



INTRODUCTION

Motors and generators are electromagnetic drives. They have current coils that rotate in magnetic fields. This rapidly changing magnetic field produces an electromotive force, called fem or voltage. Electric motors and generators are opposites of each other. Electric motors turn electrical energy into mechanical energy, while electric generators convert mechanical energy into electrical energy.

With the Electronics for Motors and Generators Unit, "M99-6", designed by EDIBON, the student is allowed to learn the most important concepts related to motors and generators and the differences between them.



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)



"Worlddidac Quality Charter" and Platinum Member of Worlddidac

GENERAL DESCRIPTION

The Electronics for Motors and Generators Unit, "M99-6", designed by EDIBON, enables to carry out different practices related with motors and generators. The unit has different different types of motors: DC motor, AC motor and stepper motor.

The "M99-6" unit mainly consists of:

DC Motor. Includes a potentiometer to control the speed of the motor. There is a switch to enable the motor to run. The voltage internally applied to the motor or generated can be observe using the "M+" and "M-" terminals.

AC Motor. Includes a switch to enable the motor to run. The voltage internally applied to the motor or generated can be observe using the "AC1" and "AC2" terminals.

Stepper Motor. Includes two switches to control the rotation of the motor. To perform a rotation some determined steps must be carried out.

The unit is provided with a set of practices through which the user will understand how to work different electronics circuits.

SPECIFICATIONS

The "M99-6" unit mainly consists of:

DC Motor. Includes a potentiometer to control the speed of the motor. There is a switch to enable the motor to run. The voltage internally applied to the motor or generated can be observe using the "M+" and "M-" terminals.

- Power supply: 5 VDC, 1W.
- Speed: 800 rpm.

AC Motor. Includes a switch to enable the motor to run. The voltage internally applied to the motor or generated can be observe using the "AC1" and "AC2" terminals.

- Power supply: 24 VAC, 50 Hz, 0.9 W.
- Torque: 0.9 Ncm max.
- Speed: 600 rpm.

Stepper Motor. Includes two switches to control the rotation of the motor.

- Power supply: 5 VDC, 1.25 W.

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.- DC motor.
- 2.- AC motor.
- 3.- DC generator.

- 4.- AC generator.
- 5.- Stepper motor.

REQUIRED SERVICES

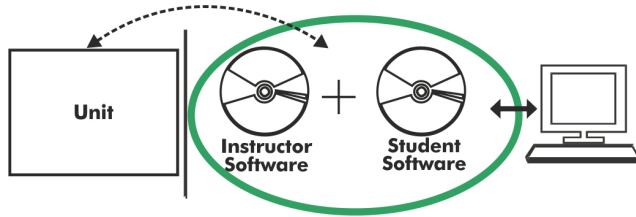
- Electrical supply: single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.

DIMENSIONS AND WEIGHTS

M99-6:

Dimensions: 490 x 330 x 310 mm approx.
(19.29 x 12.99 x 12.20 inches approx).

Weight: 6 Kg approx.
(13 pounds approx).

M99-6/ICAI. Interactive Computer Aided Instruction Software:

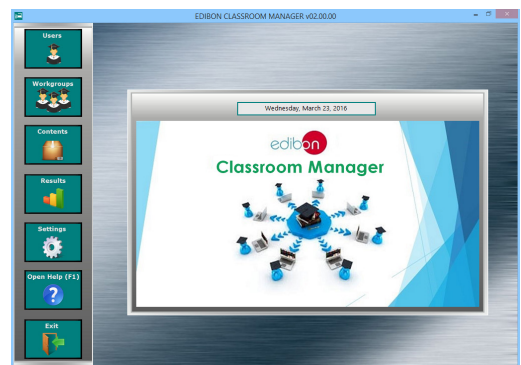
With no physical connection between unit and computer, this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF). Both are interconnected so that the teacher knows at any moment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

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

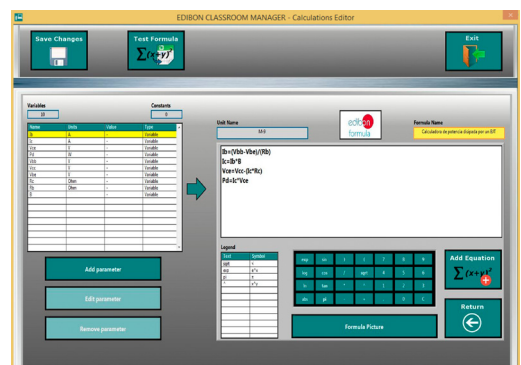
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

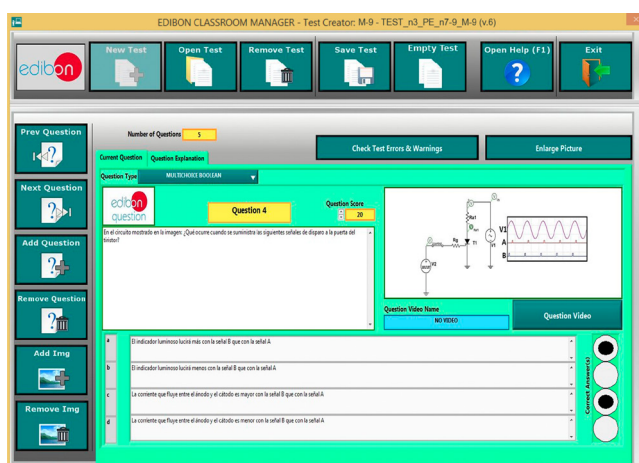
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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



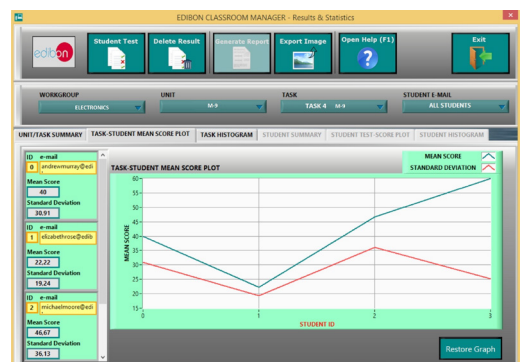
ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



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

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

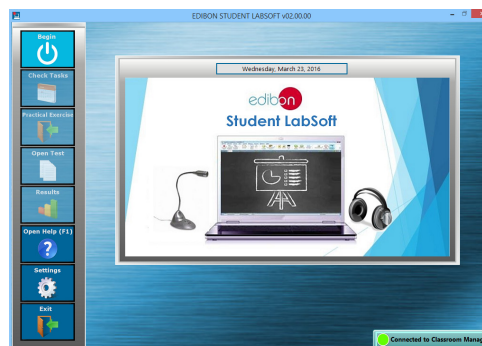
ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are 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:

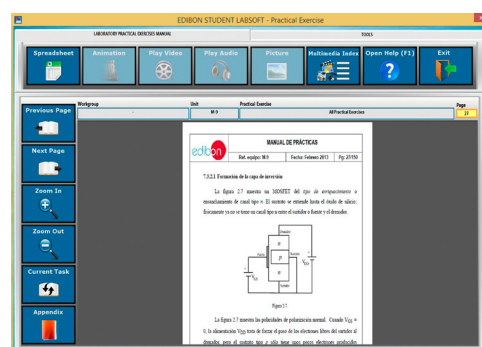
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.
- 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:

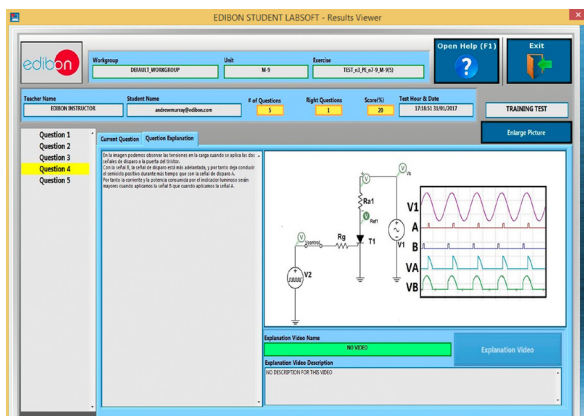
<https://www.edibon.com/en/interactive-computer-aided-instruction-software/catalog>



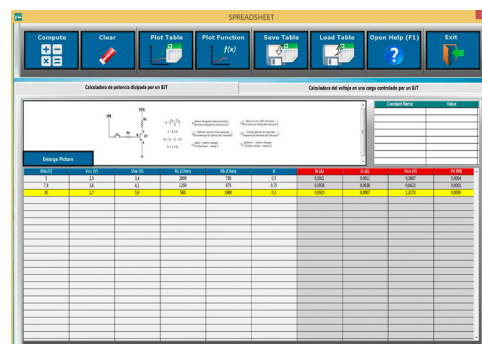
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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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REPRESENTATIVE: