edibon

Engineering and Technical Teaching Equipment

Electrolyzer (3 Nl/h)

EDILAB-ELEC1

www.edibon.com
↳PRODUCTS
↳140.- BIOMEDICAL ENGINEERING

INTRODUCTION

Worries about the global climatic change and environmental degradation which results from the use of fossil fuels as primary energy source, together with the concerns about the energy provision, have made some analysts propose hydrogen as the universal energy carrier for the future. Using hydrogen as energy vector allows the development of a wide number of technologies. Specifically, fuel cells supplied with hydrogen can reach high efficiencies and have a great variety of applications, both portable and stationary.

Fortunately, hydrogen can be obtained from several raw materials following diverse process technologies (such as chemical, electrochemical, biological photolythical and thermochemical technologies), and using several primary energy sources. Each technology is at a different development stage and offers unique opportunities, benefits and challenges.

Hydrogen generation techniques can be classified as follows:

Chemical conversion processes: reforming, gasification and pyrolysis.

Thermolytic processes: direct thermolysis and thermochemical cycles.

Electrolytic processes: electrolysis.

Biological processes: fermentation, anaerobic digestion.

Photonic processes: photoelectrolysis, photobiolysis and photocatalysis.

In order to obtain hydrogen, the Electrolyzer with a hydrogen production of 3 Nl/h, "EDILAB-ELEC1", follows an electrolytic process.

ISO 9001: Quality Management (for Design, Manufacturing, Commercialization and After-sales service)

European Union Certificate (total safety)

Certificates ISO 14001 and ECO-Management and Audit Scheme (environmental management)

Certificate and Worlddidac Member

GENERAL DESCRIPTION

The Electrolyzer (3 Nl/h), "EDILAB-ELEC1", consists of an electrolyzer to generate hydrogen which uses a high performance and efficiency system based on water electrolysis. Hydrogen to be used safely is obtained from it. The electrolysis cell is a PEM type membrane. It only needs deionized or distilled water and generates 3 l/h of 99.99% purity hydrogen.

SPECIFICATIONS

Bench-top unit.

Anodized aluminum frame and panels made of painted steel.

Main metallic elements made of stainless steel.

PEM electrolyzer with a hydrogen generation of 3 l/h:

- Stack type: Proton exchange membrane electrolysis cell.
- Water input: De-ionized or distilled water.
- Water temperature: 10 – 40 °C.
- Water consumption approx.: 20 ml/hr.
- Hydrogen generation capacity: 0 – 3 l/hr.
- Purity: 99,99 %.

EDILAB-ELEC1 detail

Direct connection for the Computer Controlled PEM Fuel Cell Unit, “EC5C”, or the PEM Fuel Cell Unit, “EC5B”.

Cables and Accessories, for normal operation.

Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manual.

REQUIRED SERVICES

- Electrical supply: single-phase, 220 V/50 Hz or 110 V/60 Hz.

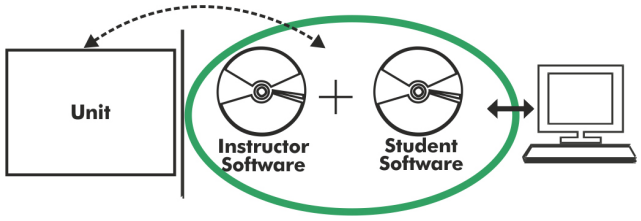
DIMENSIONS AND WEIGHTS

EDILAB-ELEC1:

-Dimensions: 500 x 300 x 450 mm approx.
(19.68 x 11.81 x 17.71 inches approx.)

-Weight: 10 Kg approx.
(22.04 pounds approx.)

EDILAB-ELEC1/ICAI. Interactive Computer Aided Instruction Software System:



With no physical connection between unit and computer, **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF)**. Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.

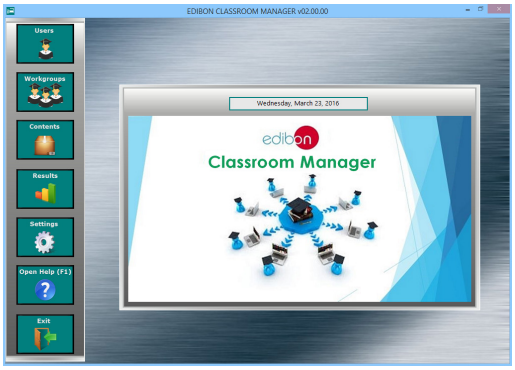
Instructor Software

- ECM-SOF. EDIBON Classroom Manager (Instructor Software).

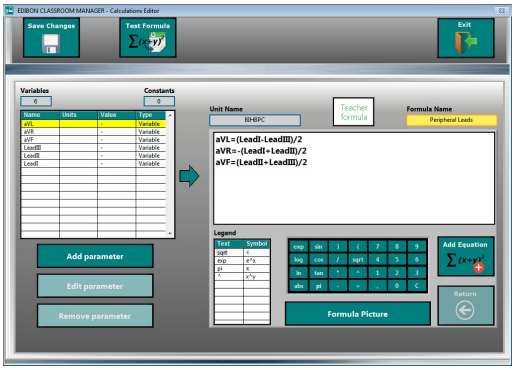
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual students, workgroups, units, etc... so the teacher can know in real time the level of understanding of any student in the classroom.

