



*Non contractual photo*

**SERVICE : 220V, 50HZ, 1KW**

**DIMENSIONS : 1500X600X1750 AND  
1800X1000X800**

**WEIGHT : 140KG AND 40KG**

## REFERENCE : MP5500-S-E

**A micro wind and solar power plant is a power plant that uses wind power and solar power to generate electricity on a small scale. This electricity can be used to supply isolated sites or be returned to a public distribution network (option).**

### Educational Objectives :

- Study of a wind / solar system operating in isolated mode: the electricity production charges the batteries and / or is consumed.
- Study of the industrial components of the system: photovoltaic panel, specific generator for wind turbines, inverter, rectifier, power analyzer, variable speed drive.
- Commissioning and parameterization of components (drive, charger, inverter).
- Study of the performance of the components of the chain and energy balance of the system &nbsp; by measuring the voltages and currents at various points in the circuit and by the data supplied by the available instruments (control screen, voltage and current measuring clamp, network analyzer).
- Thanks to the calculation of the yields comparison of the performances of the photovoltaic system &nbsp; &nbsp; and wind power
- Calculation of the autonomy of the energy storage in the batteries

### Technical specifications :

The proposed bench is equipped with an industrial wind generator of 500W, driven by an asynchronous motor and a 250 Wp solar panel. The components of the control system are industrial components: hybrid regulator / charger, inverter, monitor, dimmer.

The whole is mounted on a frame in stainless steel tubes mounted on casters.

- A 24V -250 Wp-1.6m<sup>2</sup> mono-crystalline solar panel. The panel is mounted on a frame with casters. Its inclination is adjustable. It is connected to the control unit by cables with MC4 connectors.
- The wind generator: permanent magnet (neodymium / iron / boron) specific for wind power applications. Three-phase 24V output. Capable of producing a maximum power of 500W at 2500rpm . Production from a wind of 3m / sec. This generator is driven An asynchronous motor of 750 W at 1400 rpm.
- Its Speed ??is adjustable by a variator integrated into the electrical box. the adjustment potentiometer is on the front of the control cabinet. The drive is programmable using the Power suite software. The speed of rotation is measured by a magnetic sensor on the motor / generator shaft.
- The control and command center (IP55, lockable), contains the following electrical components:

- A PLC with tactile dialogue terminal
- Data acquisition,
- Calculation: power, efficiency, wind speed
- Commands
- View on the mimic diagram of the machine: the measured, calculated, etc. data
- Variator, speedometer and network analyzer
- Two AGM (gel lead) batteries of 12V -24Ah
- 3 consumption lamps of 40W at 220 V
- An inverter 24V DC / 230 V AC
- A hybrid rectifier / charger solar-wind: 12V / 24V of 300W

### **OPTIONS :**

network coupling