

Equipment acquired in WESET Project

Equipments in Wind Energy Center-ENIS- University of Sfax

Equipment acquired

1st part : Wind Energy Emulator

(Emulateur d'éolienne 0,3 Kw)

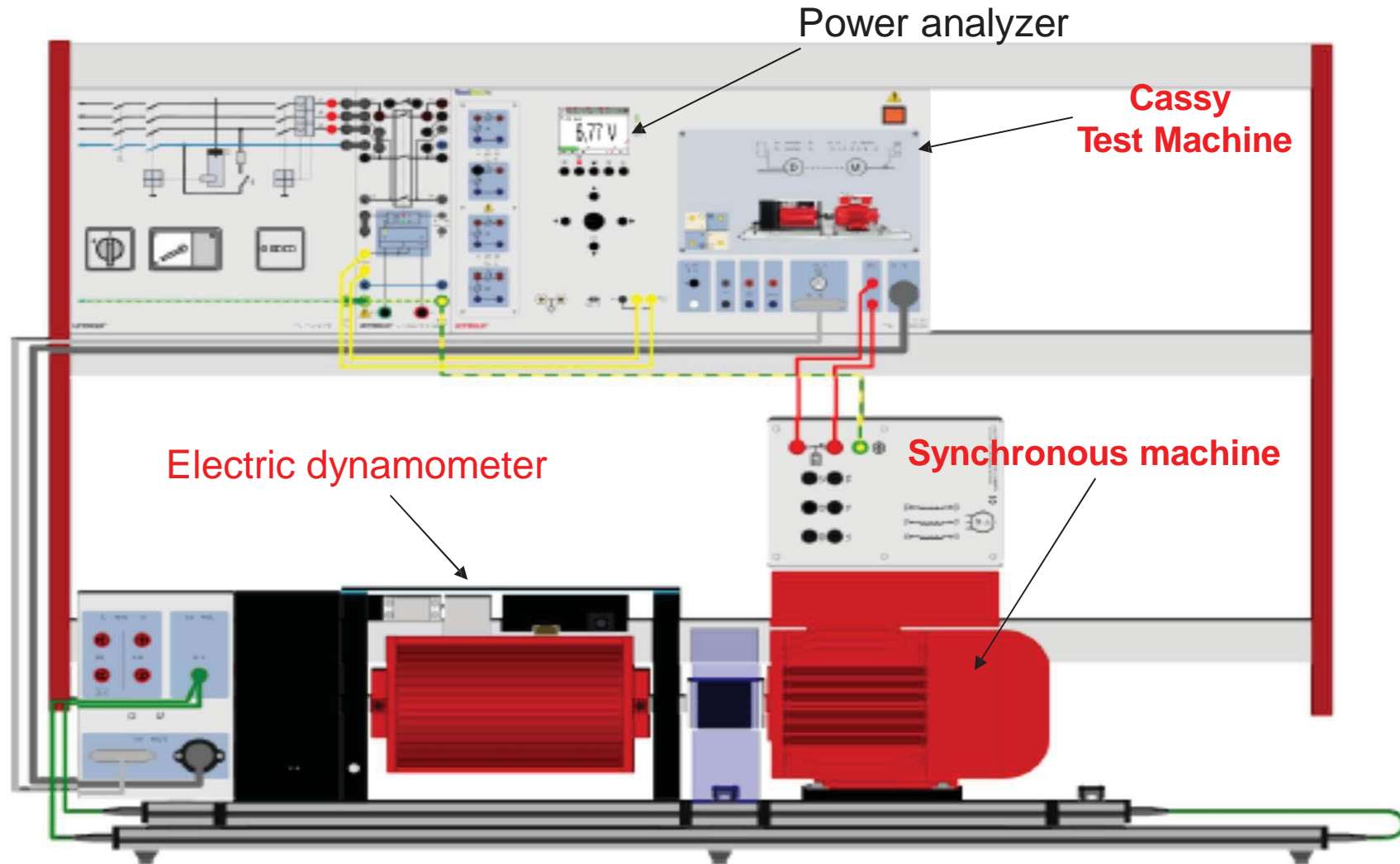
2nd part : Real Wind Power Generator trainer

(Eolienne réelle 0.6 Kw avec stockage d'énergie)



Equipment in the Wind Energy Centre

First test Bench : Wind Emulator (Prototype)



Equipment in the Wind Energy Centre ENIS-Sfax University

First test Bench : Emulator on Wind Energy

Machine Test CASSY

Machine Test CASSY is a measuring and control device for use in experiments in electrical engineering, in the fields of electrical machines, drive technology, power electronics and energy technology. It contains:

- Power Analyser (multimeter, wattmeter, energy analyser and recorder)
- Machine test system (control bloc)



