HYbrid ENERGY

HES MINI 20kW

Application:

- Site Loads up to 400 A possible (48 V DC)
- Recommended load factor is < 50% for optimum CapEx / OpEx balance
- Increased fuel efficiency can be achieved by reducing load factor further
- There is NO MINIMUM LOAD

Genset Style Enclosure:

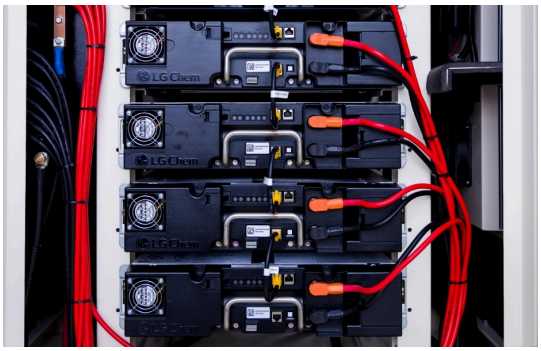
- 2200mm x 900mm x 2100mm (w x d x h) including 1000L base tank
- Folded steel panels
- Powder coated finish
- Three separate equipment compartments, engine compartment, electrical panel compartment and battery compartment
- Engine Compartment:
  3 doors
  Forced ventilation
  Acoustic insulation <69 dB(A) @ 7m
- Electrical Panel Compartment:
  1 door
  Sealed and insulated
- Battery Compartment:
  1 door
  Sealed and insulated
- Forced Ventilation
- Fork lift pockets

Battery Management System:

- Up to 10 modules in parallel
- Self diagnostics
- Cell balancing
- Charge and discharge enable supervision and control
- State of charge, health, current, temperature, cell resistance monitoring
- Multiple strings of cells in parallel and series for battery redundancy*

Battery:

- Lithium Ion
- Light weight and compact
- Built in Battery Management System and safety disconnect
- Low maintenance, sealed for life construction
- 48V DC, 63 or 126 Ah Modules
- Up to 52kWh / 1,008Ah capacity by connecting 8 modules in parallel
- 4 times longer cycle life than lead acid
- Very high charge and discharge capability
- ‘Hot Swap’ capability



Alternator:

- Permanent Magnet type
- Rated power up to 20kW*
- Thermal, Overcurrent and Overspeed protection
- Simple construction; 1 moving part, no bearings or sliding contacts
- Low voltage ripple

Engine:

- Perkins 404D-22
- 4 stroke indirect injection compre
- Diesel fuel
- 4 cylinder compact package
- Liquid cooled
  2.2 litre displacement
- Low fuel consumption, over wide range of speeds
- 500 hour service intervals

Air Conditioning*:

- Free air cooling unit, Thermosyphon
- DC air conditioner
- Hybrid free air cooling / DC air conditioner
- Up to 3,000 Watts cooling @ 48 V DC
- R134a Refrigerant
- Quiet (65 dB @ 1.5m)
- Variable speed compressor and fans
- Microchannel heat exchangers
- High efficency

*Indicates optional equipment

Control System:

- Microprocessor controlled
- Fully automatic, autonomous operation
- Remote monitoring, diagnosis and control
- Historical data trending
- Monitors and controls all major operating parameters of the HYbrid system
- Expandable to monitor clients equipment or relay signals to client's system*

Remote Monitoring:

- GPRS or TCP communication
- Full remote control and monitoring
- Email & SMS alerts*
- Web based interface
- Historical data recording
- Alarm list and fault reset
- Fleet status at-a-glance

System	Feature	Benefit
Fuel	**Up to 1000 litre tank***	-Up to 3 months between refuelling (adds 750mm to height)
	Secondary Racor filter*	-Increases fuel filter life where there is heavy fuel contamination
	Water in fuel sensor*	-Shuts down engine safely if fuel is contaminated with water
Lube oil	**Bypass oil filter with evaporation chamber***	-Removes contaminants and acidic by-products of combustion. Increases oil life. Ideal for areas with poor fuel quality -Service interval up to 1,000 hours
Electrical System	**400 A rating***	-Peak loads of 400 A possible
	Solar Array*	-Increase fuel efficiency by using solar energy to charge the battery pack and power the site load during the day
Alternator	**400 A rating***	-Max continuous DC load possible, 400 A
	PMG	-Robust, simple and reliable. High efficiency
Enclosure	**All steel construction**	-Secure and vandal resistant
	Separate electrical, battery and engine compartments	-Different operating environments to suit the equipment therein -Galvanized and powder coated paint finish for corrosion resistance
Controls	**GPRS communication***	-Web based remote monitoring -Remote fault diagnosis and repair
	Flexible	-Configurable to client's requirements*
	Protection functions	-Monitors HES performance and protects the equipment from damage in the case of a malfunction
Battery	**Lithium Ion**	-Built in Battery Management System -Up to 52kWh / 1,008Ah capacity -Longer life, Low maintenance -High charge and discharge capabilities
Weight	**Dry Weight**	-1160kg, with batteries

* Indicates optional equipment
** Due to HYbrid Energy's policy of continuous improvement, these specifications are subject to change without notice