FALCON ESS

DATASHEET

SIGNATURE GREY SERIES

CLEAN ENERGY
A BRIGHTER TOMORROW

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.

REMOTE MONITORING

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

5kW >>> **15kW**



Advanced System Monitoring
with **FalconCloud 2.0**

CLEANER ENERGY

GREATER INDEPENDENCE

A BRIGHTER TOMORROW

www.falcon-ess.com

POWER A CLEANER TOMORROW

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

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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]	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 -S (w)_2S	TQ5000 -S (w)_3S	TQ5000 -S (w)_4S	TQ5000 -S (w)_5S	TQ5000 -S (w)_6S
ELECTRICAL CHARACTERISTICS					
Battery Type	LFP ($LiFePO_4$)				
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]*1	50				
Peak Discharge Current (60S) [A]	65				
Battery Pack Round-Trip Efficiency [%]*2	>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)*3	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.