grid Parallel System



Each PCS has **separate ports** — grid, backup load — and like ports of every unit join their own shared bus. Up to **20 units** parallel this way: backup loads ride the **backup bus**, while the **grid bus** runs through the meter to the grid, with normal loads at the load centre and any AC-coupled PV inverter tied to the grid bus. The **EMS** links every unit over TCP, with remote monitoring via Internet, 4G or WiFi.

How to deploy in parallel

Dedicated ports on every PCS. Grid, backup load each have their own connection — like ports join a shared bus, so units share load automatically. Start with one cabinet and add units as demand grows, scaling from 20 kW to MW-class.

One EMS runs the fleet. The EMS is the communication hub — TCP to every unit. One-click commissioning auto-recognizes new cabinets, and one dashboard covers the whole site, locally or via cloud monitoring.

Meter at the grid point. A meter at the connection point governs import and export. An existing AC-coupled PV inverter integrates through its own meter (RTU) — the EMS dispatches around it.

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