

ECOBIX-MR

REFORMER INTEGRATED **FUEL CELL** UPS SOLUTIONS



APPLICATIONS

- Cost savings over diesel power, even while reducing carbon output
- Remotely accessible for real-time control & monitoring
- Anti-theft solution (fuel source does not have a resale value)
- Optional extended-run / auxiliary fuel tank cabinets

- Telecom UPS
- Remote Monitoring
- Rail & Signals
- Marine
- Government
- Security & Surveillance
- Remote Area Power



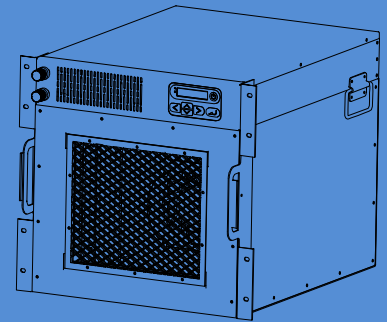
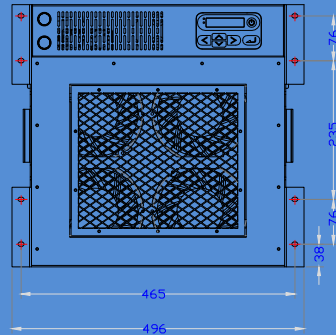
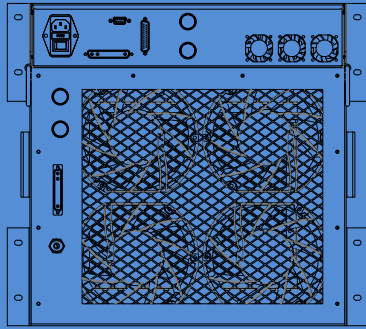
- Quiet Operation, Clean Power
- Lower Energy Cost, Lower Maintenance



- Safe, non-volatile fuel: methanol diluted with water
- Achieves a fuel efficiency 1kWh/L
- No carbon monoxide, NOx or SOx emissions
- Can be hybridized with solar or wind power

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REFORMER INTEGRATED FUEL CELL UPS SOLUTIONS



MODEL	MR-1	MR-2.5	MR-5	MR-10
Nominal Continuous Power Output	1kW	2.5kW	5kW	10kW
Nominal Current	21A	53A	105A	210A
Nominal Voltage (Typical DC)	48V DC			
Est. Fuel Consumption (L/hr)	1.6	3.9	5	10
FOOTPRINT				
Cabinet Dimensions (W x D x H) mm	60*90*200	120*90*150	120*90*150	240*90*150
Base Footprint (W x D) mm	60*90	120*90	120*90	240*90
Total Weight kg	200	250	280	500
Enclosure Material	Powder Coated Steel			
OPERATION				
Power Conditioning	DC/DC converter, load following, remote real-time controllable output Optional DC/AC inverter, load following, 50 or 60 Hz, 120 / 240 VAC selectable			
Warm up to Standby state	Approximately 3-4 hours from 20 C ambient temperatures			
Black start power requirements	45-60 VDC, 600W for electric-only powered warm-up			
Standby Power Consumption	48V DC, 150W for 1kW, 300W for 2.5KW and 5KW, 600W for 10KW			
Standby to Run	2-4 minutes to 50%, 10 minutes to 100% output from electric standby			
Rapid start	TBD, rapid start uses alternate (?) fuel mix for warm up cycle			
EMISSIONS				
Reformer exhaust	CO2 by-product, must be properly vented to the outside atmosphere			
Noise	<65 dBA @ 1m	<65 dBA @ 1m	<65 dBA @ 1m	<65 dBA @ 1m
Water	Approx 0.38L/kWh dependent on local conditions, condenser kit available			
CO, Nox, Sox	None			
FUEL CELL SYSTEM				
Type	PEM			
Coolant	Air			
Efficiency	55% peak operating for fuel cell power module			
Fuel Type & Specification	Methanol-Water mix. Mix ratio: 2 liters methanol, 1 liter de-ionized water			
Methanol quality requirements	99.85% purity, recommend Methanol compliant with IMPCA Specifications			
Water quality requirements	De-ionized water			
Hydrogen purity delivered	99.99% pure hydrogen			
Fuel storage tank	Outside			
OPERATING ENVIRONMENT				
Ambient temperature range	Start temperature range, rated power maintained -20 to 45C			
Relative Humidity	0 to 95 % non-condensing			
Standard altitude capability	<3,050 meters, 10,000 ft			
Shipping freeze exposure	Altitude compensating kit available for elevation above standard Fuel cell stack non-operating / shipping exposure limit : -20C			
CONTROLS & COMMUNICATION				
Software	Full remote command & monitoring via internet			
GUI (Graphical User Interface)	Standard 76mm LCD & Keypad			
Remote Communications Options	Laptop or desktop computer, optional			
	Serial port RS232			
	Full remote command & monitoring via internet			
	TCP/IP - Fiber, LAN, or Wireless network			