

# Power Cube

**THREE-PHASE HYBRID/AC**

Power Cube is the latest generation of an integrated residential energy storage system, modularly designed to meet various installation scenarios.



**5kW ... 15kW**



## **FLEXIBLE APPLICATION**

- 3 MPPTs, 20A per string.
- PV min. voltage of 120V and min. battery voltage of 80V.



## **EASY INSTALLATION**

- Built-in gateway with 63A bypass for full house backup.
- No cables required between the inverter and batteries.



## **SAFE AND DURABLE**

- Integrating active and passive safety.
- Intelligent AFCI function.
- IP66 and type II DC/AC surge protection.



Advanced System Monitoring  
with **FoxCloud 2.0**



## **REMOTE MONITORING**

- Monitor your system remotely via smartphone App or Web portal.
- Ready for AI mode, dynamic trading and VPP.



TECHNICAL SPECIFICATIONS

| MODEL                                                           | PQ3-5.0-M | PQ3-6.0-M | PQ3-8.0-M                                                                                                                           | PQ3-10.0-L-M              | PQ3-10.0-M | PQ3-12.0-M | PQ3-15.0-M |
|-----------------------------------------------------------------|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------|------------|------------|
| PV INPUT                                                        |           |           |                                                                                                                                     |                           |            |            |            |
| Max. Array Power[W]                                             | 11000     | 14000     | 18000                                                                                                                               | 20000                     | 20000      | 24000      | 30000      |
| Max. Input Power [W]                                            | 11000     | 13200     | 17600                                                                                                                               | 20000                     | 20000      | 24000      | 30000      |
| Max. Input Voltage [V]                                          |           |           |                                                                                                                                     | 1000 [1]                  |            |            |            |
| Nominal Operating Voltage [V]                                   |           |           |                                                                                                                                     | 620                       |            |            |            |
| Max. MPPT Input Current [A]                                     |           |           |                                                                                                                                     | 20/20/20                  |            |            |            |
| Max. MPPT Short-Circuit Current [A]                             |           |           |                                                                                                                                     | 25/25/25                  |            |            |            |
| Max. MPPT Input Power [W]                                       |           |           |                                                                                                                                     | 10000/10000/10000         |            |            |            |
| Min. Operating Input Voltage [V]                                |           |           |                                                                                                                                     | 90 [2]                    |            |            |            |
| MPPT Voltage Range [V]                                          |           |           |                                                                                                                                     | 120 ~ 950                 |            |            |            |
| Start-Up Input Voltage [V]                                      |           |           |                                                                                                                                     | 140                       |            |            |            |
| MPPT Voltage Range (Full Load) [V]                              | 120 ~ 850 | 120 ~ 850 | 140 ~ 850                                                                                                                           | 175 ~ 850                 | 175 ~ 850  | 210 ~ 850  | 263 ~ 850  |
| No. of MPP Trackers                                             |           |           |                                                                                                                                     | 3                         |            |            |            |
| Strings per MPP Tracker                                         |           |           |                                                                                                                                     | 1+1+1                     |            |            |            |
| Max. Inverter Backfeed Current to the Array                     |           |           |                                                                                                                                     | 0                         |            |            |            |
| BATTERY CONNECTION                                              |           |           |                                                                                                                                     |                           |            |            |            |
| Battery Type                                                    |           |           |                                                                                                                                     | Lithium-Ion battery (LFP) |            |            |            |
| Battery Voltage [V]                                             |           |           |                                                                                                                                     | 80 ~ 500                  |            |            |            |
| Min. Operating Battery Voltage [V]                              |           |           |                                                                                                                                     | 85                        |            |            |            |
| Min. Battery Voltage @ Full AC Load [V]                         | 108       | 125       | 160                                                                                                                                 | 210                       | 210        | 250        | 310        |
| Max. Battery Charge Power [W]                                   | 6000      | 7200      | 9600                                                                                                                                | 12000                     | 12000      | 14400      | 15000      |
| Max. Battery Discharge Power [W]                                | 5000      | 6000      | 8000                                                                                                                                | 10000                     | 10000      | 12000      | 15000      |
| Max. Charge/Discharge Current [A]                               |           |           |                                                                                                                                     | 50                        |            |            |            |
| Communication Interface                                         |           |           |                                                                                                                                     | CAN                       |            |            |            |
| AC OUTPUT                                                       |           |           |                                                                                                                                     |                           |            |            |            |
| Nominal Output Power [W]                                        | 5000      | 6000      | 8000                                                                                                                                | 9999                      | 10000      | 12000      | 15000      |
| Max. Apparent Output Power [VA]                                 | 5500      | 6600      | 8800                                                                                                                                | 9999                      | 11000      | 13200      | 16500      |
| Rated Grid Voltage (AC Voltage Range) [V]                       |           |           |                                                                                                                                     | 400/230; 380/220, 3L/N/PE |            |            |            |
