

# SOLAR OFF-GRID MPPT PCU

## ESM3K/48, ESM5K/96, ESM7K5/120, ESM10K/120

### FEATURES

- Advanced MPPT technology ensures upto 30% more energy extraction from Solar panel as compared to PWM based technology
- Intelligent selection modes for high/medium/low power cut areas.
- Pure sine-wave output
- Advanced DSP based technology
- LCD Screen for user convenience
- User configurable parameters through front end wide screen LCD display
- Intelligent mixing of Grid current with solar in case of solar energy shortfall during cloudy days
- Highest efficiency in its class
- Built-in energy meter for Mains, Battery, Solar and load
- Temperature compensated (ATC) charging to enhance performance and life of battery upto 30%.
- Remote monitoring and data logging feature



Model	Weight	Dimensions (L x W x H)
ESM3K/48	45 kg	490mm x 260mm x 445mm
ESM5K/96	60 kg	647mm x 330mm x 580mm
ESM7K5/120	70 kg	647mm x 330mm x 580mm
ESM10K/120	100 Kg	660mm x 330mm x 665mm



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Ver. 1.0

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## Technical Specifications - Solar Off-Grid MPPT PCU

Model No.	ESM3K/48	ESM5K/96	ESM7K5/120	ESM10K/120
PCU VA	3000	5000	7500	10000
<b>INPUT PARAMETERS</b>				
Nominal I/P DC Voltage (V)	48	96	120	120
Low Battery Warning (V)	43.2±0.4	86.4±0.8	108±2	108±2
Low Battery Cut off (V)	42±0.4	84±0.8	105±2	105±2
<b>OUTPUT PARAMETERS</b>				
Waveform	Pure Sinewave	Pure Sinewave	Pure Sinewave	Pure Sinewave
Voltage Regulation (From min. to max. battery voltage & no load to full load) (V)	195 - 220	195 - 220	195 - 220	195 - 220
Frequency Regulation	50 Hz±1Hz	50 Hz±1Hz	50 Hz±1Hz	50 Hz±1Hz
Peak Efficiency of Inverter	89%	89%	89%	89%
Overload Capacity (IT Load Selection)	110% for 60Sec. & 150% for 30Sec. & 200% for 2Sec.	110% for 60Sec. & 150% for 30Sec. & 200% for 2Sec.	110% for 60Sec. & 150% for 30Sec. & 200% for 2Sec.	110% for 60Sec. & 150% for 30Sec. & 200% for 2Sec.
Overload Capacity (Normal Load Selection)	120% for 60Sec.(3 Retry) & 150% for 30Sec.(3 Retry) & 200% for 2Sec.(No Retry)	120% for 60Sec.(3 Retry) & 150% for 30Sec.(3 Retry) & 200% for 2Sec.(No Retry)	120% for 60Sec.(3 Retry) & 150% for 30Sec.(3 Retry) & 200% for 2Sec.(No Retry)	120% for 60Sec.(3 Retry) & 150% for 30Sec.(3 Retry) & 200% for 2Sec.(No Retry)
Distortion (THD)	<3%	<3%	<3%	<3%
Crest factor	3:01	3:01	3:01	3:01
Short Circuit Protection	Provided	Provided	Provided	Provided
No load Shutdown (W)	10 - 15	15 - 20	20 - 25	25 - 30
<b>GRID USAGE</b>				
LCD Display	Batt. Volt., Charging & Discharging Current, Batt. Low/High, Batt. Charging & Discharging Unit (kWh), PV Volt., PV Current, PV Inst. Power, PV Cumulative Energy Unit (kWh), Grid Volt., Grid Current, Grid Commutative Power (kWh), Grid Inst. Power, Grid Frequency, Output Volt., O/P Current, Cumulative O/P Power(kWh), O/P Inst. Power, O/P Freq.			
Grid Charge End Voltage	56.8V (Settable from 52-58V)	113.6V (Settable from 104 - 116V)	142V (Settable from 130-145V)	142V (Settable from 130-145V)
Change over time from Mains to PCU/PCU to Mains	<10ms	<10ms	<10ms	<10ms
Grid I/P Voltage range Default (IT load)	255V-175V	255V-175V	255V-175V	255V-175V
Grid I/P Voltage range Default (Normal load)	280V-120V	280V-120V	280V-120V	280V-120V
Grid Charging Current Default	12A (Settable from 8A-20A)	12A (Settable from 8A-20A)	12A (Settable from 8A-20A)	12A (Settable from 8A-20A)
Cooling	Fan cooling	Fan cooling	Fan cooling	Fan cooling
Charging Current Sharing	Solar on priority, in case solar current is less, shortfall will be taken from grid	Solar on priority, in case solar current is less, shortfall will be taken from grid	Solar on priority, in case solar current is less, shortfall will be taken from grid	Solar on priority, in case solar current is less, shortfall will be taken from grid
Grid Charge Current Enable/Disable	Provided	Provided	Provided	Provided
Night Grid Priority	Available in Smart Mode	Available in Smart Mode	Available in Smart Mode	Available in Smart Mode
<b>MPPT SOLAR CHARGE CONTROLLER</b>				
Technology	DSP Based MPPT Charger	DSP Based MPPT Charger	DSP Based MPPT Charger	DSP Based MPPT Charger
Solar Array	Single Array	Single Array	Single Array	Single Array
Max Solar Panel Wattage	3kWp	5kWp	7.5kWp	10kWp
Input DC Voltage Range (V)	72 - 180	144 - 360	180 - 450	180 - 450
Bulk Voltage	58.4V (Settable from 54V-60V)	116.8V (Settable from 108V-120V)	146V (Settable from 135V-150V)	146V (Settable from 135V-150V)
Adjustable Bulk Voltage	User Settable	User Settable	User Settable	User Settable
Transition from float to bulk	Below float level	Below float level	Below float level	Below float level
Protection	PV Reverse Protection, Reverse Current Flow, High Temperature, Over Current, Battery Overcharge Protection	PV Reverse Protection, Reverse Current Flow, High Temperature, Over Current, Battery Overcharge Protection	PV Reverse Protection, Reverse Current Flow, High Temperature, Over Current, Battery Overcharge Protection	PV Reverse Protection, Reverse Current Flow, High Temperature, Over Current, Battery Overcharge Protection
Power Conversion Efficiency of Solar Charge Controller	96%	96%	96%	96%
Automatic Temperature compensation (Optional)	-3mV/ °C/ cell	-3mV/ °C/ cell	-3mV/ °C/ cell	-3mV/ °C/ cell
High Temperature Cut-OFF PCU/ MPPT	102°C ± 5°C	102°C ± 5°C	102°C ± 5°C	102°C ± 5°C
High Temperature MPPT Charger Reconnect	85°C ± 5°C	85°C ± 5°C	85°C ± 5°C	85°C ± 5°C

\* Technical Specifications are subject to change without prior notice due to constant improvement in design and technology.