FOX ESS

DATASHEET

# 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.



## 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.

**5kW ···» 15kW**



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.

www.fox-ess.com

## TECHNICAL SPECIFICATIONS

| MODEL | PQ3-5.0 -M-P | PQ3-6.0 -M-P | PQ3-8.0 -M-P | PQ3-10.0-L -M-P | PQ3-10.0 -M-P | PQ3-12.0 -M-P | PQ3-15.0 -M-P |
|---|---|---|---|---|---|---|---|
| **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 (Per Phase) [A] | 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. 4 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 |

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|---|---|---|---|---|---|---|---|
| **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] | 660*420*360 (Inverter) | | | | | | |
| Dimensions of Packing (W*H*D) [mm] | 790*540*592 (Inverter) | | | | | | |
| Net Weight [kg] | 45.0 (Inverter) | | | | | | |
| Gross Weight [kg] | 63.5 (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] | Max. 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.