| Rated Grid Frequency [Hz]                                       |           |           |                                                                                                                                     | 50/60, ±5                 |            |            |            |
| Rated Output Current (Per Phase) [A]                            | 7.6       | 9.1       | 12.1                                                                                                                                | 15.2                      | 15.2       | 18.2       | 22.7       |
| Max. Output Current (Per Phase) [A]                             | 8.3       | 10.0      | 13.3                                                                                                                                | 15.2                      | 16.7       | 20.0       | 25.0       |
| Power Factor                                                    |           |           | 1 (Adjustable from 0.8 leading to 0.8 lagging)                                                                                      |                           |            |            |            |
| THDI [%]                                                        |           |           |                                                                                                                                     | <3 @rated power           |            |            |            |
| AC INPUT                                                        |           |           |                                                                                                                                     |                           |            |            |            |
| Max. Input Power [VA]                                           |           |           |                                                                                                                                     | 43470                     |            |            |            |
| Rated Grid Voltage [V]                                          |           |           |                                                                                                                                     | 400/230; 380/220, 3L/N/PE |            |            |            |
| Rated Grid Frequency [Hz]                                       |           |           |                                                                                                                                     | 50/60, ±5                 |            |            |            |
| Max. Input Current (Per Phase) [A]                              |           |           |                                                                                                                                     | 63                        |            |            |            |
| EPS OUTPUT(ON GRID MODE)                                        |           |           |                                                                                                                                     |                           |            |            |            |
| Max. Output Power For Backup Load (Per Phase) [W]               |           |           |                                                                                                                                     | 43470                     |            |            |            |
| Max. Output Current For Backup Load [A]                         |           |           |                                                                                                                                     | 3*63                      |            |            |            |
| EPS OUTPUT(OFF GRID MODE)                                       |           |           |                                                                                                                                     |                           |            |            |            |
| Max. Apparent Output Power [VA]                                 | 5000      | 6000      | 8000                                                                                                                                | 10000                     | 10000      | 12000      | 15000      |
| Peak Apparent Output Power (60s) [VA]                           | 6000      | 7200      | 9600                                                                                                                                | 12000                     | 12000      | 14400      | 15000      |
| Rated Output Voltage [V]                                        |           |           |                                                                                                                                     | 400/230; 3L/N/PE          |            |            |            |
| Rated Grid Frequency [Hz]                                       |           |           |                                                                                                                                     | 50/60                     |            |            |            |
| Max. Continuous Current (Per Phase) [A]                         | 7.2       | 8.7       | 11.6                                                                                                                                | 14.5                      | 14.5       | 17.4       | 21.7       |
| Max. Unbalanced Load Power (Per Phase) [kW]                     | 1.6       | 2.0       | 2.6                                                                                                                                 | 3.3                       | 3.3        | 4.0        | 5.0        |
| Step-Down Start                                                 |           |           |                                                                                                                                     | YES                       |            |            |            |
| EPS Overload Automatic Recovery Time                            |           |           | Try 3 times(15s) everytime will alarm a fault, after 3 failures, stop the recovery logic, clients need to clear the fault manually. |                           |            |            |            |
| Power Factor                                                    |           |           | 1 (Adjustable from 0.8 leading to 0.8 lagging)                                                                                      |                           |            |            |            |
| Parallel Operation                                              |           |           |                                                                                                                                     | Yes @ Max. 10 pcs         |            |            |            |
| Switch Time (Single Device) [ms]                                |           |           |                                                                                                                                     | <20                       |            |            |            |
| THDV [%]                                                        |           |           |                                                                                                                                     | <3 @rated power           |            |            |            |
| EFFICIENCY                                                      |           |           |                                                                                                                                     |                           |            |            |            |
| MPPT Efficiency [%]                                             |           |           |                                                                                                                                     | 99.90                     |            |            |            |
| Max. Efficiency [%]                                             | 97.80     | 97.80     | 97.90                                                                                                                               | 97.90                     | 97.90      | 97.90      | 97.90      |
| European Efficiency [%]                                         | 97.00     | 97.00     | 97.10                                                                                                                               | 97.30                     | 97.30      | 97.50      | 97.50      |
| Max. Battery Charge Efficiency (PV to BAT) (@ Full Load) [%]    | 97.00     | 97.10     | 97.20                                                                                                                               | 97.40                     | 97.40      | 97.50      | 97.60      |
| Max. Battery Discharge Efficiency (BAT to AC) (@ Full Load) [%] | 97.00     | 97.10     | 97.20                                                                                                                               | 97.20                     | 97.20      | 97.20      | 97.20      |

