Product name:	Product code:
Educational Hydroelectric Micro Station	EEW0004

Description

Educational Hydroelectric Micro Station

Technical specification

needle openings. These are essential as they enable modification of the output of each pipe and selection of the use of one or two pipes. This makes it possible to highlight aspects of the turbine’s performance in accordance with changes to the output of the forced pipe and configuration of the injection pipes.

A porthole window enables observation of the different hydraulic phenomena.

On the upper side of the turbine there is a LEROY SOMER three-phase asynchronous generator.

The whole operational part is mounted on a frame equipped with industrial casters.

The control part comprises:

An electric cabinet containing the buttons and components necessary for the installation’s safety and proper functioning.

A frequency variation drive to control the pump.

A voltage regulator for dealing with the current produced by the generator.

A voltage converter for converting to the network’s standard level.

A power analyzer measurement station, which enables display of quantities like current, voltage, power, active power, reactive power, active energy, reactive energy, frequency.

A domestic socket enables simulation of domestic electricity consumption.

A battery of four 230V /40W electricity consumers with switches.

A battery connection.

Software Applications:

The system offers data acquisition via specific software bringing together hydraulic and electrical values and thereby allowing the user to establish the parameters characteristic of the hydroelectric generator and monitor its functioning.
The main characteristics measured:
Values relating to hydraulic, injection pipe outlet, pressure in use, wheel rotation speed (if this option is present)
Electrical values at the generator output and at the different stages of treatment (generator, voltage regulator, converter, battery, use)
All of this data is displayed in the form of a matrix and graph, and can be saved for subsequent analysis, enabling comparisons with heterogeneous operational conditions.
Notions of the curve characteristic of the hydraulic jump and output, as well as performances and power generated by the system, are widely represented.
The Sineax multifunctional power analyzer has dedicated software giving you all acquisition and measurement functionalities. Currents and voltages, frequency and phase shift between the different currents and voltages are measured. All other quantities are calculated from these items. Measurement occurs by means of an integrated transformer.
This practical software configures and drives the device. Graphical assessment of recorders, display of values measured etc by RS 485 connection.
Examples of data acquisition

Rotation speed of pump simulating the output and height of the waterfall.

Rotation speed of asynchronous generator. (If option selected).

Waterfall output. (in forced pipe).

Pressure of the pump’s functioning

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