

# Pixii Power Shaper

Air-conditioned

## Flexible grid tied energy storage system 50kW up to 50kWh\* / 40kW up to 100kWh\*

The PowerShaper Air-con from Pixii is a complete modular energy storage system designed for outdoor installation. It is fully integrated with PixiiBox inverters and batteries and ready to be connected to the grid for applications like solar self-consumption, demand charge reduction, peak shaving, arbitrage, and various ancillary services.

Each cabinet can house up to 50kW (49,5kW) of power conversion and LFP or NMC batteries to match different applications and requirements.

The PowerShaper can provide a variety of energy-saving or grid-supporting services. These functions can be executed autonomously or monitored and controlled by higher-level energy management systems, communicating over different protocols.

The power conversion in the PowerShaper is achieved using the PixiiBox, a bidirectional 3,3kW AC/DC converter module. There is room for up to 15 PixiiBoxes in each cabinet.

The system includes the Pixii Gateway controller, which provides advanced monitoring and control as well as communication and interoperability via the internet, Wi-Fi, or the wireless network.

For applications requiring more power or energy, several PowerShaper cabinets can be operated as a single system. The PowerShaper is typically used in applications from 10kW up to several megawatts.

*\*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.*



### Highlights

- Modular and scalable
- Integrated & battery inverter solution
- Wide range of functions
- For applications 10kW to megawatts
- Compact
- Fast response
- Galvanically isolated AC to DC
- 48V battery voltage for ease of service

*20 foot base, Prewired and including AC connection cabinet*



| Performance data         |   | Performance data   |  |
|--------------------------|---|--|--|
| Nominal AC voltage       | 230/400VAC  | Minimum operating temperature  | -20°C  |
| Frequency                | 50Hz  | Maximum operating temperature  | 50°C   |
| Max AC current (TN)      | 83A   | Dimensions (w x d x h)   | 706 x 1064 x 2 115 mm                            |
| Nominal DC voltage       | ~48V  | Weight (fully equipped)<br>- LFP 100Ah<br>(10x battery & 15x PixiiBox) | 725kg (16S 3U Battery)<br>675kg (15S 3U Battery) |
| Communications protocols | Modbus/RTU, Modbus/TCP, TCP/<br>IP, MQTT, HTTPS and CAN | Weight (fully equipped)<br>- NMC 250Ah<br>(8x battery & 12x PixiiBox)  | 801kg (14S 4U Battery)                           |
| Audible noise            | 63.7 dBA <sup>1)</sup>                                  | Environmental management   | Air-conditioned<br>(Fan Cooled Optional)         |
| Cabinet protection class | IP55  |  |  |
| Color                    | RAL7035   |  |  |

1) Maximum noise at 1m distance. The noise level can be reduced to approx. 56.3 dBA by adding an additional panel

| Typical max system performance vs SoC. |                 |           |                 |           |                 |           |
|--|-----------------|-----------|-----------------|-----------|-----------------|-----------|
| Battery type                           | 100Ah - 16S LFP |           | 100Ah - 15S LFP |           | 250Ah - 14S NMC |           |
| Max kWh <sup>2)</sup>                  | 50kWh           |           | 48kWh           |           | 100kWh          |           |
| Max power (in kW) <sup>3)</sup>        |                 |           |                 |           |                 |           |
| SoC                                    | Charge          | Discharge | Charge          | Discharge | Charge          | Discharge |
| 90%                                    | 49              | 48        | 40              | 40        | 10              | 40        |
| 70%                                    | 49              | 48        | 40              | 40        | 40              | 38        |
| 50%                                    | 49              | 48        | 40              | 40        | 40              | 37        |
| 30%                                    | 49              | 47        | 40              | 40        | 40              | 35        |
| 10%                                    | 49              | 46        | 40              | 40        | 40              | 24        |

2) Nominal values 3) Values are for batteries at room temperature (25°C). If batteries are colder or warmer, this may affect the maximum power due to battery imbalance or temperature derating.

| Functions                                |   |
|--|---|
| Peak shaving                             | Reduce your demand charges and save costs by shaving the peaks of your power consumption.   |
| Arbitrage                                | Support loads from the battery when electricity rates are high, and charge the battery when electricity rates are low.  |
| PV self-consumption                      | Get the most out of your solar investment and reduce your dependency on the grid through smart power management, enabling you to direct excess energy to batteries for later use during peak hours.                       |
| Local power boost                        | Increase maximum available power capacity by adding smart energy storage systems in parallel with the grid. In locations with temporary overloads, energy storage systems can cover the overload and avoid grid upgrades. |
| Voltage support                          | Enables grid operators (DSO's/DNO's/DNSP's) to enhance quality of supply on long weak lines significantly. Unique functionality for voltage-based phase balancing active/reactive power compensation.                     |
| Balance services/<br>Flexibility markets | Unlock the value of your battery energy storage system and monetize your system's flexibility by offering available capacity to ancillary services like FFR, FCR, standard ramp FCAS services and more.                   |

|             |  |
|-------------|--|
| Safety      | IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 62040-1, IEC/EN 62477, (Batteries) IEC 62619, IEC 62368, UN38.3   |
| Grid        | AS/NZS 4777-2:2020, EN50549-1:2019 Type A & B, C10/11<br>VDE-AR-N 4105:2018-11, VDE-AR-N 4110:2018-11 (prototype), EREC G99 Issue 1 – Amendment 6, 09 March 2020 |
| EMC         | IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61000-6-4   |
| Environment | ETSI EN 300 019:2-1 (Class 1.2), ETSI EN 300 019:2-2 (Class 2.3), ETSI EN 300 019:2-3 (Class 3.2)  |