TECHNICAL SPECIFICATIONS

| MODEL                                             | PQ3-5.0-M | PQ3-6.0-M | PQ3-8.0-M                                                                                                           | PQ3-10.0-L-M                    | PQ3-10.0-M | PQ3-12.0-M  | PQ3-15.0-M  |
|---------------------------------------------------|-----------|-----------|---------------------------------------------------------------------------------------------------------------------|---------------------------------|------------|-------------|-------------|
| PROTECTION                                        |           |           |                                                                                                                     |                                 |            |             |             |
| PV Reverse Polarity Protection                    |           |           |                                                                                                                     |                                 | YES        |             |             |
| Battery Reverse Protection                        |           |           |                                                                                                                     |                                 | YES        |             |             |
| Anti-Islanding Protection                         |           |           |                                                                                                                     |                                 | YES        |             |             |
| Output Short Protection                           |           |           |                                                                                                                     |                                 | YES        |             |             |
| Leakage Current Protection                        |           |           |                                                                                                                     |                                 | YES        |             |             |
| Insulation Resistor Detection                     |           |           |                                                                                                                     |                                 | YES        |             |             |
| Overvoltage Category                              |           |           |                                                                                                                     | III (AC Side), II (DC Side)     |            |             |             |
| Reverse Connect Protection                        |           |           |                                                                                                                     | YES                             |            |             |             |
| Overcurrent Protection/Overtemperature Protection |           |           |                                                                                                                     | YES                             |            |             |             |
| DC/AC Surge Protection                            |           |           |                                                                                                                     | Type II (PV)/Type II (AC)       |            |             |             |
| AFCI Protection                                   |           |           |                                                                                                                     | Optional                        |            |             |             |
| DC Switch                                         |           |           |                                                                                                                     | YES                             |            |             |             |
| GENERAL DATA                                      |           |           |                                                                                                                     |                                 |            |             |             |
| Dimensions (W*H*D) [mm]                           |           |           |                                                                                                                     | 570*420*380 (Inverter)          |            |             |             |
| Dimensions of Packing (W*H*D) [mm]                |           |           |                                                                                                                     | 760*545*595 (Inverter)          |            |             |             |
| Net Weight [kg]                                   |           |           |                                                                                                                     | 42.6 (Inverter)                 |            |             |             |
| Gross Weight [kg]                                 |           |           |                                                                                                                     | 64.5 (Inverter)                 |            |             |             |
| Installation                                      |           |           |                                                                                                                     | Floor-mounted                   |            |             |             |
| Operating Temperature Range [°C]                  |           |           |                                                                                                                     | -25 ~ +60 (Derating at 45)      |            |             |             |
| Storage Temperature [°C]                          |           |           |                                                                                                                     | -40 ~ +70                       |            |             |             |
| Storage/Operation Relative Humidity [%]           |           |           |                                                                                                                     | 0 ~ 100 (No condensation)       |            |             |             |
| Altitude [m]                                      |           |           |                                                                                                                     | <4000 @ Derating Exceeding 3000 |            |             |             |
| Protection Class                                  |           |           |                                                                                                                     | I                               |            |             |             |
| Ingress Protection                                |           |           |                                                                                                                     | IP66 (For Outdoor Use)          |            |             |             |
| Standby Consumption [W]                           |           |           |                                                                                                                     | <15 (Only PV and Battery)       |            |             |             |
| Idle Mode                                         |           |           |                                                                                                                     | YES                             |            |             |             |
| Cooling                                           | Natural   | Natural   | Natural                                                                                                             | Natural                         | Natural    | FAN Cooling | FAN Cooling |
| Noise Level [dB]                                  | <40       | <40       | <40                                                                                                                 | <40                             | <40        | <55         | <55         |
| Inverter Topology                                 |           |           |                                                                                                                     | Non-Isolated                    |            |             |             |
| Monitoring Module (Integrated)                    |           |           |                                                                                                                     | WIFI, LAN, 4G                   |            |             |             |
| Communication Interface                           |           |           | Meter, WIFI/4G (Optional), Bluetooth, DRM, Ethernet, USB, BMS (CAN), RS485, Ripple Control, SG Ready, Dry Contact*2 |                                 |            |             |             |
| Display                                           |           |           |                                                                                                                     | LED, LCD, App, Website          |            |             |             |
| Button                                            |           |           |                                                                                                                     | Capacitive Touch Sensor         |            |             |             |
| Buzzer                                            |           |           |                                                                                                                     | 1, Inside (EPS & Earth Fault)   |            |             |             |
| STANDARD                                          |           |           |                                                                                                                     |                                 |            |             |             |
| Safety                                            |           |           |                                                                                                                     | EN/IEC62109-1, EN/IEC62109-2    |            |             |             |
| EMC                                               |           |           | IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3, IEC61000-4-2/3/4/5/6/8                                                 |                                 |            |             |             |
| Certification                                     |           |           | AS4777.2-2020, VDE-AR-N 4105, VDE0126-1-1, G98, EN50549-1, CEI 0-21, IEC62116, IEC61727, IEC61683                   |                                 |            |             |             |

[1] For 1000V system, PV maximum operating voltage is 950V.

