



- ❑ 1 kW / 2 kW / 3 kVA Off-Grid Solar Inverters with LCD and LED displays
- ❑ 24 VDC battery versions for 1 kW and 48 VDC for 2 kW / 3kVA
- ❑ Pure Sine wave with highest efficiency
- ❑ Fully configurable (PV / Grid priority modes)
- ❑ Digital Signal Processor (DSP) based system
- ❑ State of Art Technology with efficient MPPT algorithm
- ❑ Fully protected against various faults
- ❑ Optional RS-485/ GPRS / GSM
- ❑ Battery & PV panel are galvanically isolated from O/P
- ❑ Automatic Voltage Regulator (AVR) in Grid mode
- ❑ Plug & Play: tools-free wiring and hassle-free bypass
- ❑ Easy wall-mount installation resulting in reduced floor space
- ❑ Ingress protection category: IP-21

1.0 MERU™ Product Family

The MERU product-line consists of 1 kW/ 2 kW/ 3kVA feature-rich, high performance, pure sine wave, solar off-grid Power Conditioning Units (PCU). It is a wall mounted system with IP-21 ingress protection and is designed for global markets.

The key features of the PCU are:

- High power conversion efficiency (up to 92% in inverter mode and greater than 97% for charge-controller)
- MPPT algorithm to maximize energy harvesting efficiency (greater than 98%)
- Fully protected against various installation related mistakes and operational faults
- LCD and LED indications for status monitoring and faults
- Designed for long operational life (3 year warranty plus two year extended warranty)
- Advanced energy management algorithm to maximize return on investment
- Plug & play and tool-less installation (easy access to all connections without a need to open the unit)

2.0 Applications

- Conditioned and stored power for residential & commercial setups
- Emergency AC power for disaster management
- Nano-grid for rural setups

3.0 Specifications

3.1 Model and Power Rating:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Inverter Model	MERU 1K-24	MERU 2K-48	MERU 2.4K-48
Power rating	1200 VA / 1000 W	2400 VA / 2000 W	3000 VA / 2400 W

3.2 Charge Controller:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Max PV Input power	1000 W	2000 W	2000 W
DC-DC Efficiency	> 97%	> 97%	> 97%
Max Charging current	40 A	40 A	40 A
Max PV I/P voltage	45 VDC	90 VDC	90 VDC
MPPT voltage range	23 to 45 VDC	46 to 90 VDC	46 to 90 VDC
Charging current configuration	Settable using front panel keys		
PV input connector	MC4		

3.3 Input AC Power:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
AC charging current	20 A	20 A	20 A
Input AC Voltage range	165 V to 275 VAC		
Input frequency	47 - 53 Hz / 57 to 63 Hz		
AC Input connector	IEC Connector		

3.4 Output AC Power:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Maximum AC O/P Power	1200 VA / 1000 W	2400 VA / 2000 W	3000 VA / 2400 W
Voltage	230 VAC +/-5%, 1-Phase		
Frequency	50 Hz or 60 Hz (+/- 0.5 Hz) in Inverter Mode		
AC output connector	IEC Connector		
Output waveform / THD	Pure sine wave / <3% THD for Linear Loads		
Isolation Type	Line Frequency Transformer		
Load Power Factor	0.8 lag to Unity		
Typical transfer time	Less than 10 ms		
Load reconnection	Automatic		

3.5 Battery	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Voltage	24 VDC	48 VDC	48 VDC
Suggested Battery Ah capacity	12V, 200 Ah x 2 Nos.	12V, 150 Ah x 4 Nos.	12V, 150 Ah x 4 Nos.
Max Charge current	0.2C, limited to 40A	0.2C, limited to 40A	0.2C, limited to 40A
Max Discharge current	53 A	53 A	62 A
Battery LVD cut off	21.5 +/- 0.2V	43 +/- 0.2V	43 +/- 0.2V
Charging Priority	Solar priority / grid priority		
Power saving recovery time	5 s		

3.6 Energy Management (for all models):	
Scenario#1: Solar Priority 1. Full battery 2. PV present ¹ 3. Grid present	PV will charge battery and supply power to load. Grid will be in standby mode. If PV power is inadequate, battery will also feed the load. Once battery reaches a preset lower limit, Grid will feed the load. PV will continue charging the battery using MPPT algorithm.
Scenario#2: Solar Priority 1. Full battery 2. PV not present ² 3. Grid present	Battery will feed the load until it discharges to a preset lower limit. Then on, Grid will feed the load and charge the battery up to a preset upper limit.
Scenario#3: Grid Priority 1. Full / low battery 2. PV not present 3. Grid present	Grid will feed the load and also charge the battery if required. Upon grid failure ³ , the load will be transferred to the battery in inverter mode till grid resumes or the battery is fully discharged.
Scenario#4: Grid Priority 1. Low battery 2. PV present 3. Grid present	Grid will feed the load, and PV will charge the battery using MPPT algorithm. Upon grid failure, the load will be fed by PV & battery till grid resumes.
Solar & Grid Priority setting	Settable using front panel keys

Notes:

1. Bright day and sufficient PV energy can be harnessed
2. Early mornings, evenings, partially and fully cloudy days with insufficient PV energy
3. Grid failure means: grid over voltage, under voltage, over frequency, under frequency and grid outage.

3.7 Efficiency & Overload:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Inverter Peak Efficiency	92%	92%	92%
Inverter Overload	100 - 150 % for 30s		
Internal power consumption during operations	~ 20 Watts	~ 30 Watts	~ 40 Watts

3.8 Safety & Protection (for all models):			
Battery, PV, AC & Others	Battery Low	Battery High	Battery reverse polarity
	PV reverse Polarity	PV Reverse Current flow	Input Over Voltage
	Input Under Voltage	Input High/Low Frequency	Input Surge Voltage
	Over Load	Over Charge	Over Temperature
	Fuse for battery short circuit protection	Circuit breaker for AC overload	AC O/P short circuit

3.9 Environmental (for all models):	
Operating temperature	0 to 50 deg C
Storage temperature	-10 to 60 deg C
Relative Humidity	Up to 95% Non-condensing
Noise level	< 40 dBA
Altitude	< 2000 meter above sea level

3.10 Mechanical:	1 kW – 24 V I/P	2 kW – 48 V I/P	3 kVA – 48 V I/P
Weight in kg	19	29	29
Ingress protection	IP 21		
Cooling	Temperature / Load dependent forced Air cooling		
Dimensions (W x D x H) in mm	352 x 150 x 462		

3.11 Monitoring (for all models):			
LED Indicators	Mains Input ON	Battery (Normal)	Bypass
	Inverter ON	PV ON	Over Load
LCD Display	PV Array Voltage	Mains Voltage	Inverter Voltage
	PV Array Current	Mains Current	Inverter Current
	PV Array Watts	Mains Watts	Inverter Watts
	PV Array kWh	Mains kWh	Inverter kWh
	Battery Voltage	Batt. Chg. Status in %	Date & Time
		System fault status	
		Internal unit temperature	
Internal RTC	Yes & settable		

3.12 Data Communication (for all models):	
Interface options	RS 485 / GPRS / GSM

4.0 Reliability



With 2 years extended warranty

All Specifications are subject to change without notice