# SOMA wind turbines

In a good wind site, the SOMA wind turbine can supply enough power for an energy efficient household, excluding high power consuming items such as electric cooking, space heating, hot water and refrigerative air conditioning. It is recommended to use LP gas or fuel stove, a solar hot water system and evaporative air conditioning in combination with passive solar design to meet these requirements. Contact Rainbow Power Company for a system design.

## Rugged Durability

All components are made from the highest quality materials to withstand long term wear and fatigue. Corrosion protection is a high priority. The blades are constructed using a hollow moulded fibreglass technique that is unique to SOMA.

## Performance

Large rotor diameters ensure high efficiency in light to moderate wind speeds. The brushless, permanent magnet alternators used on all Soma machines are designed to produce a power curve that matches the output of the 2 bladed rotor while operating at optimal tip speed ratios.

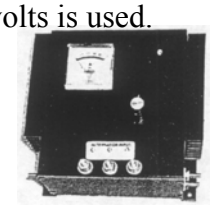
## Tower

There is a choice between using a wooden pole or galvanised pipe for a tower. The wooden pole is set in the ground and guy wires are used for support. The wind turbine is assembled on top of the pole after it has been raised.

The galvanised pipe tower utilises 2 or 3 lengths of pipe to form a tower 13 or 20 metres high. The wind turbine is assembled on the ground and is raised with the hinged tower. Comprehensive instructions of each type of tower are included in the manual.

## Distance

The maximum distance from the tower to the batteries depends on the system voltage. The SOMA 400 can be sited up to 300 metres away at 24 volts and 150 metres away at 12 volts while the SOMA 1000 can be sited up to 750 metres away if 110 volts is used.




## Batteries

Deep cycle batteries should be large enough to provide 3 4 days storage for windless periods. The SOMA 400 should have a battery bank of at least 220 amp hoursat 24 volts (440 amp hours at 12 volts). The SOMA 1000 requires a minimum size of 350 amp hours at 24 volts (175 amp hours at 48 volts). An extensive range of lights and some appliances (eg fridge, freezer, pump, cooling fan) are available to run directly off the battery.

## Inverter

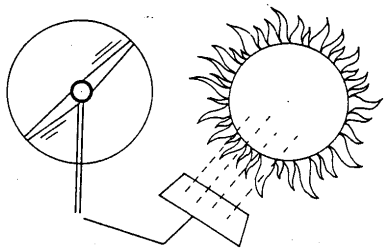
If 240 volts AC power is required to run normal household appliances or power tools, then an inverter can be installed to convert the battery power as required.

## 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 SOMA 1000 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.


RAINBOW POWER COMPANY LTD

A.B.N. 74 003 323 420
1 Alternative Way, Nimbin, NSW, 2480
phone: (02) 6689 1430 fax: (02) 6689 1109
e-mail:sales@ rpc.com.au web page: www.rpc.com.au



## Solar Hybrid Option

For better sustainability and reliability through low wind periods it is recommended to have solar panels connected to the same battery bank as the wind turbine to create a hybrid system. Such a system provides a more consistent supply of power and is less affected by variations in wind and solar levels.

## Simple Installation

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.

## Feathering Mechanism

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

## Warranty

Soma wind turbines are guaranteed to be free of any defects in materials and workmanship for a period of one year.

## Specifications:

| | Soma 400 | Soma 1000 |
|---|---|---|
| Rated output | 400W | 1000W |
| Peak output | 500W | 1200W |
| Rotor diameter | 2 metres | 2.7 metres |
| Voltage | 12 or 24 volt | 24,48 or 110 volt |
| Controller | Voltage controlled relay | Mosfet switching |
| Cut-in wind speed | 4 m/s | 3.5 m/s |
| Rated wind speed | 10 m/s | 10 m/s |
| Max design wind speed | 50 m/s | 50 m/s |
| Operating speeds | 300-1200 rpm | 250-800 rpm |
| Feathering mechanism | Tilt-up | |
| Number of blades | 2 blades | |
| Blade construction | Hollow moulded fibreglass GRP | |
| Alternator type | Permanent magnet - 3 phase | |
| Shipping Volume | 0.15 cubic metres | |
| Shipping Weight | 40 kg | 50 kg |