[2] The starting working voltage of the power supply is 90V.

## TECHNICAL SPECIFICATIONS

| MODEL                                                           | TQ5000<br>-S (w)_2S                   | TQ5000<br>-S (w)_3S | TQ5000<br>-S (w)_4S | TQ5000<br>-S (w)_5S | TQ5000<br>-S (w)_6S |
|-----------------------------------------------------------------|---------------------------------------|---------------------|---------------------|---------------------|---------------------|
| ELECTRICAL CHARACTERISTICS                                      |                                       |                     |                     |                     |                     |
| Battery Type                                                    | LFP (LiFePO <sub>4</sub> )            |                     |                     |                     |                     |
| Battery Module                                                  | 2                                     | 3                   | 4                   | 5                   | 6                   |
| Nominal Energy [kWh]                                            | 9.84                                  | 14.76               | 19.68               | 24.60               | 29.52               |
| Nominal Voltage [V]                                             | 128.0                                 | 192.0               | 256.0               | 320.0               | 384.0               |
| Operating Voltage [V]                                           | 116.0 ~ 146.0                         | 174.0 ~ 219.0       | 232.0 ~ 292.0       | 290.0 ~ 365.0       | 348.0 ~ 438.0       |
| Recommend Discharge Current [A]                                 | 38.5                                  |                     |                     |                     |                     |
| Max. Charge/Discharge Current [A] <sup>*1</sup>                 | 50                                    |                     |                     |                     |                     |
| Peak Discharge Current (60S) [A]                                | 65                                    |                     |                     |                     |                     |
| Battery Pack Round-Trip Efficiency [%] <sup>*2</sup>            | >95                                   |                     |                     |                     |                     |
| Depth of Discharge [%]                                          | 90                                    |                     |                     |                     |                     |
| Communication                                                   | CAN                                   |                     |                     |                     |                     |
| Display                                                         | LED*1                                 |                     |                     |                     |                     |
| Scalability                                                     | Max. 6 Modules in Series              |                     |                     |                     |                     |
| OPERATING CONDITIONS                                            |                                       |                     |                     |                     |                     |
| Installation Location                                           | Outdoor/ Indoor                       |                     |                     |                     |                     |
| Operating Temperature [°C] (warm up function off) <sup>*3</sup> | Charge: 0 ~ 55, Discharge: -10 ~ 55   |                     |                     |                     |                     |
| Operating Temperature [°C] (warm up function on)                | Charge: -25 ~ 55, Discharge: -25 ~ 55 |                     |                     |                     |                     |
| Storage Temperature [°C]                                        | -10 ~ 50                              |                     |                     |                     |                     |
| Cooling Method                                                  | Natural Convection                    |                     |                     |                     |                     |
| Humidity [%]                                                    | 5 ~ 95 (No Condensation)              |                     |                     |                     |                     |
| Altitude [m]                                                    | Max. 3,000                            |                     |                     |                     |                     |
| PROTECTION                                                      |                                       |                     |                     |                     |                     |
| Fire Protection Function                                        | YES                                   |                     |                     |                     |                     |
| MECHANICAL CHARACTERISTICS                                      |                                       |                     |                     |                     |                     |
| Dimensions (W*H*D) [mm]                                         | 570*270*380                           | 570*405*380         | 570*540*380         | 570*675*380         | 570*810*380         |
| Weight [kg]                                                     | 82                                    | 123                 | 164                 | 205                 | 246                 |
| Cell Net Weight [kg]                                            | 56.3                                  | 84.5                | 112.6               | 140.8               | 168.9               |
| CERTIFICATES                                                    |                                       |                     |                     |                     |                     |
| Safety                                                          | IEC 62619                             |                     |                     |                     |                     |
| EMC                                                             | IEC 61000-6-1/2/3/4                   |                     |                     |                     |                     |
| Transportation                                                  | UN38.3                                |                     |                     |                     |                     |
| Ingress Protection                                              | IP66                                  |                     |                     |                     |                     |

\*1 The current is affected by temperature, cell voltage and SOC.

\*2 @25°C, 0.3C charging/discharging.

\*3 Charge and discharge power reduction applies at low temperatures.