15. Applications in the building trade

Photovoltaic / wind power bench for isolated locations

Training objectives

- Identifying the equipment.
- Operating the system and using the Web pages.
- Studying and sizing a solar and wind power installation.
- Studying the energy transfer and calculating autonomy depending on the battery configuration.
- Measuring and comparing the PV/wind power performance levels.

Presentation

This product is designed to help learners to find out about production of energy from renewable sources, using a solar panel and/or wind power, in the case of an isolated location. The electrical energy stored in the batteries can be used to power an outside equipment unit (230 V / 1 A maximum).
The wind turbine is driven by an asynchronous motor with a variable speed controller, to simulate different wind strengths.
A PLC monitors the state of charge of the batteries and switches the power supply over to the mains if necessary.

Panel Side

Box Side

Description

Contents

Description	Quantity.
Aluminium profile structure fitted with wheels	1
Electrical box with mimic diagram panel	1
Swivelling PV panel measuring about 0.7 m^2	1
350 W wind turbine driven by an asynchronous motor	1
12 V lead gel batteries	1
24 V battery charger.	1
Regulator	1
24 V / 230 V inverter for isolated locations	1
PLC	1
Magelis terminal for dialogue, piloting and display of measurements	1
Ethernet coupler	1
Voltage and current measurement points for the photovoltaic and wind power systems	

References

Description	Reference No.
Photovoltaic and wind power bench for isolated locations	MDG99215

Decision aid

Sectors concerned
- Electrical
- Energy

Designated skills
- Analysis
- Configuring
- Studying

Themes studied
- Energy from renewable sources
- Energy management
- Measuring
- Energy storage