Unit for Study of Electrosurgery in Biomedicine

BICIR

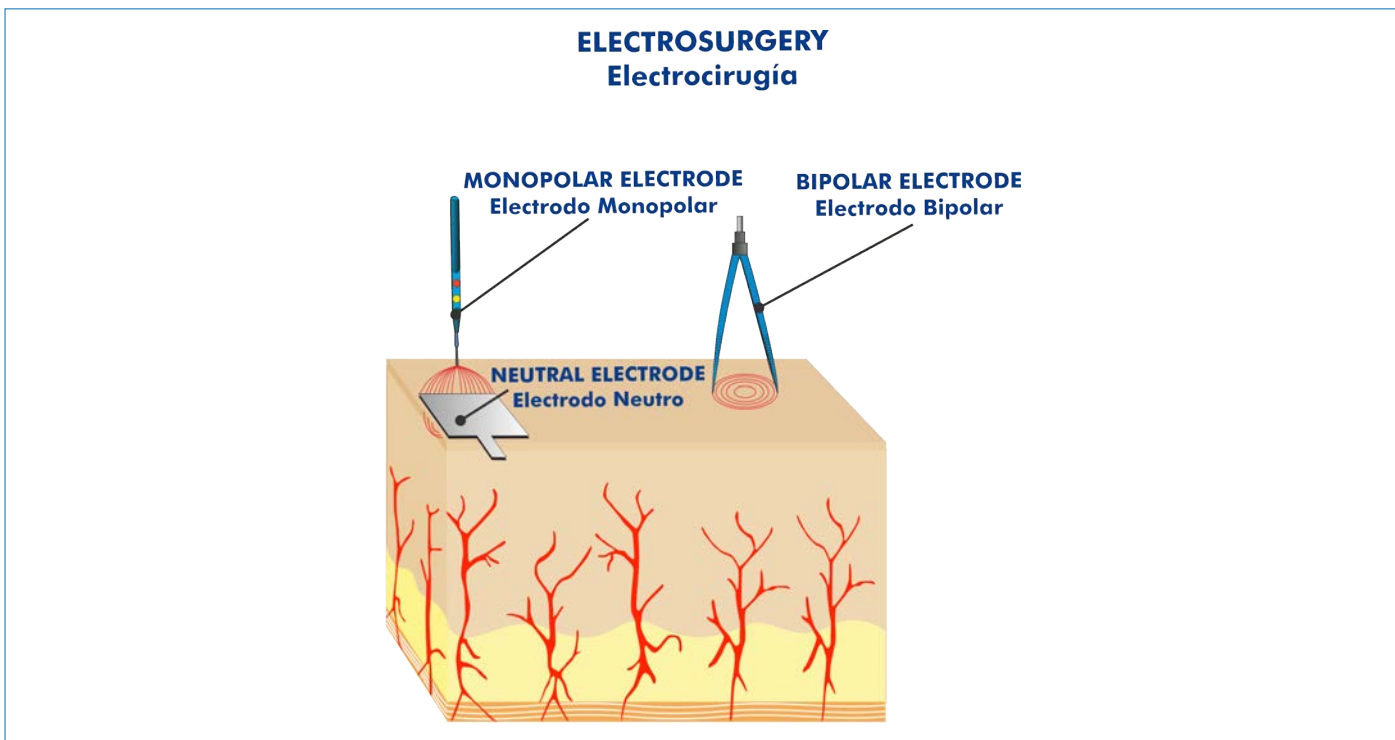

Electronic console

www.edibon.com
PRODUCTS
14.-BIOMEDICAL ENGINEERING

PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION

ELECTROSURGERY
Electrocirugía

MONOPOLAR ELECTRODE
Electrodo Monopolar

BIPOLAR ELECTRODE
Electrodo Bipolar

NEUTRAL ELECTRODE
Electrodo Neutro

INTRODUCTION

Electrosurgery is the technique by which a high-frequency oscillating electric current is used to cut or coagulate tissue during surgery.

Within the electricity industry, there are different equipments, among them, the electro-scalpel is the most used and serves to achieve the effects of electrodesiccation, electrocoagulation and electrosection on the tissues.

The Study of Electrosurgery in Biomedicine Unit, "BICIR", has been designed by EDIBON to study, in an experimental way, the different modes of operation of an electrosurgical unit or electrobisturi.

The unit is supplied with a set of practical exercises that will help the student to understand how the electrotherapy and electrosurgery units work.

GENERAL DESCRIPTION

The Unit for Study of Electrosurgery in Biomedicine, "BICIR", consists an electrosurgical unit used in a professional field. The unit includes a protective frame for a safe operation.

SPECIFICATIONS

Bench-top unit.
Anodized aluminum frame and panels made of painted steel.
Main metallic elements made of stainless steel.
Diagram in the front panel with distribution of the elements similar to the real one.
Electrosurgical unit:
    Three monopolar cut modes: pure, blend and enhanced cut.
    Three monopolar coagulation modes: forced, soft and fulguration.
    Four bipolar modes: pure cut, TUR current, bipolar coagulation and vessel sealing.
    RF power pulse emission time: 10 ms – 30 s.
    Electrical input power: 500 VA.
    Selectable input voltage: 90 – 240 Vac.
    Working frequency: 360 kHz.
Protective frame.
Electrosurgery tools.
Electronic console:
    Main switch.
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 Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Study of the electrophysical principles on which the electrosurgery is based.

2.- Understanding the hydrolysis mechanism by which the electrosurgical unit works.

3.- Study of the different configuration modes of the electrosurgical unit: monopolar and bipolar electrosurgery.

4.- Testing the different monopolar cut modes of the electrosurgical unit: pure cut, enhanced cut and blend.

5.- Testing the different monopolar coagulation modes of the electrosurgical unit: forced, soft and fulguration.

REQUIRED SERVICES

- Electrical supply: single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.

DIMENSIONS AND WEIGHTS

BICIR:
  Unit:
      - Dimensions: 1000 x 700 x 500 mm approx.
          (39.37 x 27.56 x 19.66 inches approx.).
      - Weight: 20 kg approx.
          (44 pounds approx.)
  Electronic console:
      - Dimensions: 490 x 330 x 310 mm approx.
          (19.29 x 12.99 x 12.20 inches approx).
      - Weight: 10 kg approx.
          (22 pounds approx.)

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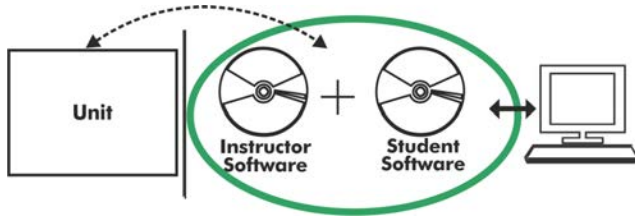
With no physical connection between unit and computer, **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF).** Both are interconnected so that the teacher knows at any moment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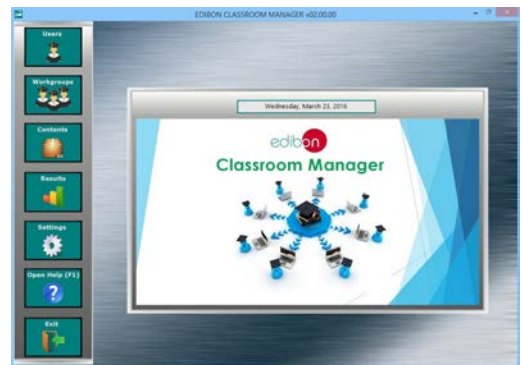
<u>Instructor Software</u>

### - 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
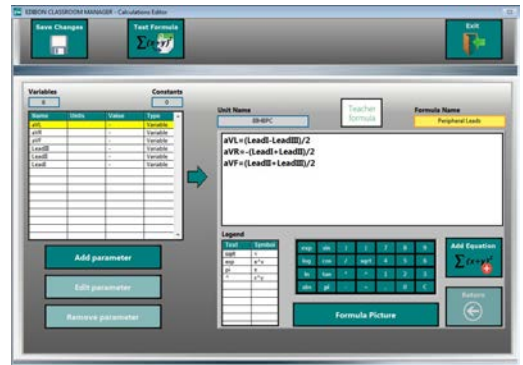
ECAL. EDIBON Calculations Program Package - Formula Editor
Screen
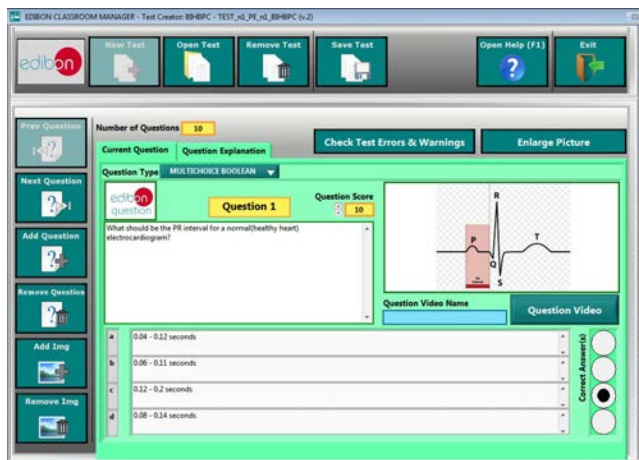
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with
Numeric Result Question

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

- 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.

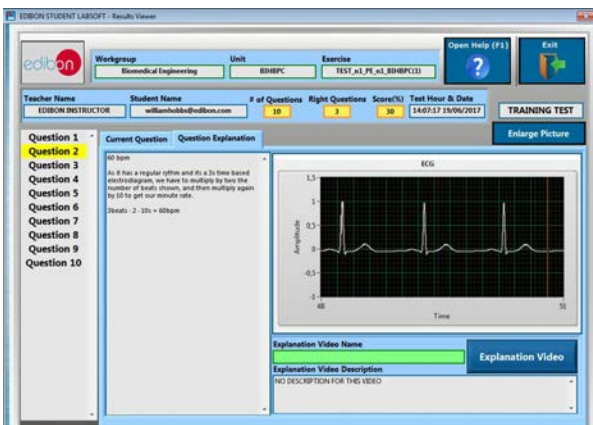For more information see ICAI catalogue. Click on the following link:
www.edibon.com/en/files/expansion/ICAI/catalog

ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen
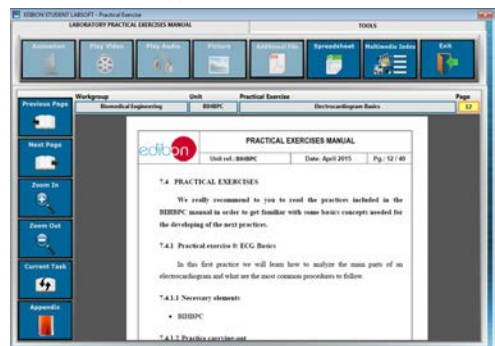
EPE. EDIBON Practical Exercise Program Package Main Screen

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.

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INTERNATIONAL

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REPRESENTATIVE: