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PowerNode 500

Up to 10MW BESS

Gain full control with reliable on-/off-grid capability and true independence from grid constraints.

Modular, factory-tested design reduces on-site work and installation costs by over 60%.

Modular and scalable - now in higher power

From grid connected BESS supporting FCAS, arbitrage and balancing support - to off-grid BESS and SAPS, where Pixii delivers smarter microgrid control, remote diagnostics, and future-proof flexibility.

Smarter control with Pixii EMS

The Pixii PowerNode goes beyond energy storage, providing fully autonomous management & control coordination between power sources and loads - ensuring efficient energy distribution, load management, battery optimisation, and data logging with granular detail.

All under one cyber secure digital platform fully developed by Pixii engineers in Europe and Australia.

Trusted safety and compliance

Certified to the toughest international standards (IEC, NFPA, AS/NZS). All our systems are tested and validated for safe operation and durability.

With more than 2 000 sites installed worldwide, Pixii combines a proven track record and direct support from the Pixii team.

Scalable and redundant

From 125kW to 10MW - Pixii PowerNode scales seamlessly for use in C&I projects to multi-megawatt utilities. Plug-and-play parallel expansion provides installation flexibility, increases uptime and simplifies maintenance.

Max. efficiency,lower lifetime cost

With conversion efficiencies up to 98.5% and optimized thermal design, the PowerNode cuts losses and operating expenses. Every kilowatt-hour delivers maximum ROI.

Built for every application

Functionality everywhere - metropolitan network connected community batteries, regional network and SWER line support, microgrid backup, and weak grid, DC fast EV charging.

Configurable to suit every application, the Pixii PowerNode with our flexible “Energy Architect” EMS.

Highlights

- DC microgrid
- Black start islanding
- Spinning reserve
- Droop control
- Overload/power: 150% for 180ms
  120% for 60 seconds
- 1 sec. Frequency Services (FCAS)
- Seamless transfer

Key functions

- Peak shaving
- Demand charge reduction
- Energy shifting
- EV charging
- Diesel gensets integration
- DC & AC coupled solar
- Grid support

Scalable architecture with multiple battery cabinets and PowerNode 500. 500kW/1MWh.

PowerNode 500

AC specifications

Grid connection type	IT/TN
Phase config. (grid)	1ph / 3ph
Wiring method	3 ph. 3-wire 3 ph. 4-wire
AC voltage (-10/+15%)	230V/400V
Nominal frequency (grid)	50/60Hz
Nominal AC current	4x200A
Peak short-circuit current (RMS)	1188A @ 11ms
Nom. cont. AC power (±2%)[1]	500kW
Max. reactive power	500kVAr
Power factor (Cos φ leading)	0.99 / -1~1
THDi (grid connection)	<3%
Off-grid operation support	Yes
Generator backup support	Yes

1) The stated power and energy capacities are baseline, or nominal values. Actual performance can vary and may be constrained by several factors, including the state of charge (SoC), state of health (SoH) of the system, as well as thermal conditions.

DC specifications

Max. DC current	4x203A
Nominal DC voltage 3 ph. 3-wire	615V - 950V
Nominal DC voltage 3 ph. 4-wire	650V - 950V

Communication and connectivity

Wired interfaces	Ethernet LAN, RS 485 (Modbus), Digital IO
Internal comm. protocols	CAN bus, Modbus TCP/IP
External comm. protocols	MQTT

Safety

Ingress protection (IP)	IP55
Overvoltage category (OVC)	III
AC breaker	1000A MCCB 4 pole
DC breaker	4 x 250A MCCB 2 pole

Operating conditions

Operating environment	Outdoor
Thermal management	Fan filter
Acoustic noise 1m distance[1]	<70dB(A)
Operating amb. temp. range[2]	-30 - +55°C
Storage temp. range	-45°C - +70°C
Operating relative humidity[3]	5% - 95%NC
Max. operating altitude[4]	4000m

1) Final test results pending
2) Derating from >45°C
3) Non-condensing
4) Derating >2000m

Physical specifications

Dimensions (HxWxD)(mm)	2300x900x1100
Net. weight (cabinet only)	470kg
Cabinet Weight (@125kW)	540kg
Cabinet Weight (@250kW)	610kg
Cabinet Weight (@375kW)	680kg
Cabinet Weight (@500kW)	750kg
Status indicator (type)	LED

Warranty and compliance

Security and safety standards
GB/T 34120-2017, GB/T 34133-2017, IEC/EN 62477-1, IEC/EN 62116, IEC/EN 62109-1

Grid standards[1]
AS/NZS 4777.2 (AU+NZ), VDE-AR-N 4105 (DE), VDE-AR-N 4110 (DE), VDE-AR-V 0124-100 (DE), VDE-AR-V 4120 (DE), IEC/EN50549-1 Type A & B (EU), EREC G99 Type A & B (UK), EREC G99 Type C & D Upgrade (UK), UNE 217001 (ES), UNE 217002 (ES)

EMC standards
IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61000-6-4"

Standard warranty[2]	5 years

1) Designed in accordance with the relevant national and international standards listed above. Certification to specific revisions available on request. Additional local requirements may apply.

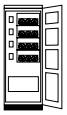
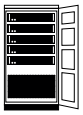
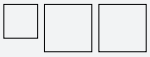
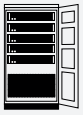
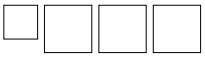
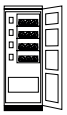
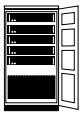
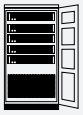
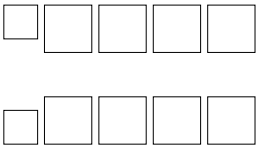
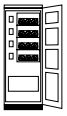
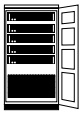
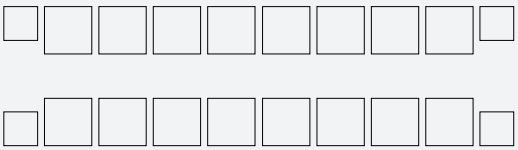
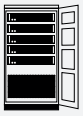
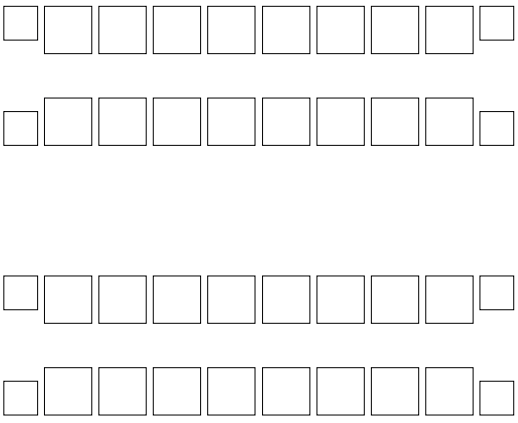
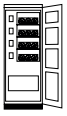
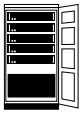
2) Warranty terms may vary based on your SLA agreement. Please review the warranty document for details.

Efficiency and performance*

System overload	110%, 550kW
System overload (1min)	120%, 600kW
System overload (150ms)	150%, 750kW
Maximum efficiency	98.5%
Charge/discharge nom. apparent power	500kVA

** Subject to temperature derating*

PowerNode 500

System capacity			Base dimensions and weight			Typical arrangement - PowerNode with Pixii Battery Cabinets		
kW Power	kWh Capacity	AC Amps	D[1]	L	Tonnes	M2 footprint	PowerNode	Battery
125 kW	261 kWh	181 A	1.35 m	2.12 m	3.30 T		 x 1	 x 1
250 kW	522 kWh	360 A	1.35 m	3.34 m	5.80 T		 x 1	 x 2
375 kW	783 kWh	540 A	1.35 m	4.56 m	8.30 T		 x 1	 x 3
500 kW	1.04 MWh	720 A	1.35 m	5.78 m	10.80 T		 x 1	 x 4
1 MW	2.08 MWh	1440 A	3.71 m	5.78 m	21.60 T		 x 2	 x 8
2 MW	4.17 MWh	3000 A	3.71 m	11.70 m	43.20 T		 x 4	 x 16
4 MW	8.35 MWh	6000 A	10.37 m	11.70 m	86.40 T		 x 8	 x 32

1) Footprint depth is based on a minimum 1.0 m back-to-back spacing between cabinets. For improved accessibility and service operations, 1.5 m spacing is recommended.

PIXII ENERGY ARCHITECT EMS

The Energy Architect delivers lower operational costs, greater energy efficiency and savings, enhanced reliability, future-proof scalability, and a stronger return on your BESS investment.

Battery saving services

- Real-time primary control
- Peak shaving
- PV self-consumption
- Power boost

Load management and optimization

- Maximize PV utilization
- Reduce gen-set consumption
- Optimize application (i.e. EV charger)

Battery income generating functions

- Arbitrage
- Frequency markets
- Voltage support

Data logging and monitoring

The Energy Managemenet System (EMS) is optimizing power infrastructure. Turning your battery energy storage into a profitable and flexible energy asset.

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