Power
Analyser

Machine test
system

First test Bench : Emulator on Wind Energy

Machine Test CASSY

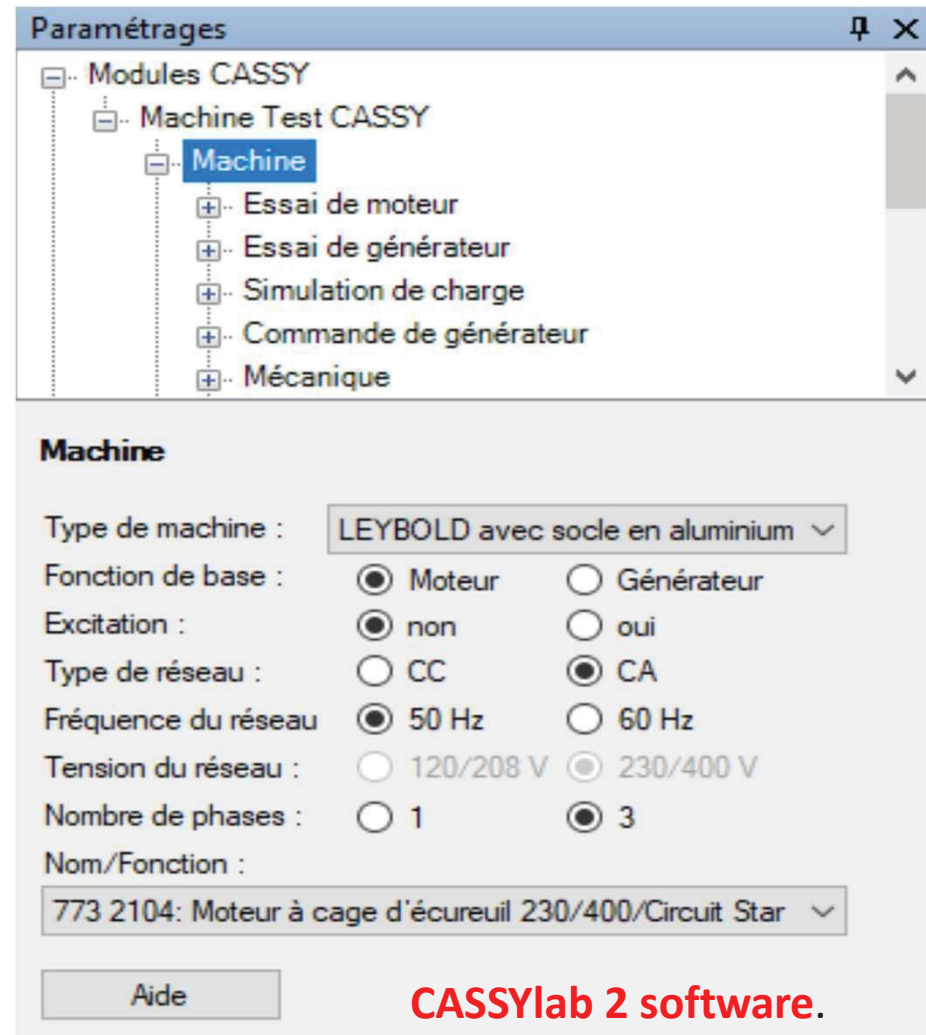
Setpoint setting: manual

setpoint: Internally via:

- the Machine Test CASSY,
- CASSYlab 2 software.

Setpoint: external input via:

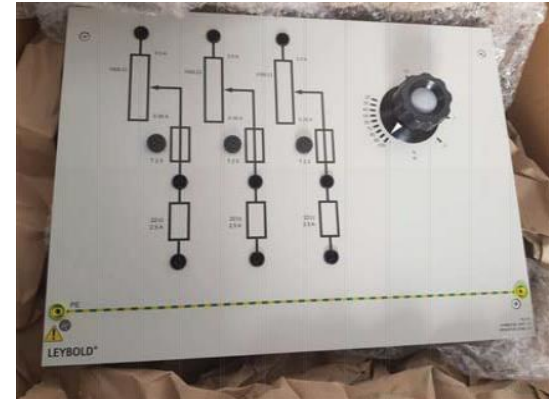
- Analogue input E
- LabVIEW™
- Matlab®



CASSYlab 2 software.

Equipment in the Wind Energy Centre ENIS-Sfax University

First test Bench : Emulator on Wind Energy



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First test Bench : Emulator on Wind Energy