Innovative features:

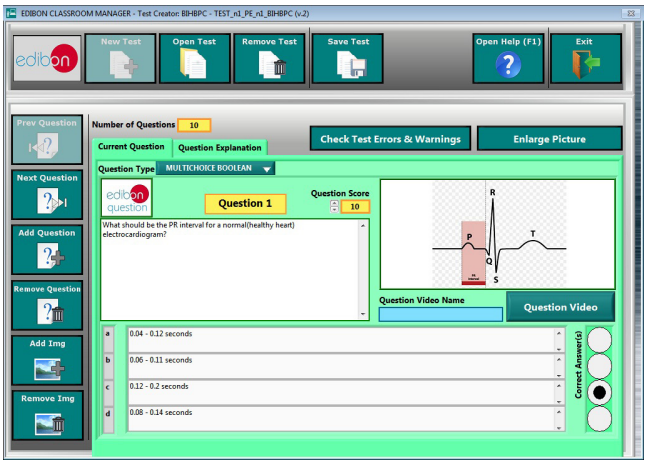
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.
- Updatable Contents.
- Report generation, User Progression Monitoring and Statistics.



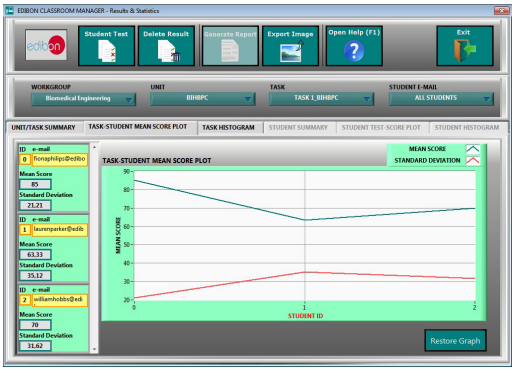
ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



ECAL. EDIBON Calculations Program Package - Formula Editor Screen



ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question



ERS. EDIBON Results & Statistics Program Package - Student Scores Histogram

Optional

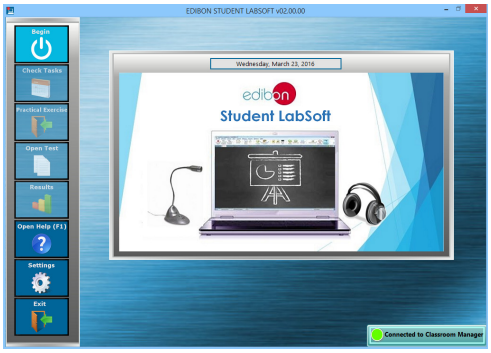
Student Software

- ESL-SOF. EDIBON Student Labsoft (Student Software).

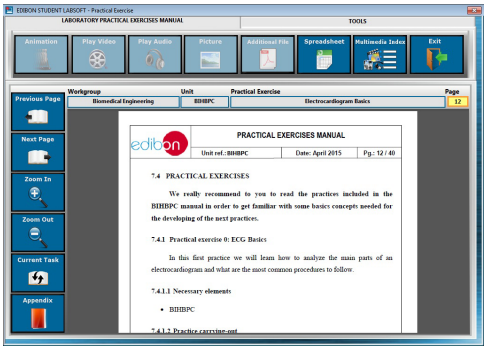
ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are provided by EDIBON to allow the students start working from the first session. Reports and statistics are available to know their progression at any time, as well as explanations for every exercise to reinforce the theoretically acquired technical knowledge.

Innovative features:

- **Student Log-In & Self-Registration.**
- **Existing Tasks checking & Monitoring.**
- **Default contents & scheduled tasks available to be used from the first session.**
- **Practical Exercises accomplishment by following the Manual provided by EDIBON.**
- **Evaluation Methods to prove your knowledge and progression.**
- **Test self-correction.**
- **Calculations computing and plotting.**
- **Equation System Solver Engine.**
- **User Monitoring Learning & Printable Reports.**
- **Multimedia-Supported auxiliary resources.**

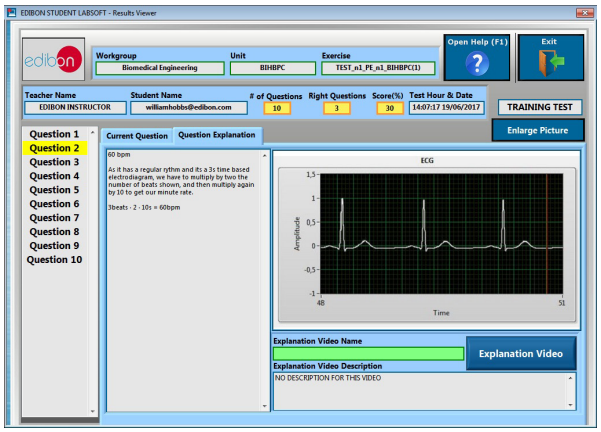


ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen

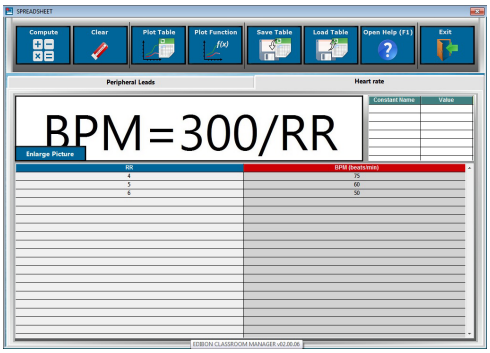


EPE. EDIBON Practical Exercise Program Package Main Screen

For more information see **ICAI** catalogue. Click on the following link:
www.edibon.com/en/files/expansion/ICAI/catalog



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

✱ Specifications subject to change without previous notice, due to the convenience of improvement of the product.

INTERNATIONAL

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REPRESENTATIVE: