

Grid Independender – Solar/Diesel Power System

Hybrid power system for remote locations

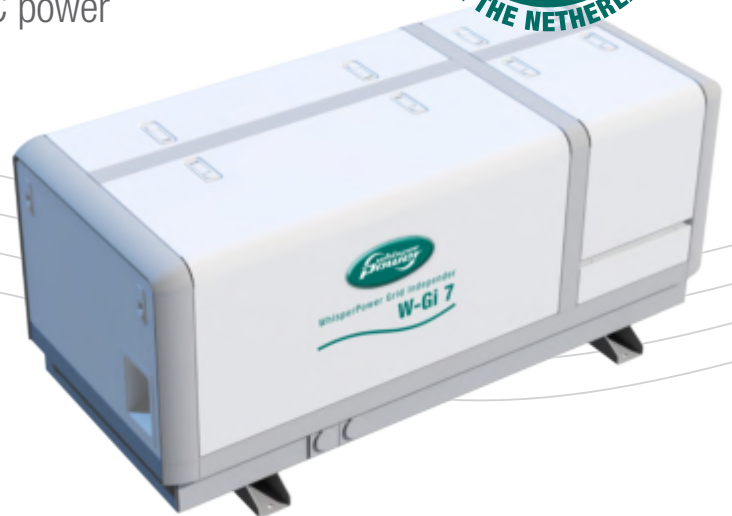


Datasheet



Grid Independender Solar/Diesel Hybrid Power System 7 kW

- Always 230V/50 Hz AC power, day and night
- 7 kW continuous power 230V/50 Hz
- Variable speed Diesel generator of 3.8 kW AC power
- 3 kW sine wave inverter power
- 2 kW/80 A MPPT solar charger
- Built-in GEL Battery 220 Ah/24 VDC
- Automatic start/stop system
- 30 litres Diesel fuel tank
- AC power distribution including breakers



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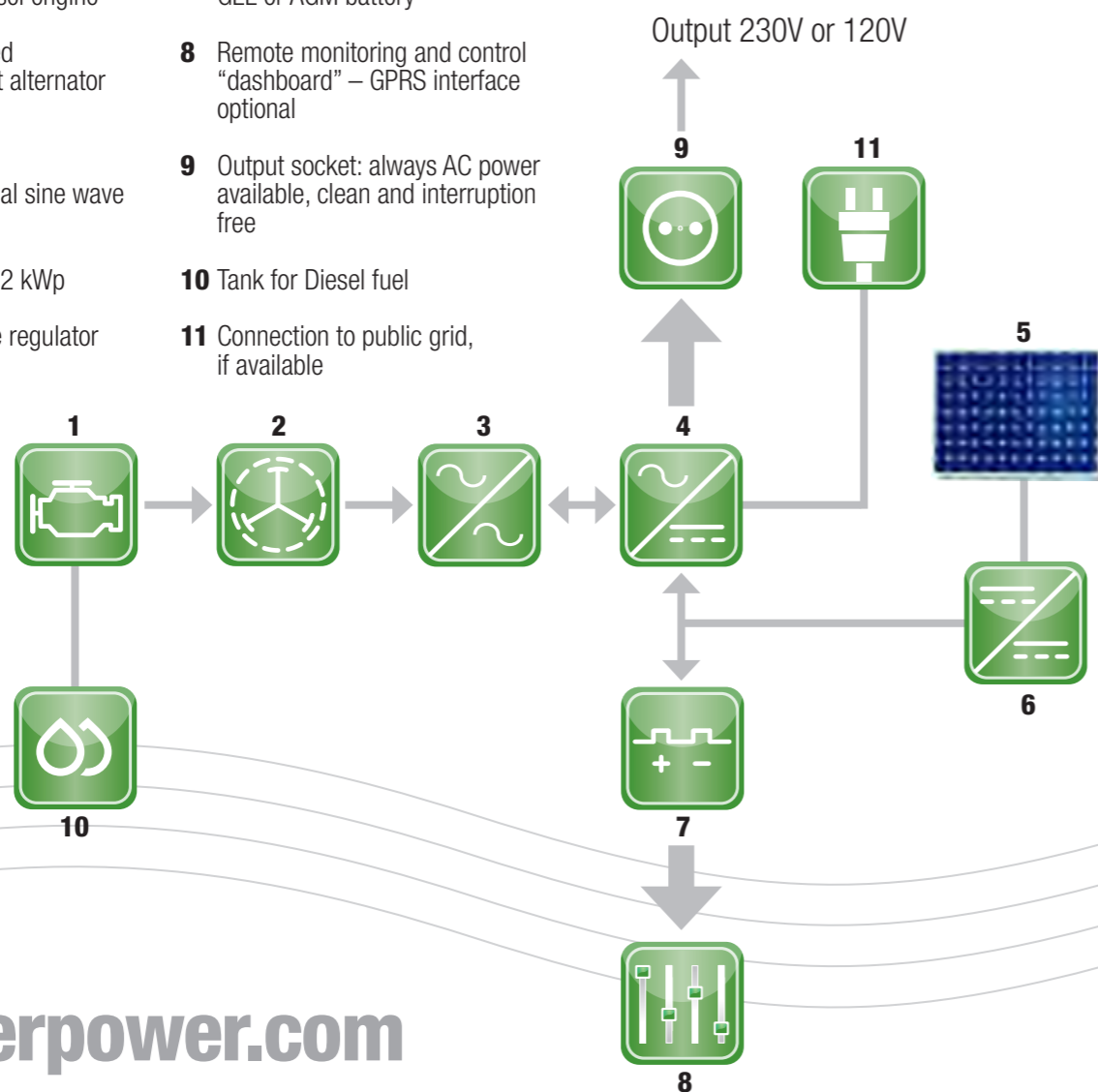
All-In-One Solution • Grid Independer

