



Features

Skid Enclosure:

- Approx Dimensions: 1800(L) x 900(D) and 1500(H).
- Material of build: Aluminium casing with a steel skid base.
- Powder coated based on Freedom Won Branding with Client logo on one side
- Lockable doors and bolted lid.
- AC Distribution board (IP65 Rated)
- Safety switching by RVDSAFE (2 x 25A – outlet power, 1 x 32A inlet power)
- LED indicators to acknowledge power flow from each or the Phase outlets and generator inlet
- 63A 4P change over switch
- 1 x 32A 3PH or 1PH Generator inlet
- 2 x 32A 3PH or 1PH power outlets
- 1 x Fire extinguisher (CO2 External mount)
- 1 x Internal heat lining to the underside of the cabinet lid.
- 1 x ABB 250A-2P latching breaker with Emergency E-stop isolation
- 2 x Solar isolators with MC4 connectors supplied
- Required Labels
- Generator auto start connection included (2 wire)

Energy System:

- Highly scalable Freedom Won energy storage capacity with:
 - 20kwh (52V)
 - 30kwh (52V or HV)
 - 40kwh (52V or HV)
 - 60kwh (HV only)
 - 80kwh (HV only)
- Single of three phase Inverter system (DEYE for Sofar) – for small applications
 - Single Phase Inverter capacity: 10kW (DEYE) – 52V batteries
 - Three Phase Inverter capacity: 12kW (DEYE) – 52V batteries
 - Three Phase Inverter Capacity: 20kW / 40kW (Sofar) – HV batteries
- Low Voltage & High Voltage System
- For larger applications - refer to 3M Mobile Power Room Solution

ALL ENERGY SKIDS ARE CUSTOM BUILT TO SUIT EACH CLIENTS SPECIFIC NEEDS



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System

ITEM	ENERGYSKID
AUSTRALIAN MADE	YES
INVERTER CAPACITY	REFER SPECSHEETS ON INVERTER
MAX INPUT POWER	REFER SPECSHEETS ON INVERTER
BATTERY CHARGE CURRENT	REFER SPECSHEETS ON INVERTER
BATTERY CAPACITY	20KW–60KW (RECOMMENDED MINIMUM IS 20KW)
BATTERY “C” RATING	C1 – CHARGE & DISCHARGE AT FULL DESIGN CAPACITY
240V OUTLET	YES
240V INLET	YES
AUTO GENERATOR START CAPABLE	YES
MAX PV	13.3KW SINGLE PHASE & 16KW FOR 3PHASE SYSTEM
MPPT'S	2
PV INPUT CURRENT–MAX ISC	REFER SPECSHEETS
PLUG N PLAY	YES
MONITORING	INCLUDED VIA SOLARMAN PORTAL OR ADD FW EMS AS ALTERNATIVE
STC ELIGIBLE	YES
DIMENSIONS	1800(L) X 900(D) AND 1500(H) HANDLE WITH FORKLIFT
IP RATING	IP43
INVERTER WARRANTY	10 YEAR REPLACEMENT
BATTERY WARRANTY	10 YEAR REPLACEMENT/REPAIR (FIELD SERVICEABLE)
240V DISTRIBUTION BOARD INCLUDED	YES (FULL DISTRIBUTION BOARD WITH MANUAL BY- PASS SWITCH)
OFF GRID AND GRID CONNECT	BOTH



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Safety Features

ITEM	ENERGYSKID
BATTERY	BATTERY BATTERY ISOLATION ON-OFF BUTTONS PLUS LATCHING BATTERY BREAKER (CONTROLLED BY THE BATTERY BMS)
DC BREAKER	EXTERNAL MAIN BATTERY 250A 2P BREAKER IN IP65 ENCLOSURE
PV ISOLATION	EXTERNAL PV ISOLATOR 4P IP65 RATED WITH MC4 CONNECT FOR 2 STRINGS
INVERTER	ON / OFF BUTTON + PV ISOLATOR SWITCH
GENERATOR INPUT	56 SERIES 15A OR 32A INLET SOCKET
POWER OUTLET	56 SERIES - 40A OR 32A - SUBJECT TO SINGLE OR THREE PHASE SYSTEM
240V DISTRIBUTION BOARD	25A 2P INPUT BREAKER (OFF GRID ONLY) 25A 1P BREAKER INVERTER FEED 63A 1P AUX-OFF-MAIN CHANGE OVER SWITCH 50A MAIN INVERTER SUPPLY BREAKER 40A AUXILIARY BREAKER (SUB-BOARD FEED) 16A RCBO FOR 15A OUTLET
EARTH-GROUND	EARTH BAR GROUNDED TO CABINET EARTH BAR GROUNDED TO INVERTER EARTH BAR GROUNDED TO SOLAR EARTH CABINET IS TO BE GROUNDED TO EARTH STAKE
CABINET	CABINET IS IP43 RATED (ALUMINUM FRAME WITH SLOTTED VENTILATION)
INVERTER	INVERTER IS IP65 RATED
240V AND DC BREAKER BOARDS	ENCLOSURES ARE IP65 RATED
BATTERY	IEC62619 AND UN38.3 CERTIFICATION