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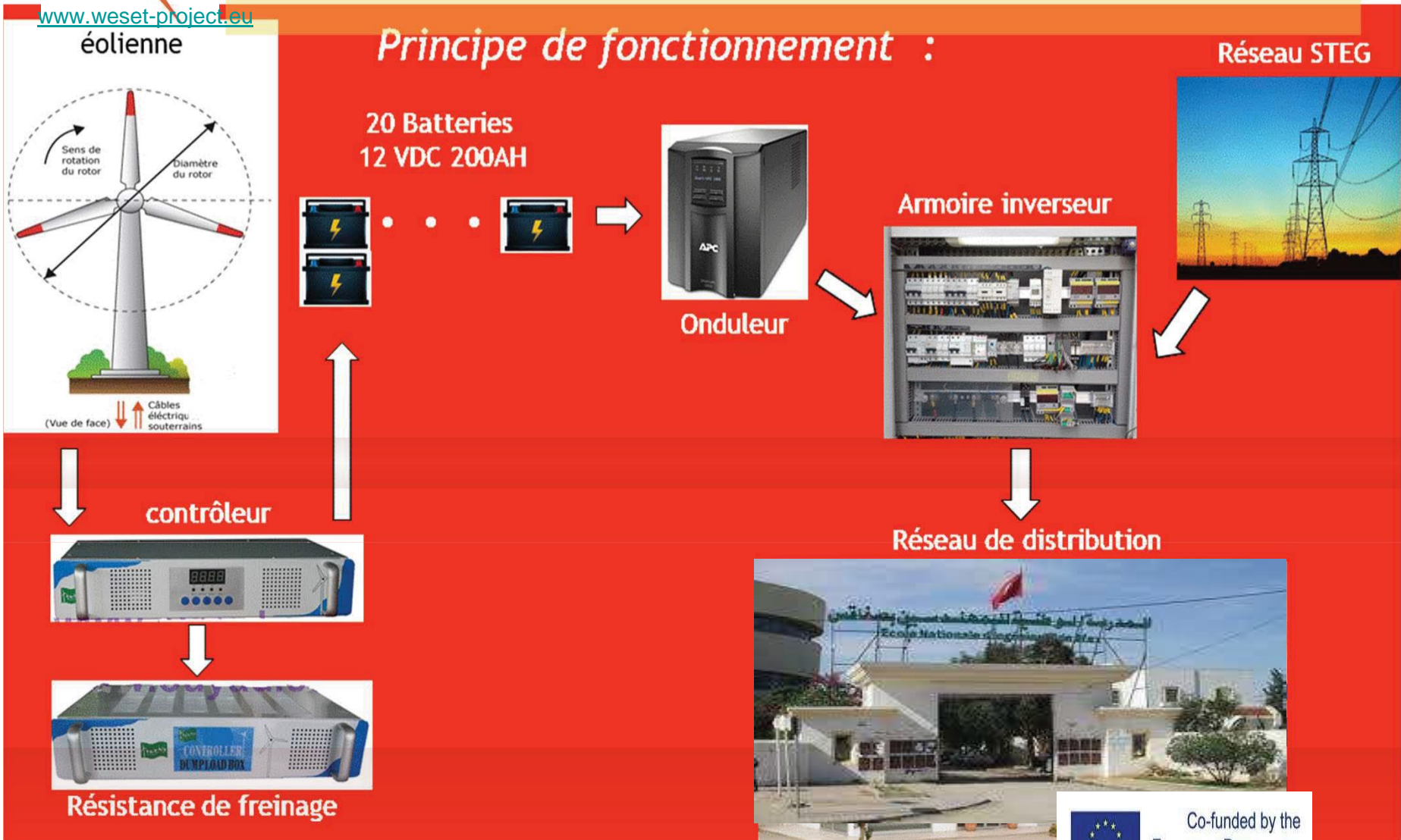
First test Bench : Emulator on Wind Energy



Equipment in the Wind Energy Centre

Second test Bench : Real Wind Power Generator Trainer (Prototype)

Principe de fonctionnement :



Co-funded by the Erasmus+ Programme of the European Union

Second test Bench : Real Wind Power Generator Trainer

General characteristics of the real wind generator:

Facilité d'installation et légèreté du générateur complet + équipement de mât

- Lames en matériaux composites
- Structure en aluminium hautement résistante à la corrosion
- Support pour le couplage hélice-générateur
- Diamètre du rotor environ 1,2 m – Poids environ 6 kg
- Démarrage de la production d'énergie électrique à une vitesse du vent d'environ 3 m/s ; à la vitesse de ~ 12,5 m / sec puissance de sortie 400 W
- Alternateur de type sans balais
- Régulateur de charge interne adaptable en externe à tout type de batterie
- Système de réglage électronique pour contrôler la tension en fonction de la vitesse du rotor et de l'état de charge de la batterie
- Tension de sortie : 12 Vdc
- Sonde anémométrique pour la transmission de la vitesse du vent et valeur de direction vers le panneau de commande et de supervision



Second test Bench : Real Wind Power Generator Trainer

Internal operating system of the wind generator equipped with a wind generator.

The device allows the use, inside, of an external wind generator on which the blades have been removed. Controlled by an asynchronous electric motor with continuously variable speed directly coupled to the wind generator to simulate the action of the wind.

The change of the motor speed is carried out by a speed variator through a local potentiometer or by PC.

The device is powered by the test bench item N ° 1 (Wind generator) or by the electrical network.

- Characteristics of three-phase asynchronous electric motor

* Output power: 1.8 kW ; Y

Nominal Rated speed: 1,500 rpm; •

- Inverter specifications •

Applicable motor: 2.2 kW; Y

Frequency at nominal output: 0 ÷ 50 Hz.



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Thank you for your attention!



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