The perfect Off-Grid power solution

Say goodbye to noisy and energy inefficient Diesel power systems. With engines that run around the clock. Bid farewell to wasting vast amounts of energy, polluting the environment. And the expenses of high maintenance due to frequent service intervals. Welcome to the future. Welcome to the world of WhisperPower.

Schematic diagram of the key components:

- | | |
|---|--|
| 1 1 cylinder, oil cooled, WhisperPower Diesel engine | 7 Maintenance free WhisperPower GEL or AGM battery |
| 2 Fly wheel integrated permanent magnet alternator | 8 Remote monitoring and control "dashboard" – GPRS interface optional |
| 3 AC-AC converter | 9 Output socket: always AC power available, clean and interruption free |
| 4 DC-AC bi-directional sine wave inverter/charger | 10 Tank for Diesel fuel |
| 5 Solar panels up to 2 kWp | 11 Connection to public grid, if available |
| 6 MPPT solar charge regulator | |



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Grid Independer: short description



1. Diesel GENERATOR

This is a complete WhisperPower designed Genverter system, consisting of a 1 cylinder oil cooled Diesel and 4.5 kW permanent magnet fly wheel integrated alternator. The Genverter Diesel generator operates between 2500 and 3400/min when more power is required the speed will increase and vice versa. A 30 litres Diesel fuel tank will keep the system going for at least 20 hours.

2. SINE WAVE INVERTER

The built-in sine wave inverter delivers 3.0 kW of silent AC power. Software adaptations are from WhisperPower, hardware is supplied by Outback (model FP 1-34): a complete pre-wired system including an automatic 3-stage 85A battery charger for recharging the battery during engine running time, an automatic transfer switch to connect the loads to the grid (in case this is available), ensuring seamless load management from utility power. The system includes a remote control which monitors all system components, the solar charger, battery temperature sensor, an ampère hour meter, a data logger, lightning protection, various DC and AC breakers and last but not least an AC outlet.



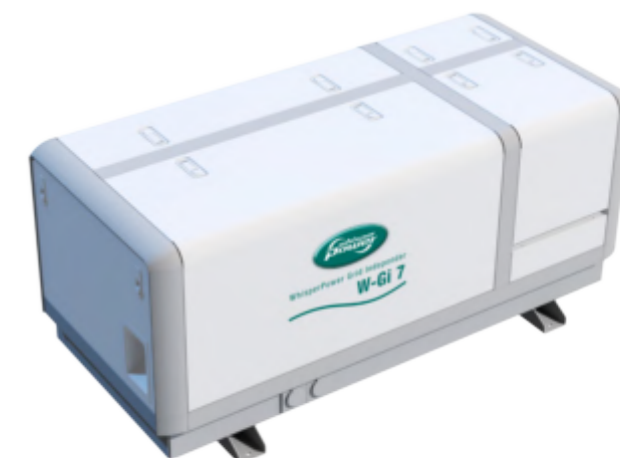
3. MAINTENANCE FREE BATTERIES

WhisperPower is offering GEL, AGM, 2 V Traction GEL and Li Ion batteries. For this system the high quality long life 12 V GEL cells are selected. They can be charged/discharged with appr. 50% of their nominal capacity and are designed for an extended cycle life. At a discharge not below 50%, the batteries can be used for over 1000 cycles. Battery extension packs can be provided at request.



4. BOILER KIT FOR HOT WATER

The Grid Independer consists of one cabinet of 141x63x63 cm (ltxhd), and is ready for use in any commercial or recreational location. WhisperPower is offering a specific BOILER kit which can be connected to the oil cooled Diesel engine, for the perfect regeneration of energy.



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Technical data: Grid Independer - Hybrid Power System

System specifications	
Combined system output	7 kW
Generator power (running engine)	3.4 kW
Silent power (inverter mode)	3.3 kW (30 min.) / 3.0 kW (cont.)
Generator specifications	
Peak output AC	35 A
Nominal voltage AC	230 VAC *)
Nominal current AC (combined)	30.0 A
Nominal frequency AC	50.0 Hz
Thd nominal operation AC	<5%
Leading or lagging power factor	0.1 - 1
Parallel use with AC grid (<25A)	silent mode only
Specifications Diesel engine	
Engine model	Whisper WP1-4
Number of cylinders	1
Cylinder capacity	300 cc
Air consumption	0.42 m³/min @3000rpm
Engine cooling	fully oil cooled
Fuel consumption (no load-full load)	0.8-1.5 l/h
Inverter specifications	
Silent power	3.0 kW (cont.)
Silent power 5 s	4.8 kW (peak)
Standby consumption	6 W
Efficiency (typical)	92%
Battery charger specifications	
Charge current	85 A (24 VDC)
Charge from AC grid	160 - 300 VAC
Temperature sensor	yes
Mechanical specifications	
Cooling	radiator/air
Dimensions incl. sound sh. (l*w*h) cm	141*63*63
Dry weight	appr. 380 Kg
Alternator	air-cooled permanent magnet
Material/Color	sheet metal/RAL 9003
Temperature range operational	-20°C to 40°C
Protection degree	engine compartment IP44, electronic compartment IP23
Relative humidity	max. 95% relative humidity, none condensing

*) 120 VAC/60Hz at request

HYBRID SOLAR/Diesel POWER SYSTEM FOR REMOTE APPLICATIONS

WhisperPower has developed a new system to provide mains electricity to locations without (permanent) grid connection. The Grid Independer is capable to deliver 230 VAC/50 Hz, 7 kW from the internal maintenance free gel battery by a true sine wave inverter, capable to run in parallel with the WhisperPower Diesel generator. Under normal conditions, the Diesel generator will not be running. In case the battery is discharged below a certain level, or the load demand exceeds the power the inverter can deliver, the built-in variable speed Diesel generator of 3.8 kW will recharge the battery pack within a short period. Start and stop process is done fully automatic, the sine wave inverter of 3.0 kW continuous power rating is always stand by to power the AC appliances. The system is prepared to plug in up to 2 kW of solar power with input voltages as high as 150 V which will save Diesel fuel costs and generator operating hours in case of sufficient radiation. The system is fitted with an AC input for utility grid which might be (temporarily) available. The AC line will be used to recharge the battery or power the connected AC appliances directly. In case of a power cut or voltage fluctuations, the inverter will be activated to back up the AC load without interruption.

SYSTEM EXAMPLE

The Grid Independer is the first system available in the world combining SOLAR, INVERTER and Diesel power in a smart way. The system replaces the public grid entirely, in case of average household and/or commercial use. The system is designed to provide appliances of up to 7 kW. The peak power capability is over 10 kW, sufficient to operate airconditioning systems. In case the AC load is 500 Watt, while the sun is not shining, the system will provide from the battery and the inverter AC power during 5 hours, which will discharge the battery by 50%. In case the solar panels are not activated, the WhisperPower Diesel generator will start to recharge the battery (this will take not much more than one hour, the 500 Watt load can remain connected).

