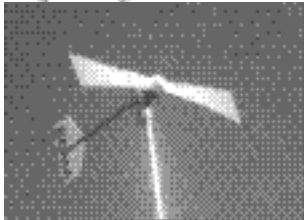
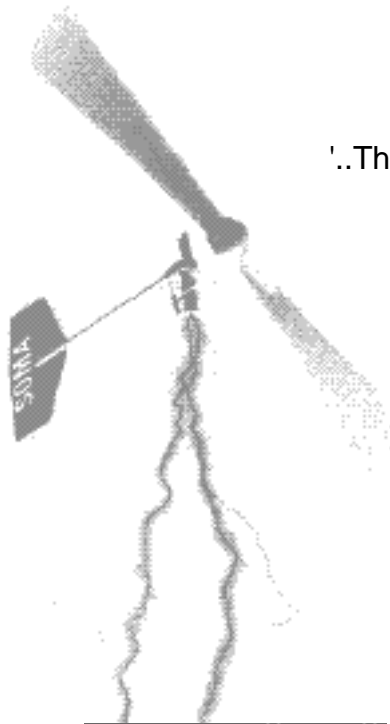
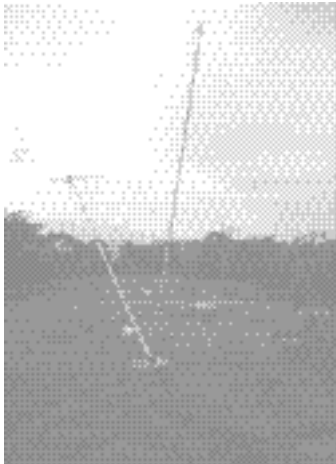


SOMA WIND TURBINES

'..The answer my friend is blowing in the wind..' *Bob Dylan*



Soma 1000 in running position



13m tower in 3/4 tilted position

Performance

Soma Wind Turbines, in production since 1979 and manufactured by Sunrise Solar since 1996, are made from the highest quality materials to withstand long-term wear and fatigue. Large rotor diameters ensure high efficiency in light to moderate windspeeds. The brushless, permanent magnet alternators are designed to produce a power curve that matches the output of the 2 bladed rotor while operating at optimal tip speed ratios. The propellers are constructed using a hollow moulded fibreglass technique that is unique to Soma. Applications include any remote sites where alternative power is required, such as home power and telecommunications.

Feathering

The tilt back action relieves pressure on the wind generator and tower in strong winds. This is a fail safe design with mechanical simplicity. A hydraulic dampener limits the feathering action in gusty wind

conditions, ensuring smooth operation.

Control Panel

Soma Wind Turbines are supplied complete with a voltage regulated control panel and dump load. When the batteries are fully charged the excess power is burnt off as heat. The **Control Panel** features a **tapered** charge regulator which progressively reduces the supply of current to the battery as it reaches full charge. By adjusting the control dial the upper voltage can be reset to enable equalization charging.

Tilt Tower

Sunrise Solar manufacture 13 metre and 19.5 metre guyed tilt towers complete with brake winch. Safe, easy and no climbing!

Wind-Solar Hybrid

The Wind Turbine can be connected to the same bank of batteries as solar panels to create a hybrid system. Such a system provides a more constant supply of power and is less affected by variations in wind and solar levels.

Batteries

Deep cycle batteries should be large enough to provide 3-4 days storage for windless periods. The **Soma400** should have a battery bank of at least 220AH at 24 volts (or 440AH at 12 volts). The **Soma1000** requires a minimum size of 550 AH at 24 volts (or 275AH at 48 volts). Lights and numerous appliances are available to run directly off the battery.



Professional Telecommunications Site
Papua New Guinea - 14000ft.



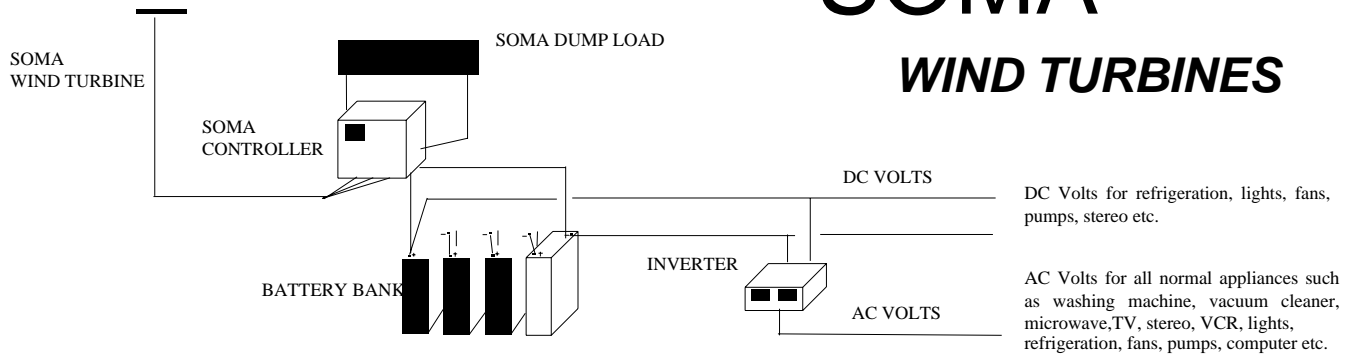
Soma 1000 in fully tilted position



Hybrid home power system with Soma 1000 on 13m tower and solar panels located nearer to house.

SOMA

WIND TURBINES



Simple Installation and Maintenance

Installation can be carried out by following the instructions in the manual provided. It should take two people no more than two days to complete. Better still, contact us for a Soma dealer in your area and have it installed professionally. Sunrise Solar also manufacture a range of winch towers which are designed to simplify installation and maintenance of the Soma Wind Turbines.

Warranty

Soma Wind Turbines are guaranteed to be free of any defects in materials and workmanship for a period of one year. Sunrise Solar has a long-standing reputation for providing complete back-up and service facilities if required.

PARAMETER	SOMA 400	SOMA 1000
Rated Output @ 10m/s wind speed	400W	1000W
Peak Output	500W	1200W
Cut-in Wind Speed	4m/s	3.5m/s
Rated Wind Speed	10m/s	10m/s
Max Design Wind Speed	50m/s	50m/s
Feathering Mechanism	Tilt-up	Tilt-up
Blade Diameter	2 metres	2.7 metres
Number of Blades	2	2
Operating Speed	300-1200RPM	250-800RPM
Blade Construction	GRP Fibreglass	GRP Fibreglass
Alternator Type	Permanent Magnet 3 Phase	Permanent magnet 3 Phase
Voltage	12, 24 or 48V.	12 (with transformer), 24, 48, 108, 110, 120
Battery Voltage Regulator	Shunt, Adjustable voltage, PWM	Shunt, Adjustable voltage, PWM
Shipping Volume	0.18 cubic metres	0.18 cubic metres
Shipping Weight	45kg	50kg

Electric Systems Ltd
P.O.BOX 5054, Port Nelson, New Zealand
Please contact Brian Howell
Phone (0274) 437-007
Fax (03) 547-8426
A/h's (03) 547-8443