Model	SUN-10K-SG02 LP1-AU-AM3	SUN-12K-SG02 LP1-AU-AM3
Battery Input Data		
Battery Type	Lead-acid or Lithium-ion	
Battery Voltage Range (V)	40-60	
Max. Charging Current (A)	220	250
Max. Discharging Current (A)	220	250
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	
Number of Battery Input	1	
PV String Input Data		
Max. PV access power(W)	20000	24000
Max. DC Input Power (W)	15000	18000
Rated PV Input Voltage (V)	500	
Start-up Voltage (V)	125	
MPPT Voltage Range (V)	150-425	
Rated DC Input Voltage(V)	370	
Max. Operating PV Input Current (A)	26+26+26	
Max. Input Short-Circuit Current (A)	44+44+44	
No. of MPP Trackers/ No. of Strings MPP Tracker	3/2+2+2	
AC Output Data		
Rated AC Output Active Power (W)	9999	12000
Max. AC Input/Output Apparent Power (VA)	9999	12000
AC Output Rated Current (A)	43.5	52.2
Max. AC Output Current (A)	43.5	52.2
Max. Continuous AC Passthrough (A)	60	
Peak Power (off grid)	2 time of rated power, 10 S	
Power Factor Adjustment Range	0.8 leading to 0.8 lagging	
Rated Input/Output Voltage/Range (V)	230 /240 0.85Un-1.1Un	
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz	
Grid Connection Form	L+N+PE	
Total Harmonics Current Distortion (THDi)	<3% (of nominal power)	
DC Current Injection	<0.5% In	
Efficiency		
Max. Efficiency	97.60%	
Euro Efficiency	96.50%	
MPPT Efficiency	99.90%	
Protection		
Integrated	DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Overvoltage Load Drop Protection, Ground Fault Current Monitoring, Arc Fault Circuit Interrupter (optional), Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, DC Input Switch, DC Terminal Insulation Impedance Monitoring, Residual Current (RCD) Detection, Surge protection level	
Over Voltage Category	TYPE II(DC), TYPE II(AC)	
Interface		
Communication Interface	RS485/CAN	
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN(optional)	





General Data	
Operating Temperature Range (°C)	-40 to +60°C, >45°C derating
Permissible Ambient Humidity	0-100%
Permissible Altitude	2000m
Noise (dB)	<45 dB
Inverter Topology (solar/battery)	Transformerless/ HF Transformer
Over Voltage Category	OVC II(DC), OVC III(AC)
Weight (kg)	35.6
Cabinet size (mm)	420W×670H×233 D (Excluding connectors and brackets)
Protection Degree	IP65
Type of Cooling	Intelligent Air Cooling
Warranty	10 Year
Grid Regulation	AS/NZS 4777.2
Safety / EMC Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2





Model	SUN-5K -SG04LP3-AU	SUN-6K -SG04LP3-AU	SUN-8K -SG04LP3-AU	SUN-10K -SG04LP3-AU	SUN-12K -SG04LP3-AU
Battery Input Data					
Battery Type	Lead-acid or Lithium-ion				
Battery Voltage Range (V)	40-60				
Max. Charging Current (A)	120	150	190	210	240
Max. Discharging Current (A)	120	150	190	210	240
Charging Strategy for Li-Ion Battery	Self-adaption to BMS				
Number of Battery Input	1				
PV String Input Data					
Max. PV access power(W)	10000	12000	16000	20000	24000
Max. DC Input Power (W)	7500	9000	12000	15000	18000
Rated PV Input Voltage (V)	800				
Start-up Voltage (V)	160				
MPPT Voltage Range (V)	200-650				
Rated DC Input Voltage(V)	550				
Max. Operating PV Input Current (A)	13+13			26+13	
Max. Input Short-Circuit Current (A)	19.5+19.5			39+19.5	
No. of MPP Trackers/ No. of Strings MPP Tracker	2/1+1			2/2+1	
AC Output Data					
Rated AC Output Active Power (W)	5000	6000	8000	10000	12000
Max AC Output Active Power (W)	5000	6000	8000	10000	12000
AC Output Rated Current (A)	7.2	8.7	11.6	14.5	17.4
Max. AC Output Current (A)	7.2	8.7	11.6	14.5	17.4
Max. Continuous AC Passthrough (A)	45				
Peak Power (off grid)	2 time of rated power, 10 S				
Power Factor Adjustment Range	0.8 leading to 0.8 lagging				
Rated Input/Output Voltage/Range (V)	230 /240 0.85Un-1.1Un				
Rated Input/Output Grid Frequency/Range	50Hz/45Hz-55Hz				
Grid Connection Form	3L+N+PE				
Total Harmonics Current Distortion (THDi)	<3% (of nominal power)				
DC Current Injection	<0.5% In				
Efficiency					
Max. Efficiency	97.60%				
Euro Efficiency	97.0%				
MPPT Efficiency	99.90%				
Protection					
Integrated	DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Overvoltage Load Drop Protection, Ground Fault Current Monitoring, Arc Fault Circuit Interrupter (optional), Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, DC Input Switch, DC Terminal Insulation Impedance Monitoring, Residual Current (RCD) Detection, Surge protection level				
Over Voltage Category	TYPE II(DC), TYPE II(AC)				
Interface					
Communication Interface	RS485/CAN				
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN(optional)				





General Data	
Operating Temperature Range (°C)	-40 to +60°C, >45°C derating
Permissible Ambient Humidity	0-100%
Permissible Altitude	2000m
Inverter Topology (solar/battery)	Transformerless/ HF Transformer
Over Voltage Category	OVC II(DC), OVC III(AC)
Noise (dB)	<55 dB
Weight (kg)	38
Cabinet size (mm)	422W x 658H x254D (Excluding connectors and brackets)
Protection Degree	IP65
Type of Cooling	Intelligent Air Cooling
Warranty	10 Years
Grid Regulation	AS/NZS 4777.2
Safety EMC / Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2



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