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↳ PRODUCTS
↳ 40.- ELECTRICITY

INTRODUCTION

The electric motors are devices capable of transforming electrical energy into mechanical energy. The DC Generators are very used in industrial installations due to its great robustness, reliability and low cost. The starting current consumed by these motors is very high, being harmful to the machine and the protections. The soft starters aim at reducing these currents close to the nominal values. For this purpose it is very important to know several operations carried out with these electrical machines.



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 Application of DC Generator "AEL-DCGEA" is designed for the study of the main operations performed in the industrial field with DC Generators.

The student will learn the most important operations of these electrical machines faithfully by using loads and voltage controllers.

The AEL-DCGEA includes the following modules:

- N-ALI02. Domestic Power Supply.
- N-WCC/M. DC Motor Speed Controller (Intermediate option).
- N-REV. Variable Resistor.
- N-REF. Resistor Load with commutator.
- EMT1. DC Independent excitation motor-generator.
- N-WCA/M. AC Motor Speed Controller (Intermediate option).
- EMT7. Asynchronous three-phase motor of squirrel cage.

Additional and recommended measurement instrumentation modules:

- N-MED17. DC Voltmeter (0-200 V). (2 units)
- N-MED05. DC Ammeter (0-1.5 A). (2 units)

If the Option A (modules mounted on rack) is chosen, the rack/s required will depend on the optional modules requested by the customer.

Expansion learning software:

In addition, Edibon provides expansion learning software (AEL-DCGEA/ICAI) to reinforce knowledge about this field.

This software is formed by:

- ECM-SOF. EDIBON Classroom Manager (Instructor Software).
- ESL-SOF. EDIBON Student Labsoft (Student Software).

The application AEL-DCGEA can be mounted on rack (option A) or on rail (option B):

Option A:

This application needs the following rack:

- N-RACK-M.

Optionally the AEL-WBR. Electrical Workbench (Rack) can be supplied to place the rack/s.

Option B:

This application can be mounted on rail.

Optionally the AEL-WBC. Electrical Workbench (Rail) can be supplied to mount the modules.

SPECIFICATIONS

The application includes the following modules:

- **N-ALI02. Domestic Power Supply.**

Supply voltage (Single-Phase): 230 VAC, PH+N+G.

ON-OFF removable key.

Output Voltage Connections:

Two Single-Phase: 230 VAC.

Single-Phase supply hose connecting plug.

Differential magnetothermal, 2 poles, 25 A, 30 mA AC 6 KA.



N-ALI02

- **N-WCC/M. DC Motor Speed Controller (Intermediate option).**

Supply voltage: 230 VAC.

Variable output voltage: 0-300 VCC.

Fuse: 2 A.



N-WCC/M

- **N-REV. Variable Resistor.**

Variable resistor of 150 Ohm.

Maximum power: 500 W.

Potentiometer.

Terminals:

Three terminals to choose all resistance or variable resistance.

Fuse: 2 A.



N-REV

- **N-REF. Fixed resistor module.**

Value: 150 Ohm.

Maximum power: 500 W.

Selector:

Position 0: circuit opened.

Position 1: circuit closed.

Current fuse: 2 A.



N-REF

- **EMT1. DC Independent excitation motor-Generator.**

Nominal power: 250 W.

Armature voltage: 200 VDC.

Excitation voltage: 190 VDC.

Armature current: 1,5 A.

Excitation current: 0,3 A.

RPM: 3000 r.p.m.



EMT1

Specifications

- N-WCA/M. **AC Motor Speed Controller (Intermediate option).**

Supply voltage: 230 VAC.

Nominal power: 0,4 kW.

PWM output voltage connections:

Three-Phases: 230 VAC.

10K, potentiometer for the induction motor control speed.

Setting and visualization display of the machine parameters.



N-WCA/M

- EMT7. **Asynchronous Three-Phase Motor of Squirrel Cage.**

Nominal power: 370 W.

Nominal voltage: 3x 230/400 VAC Δ/Y.

Frequency: 50/60 Hz.

Number of poles: 2.

RPM: 2730 r.p.m.

Nominal current: 1,67/ 0,97 A.



EMT7

Additional and recommended measurement instrumentation modules:

- N-MED17. **DC Voltmeter (0-200 V). (2 units)**

Measurement range: 0-200 VDC.

Terminals:

Measurement terminals.

Ground terminals.



N-MED17

- N-MED05. **DC Ammeter (1-1, 5 A). (2 units)**

Measurement range: 0-2 VDC.

Terminals:

Measurement Terminals.

Ground Terminal.

Fuse: 3 A.



N-MED05

- **All necessary cables to realize the practical exercises are included.**

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.- Control of generated voltage.

2.- Control of the excitation of the DC generator.

3.- Driving motor speed variation.

4.- Loading of the DC generator.

REQUIRED SERVICES

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

DIMENSIONS AND WEIGHTS

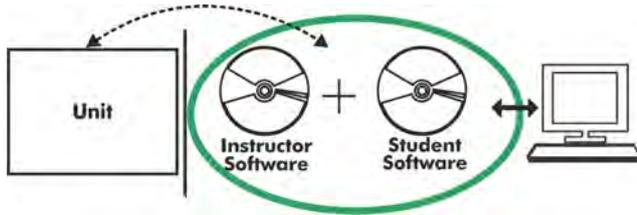
AEL-DCGEA:

-Dimensions: 640 x 320 x 670 mm. approx.
(25.19 x 12.59 x 26.32 inches approx.)

-Weight: 35 Kg. approx.
(77 pounds approx.)

Optional

AEL-DCGEA/ICAI. Interactive Computer Aided Instruction Software System:



With no physical connection between unit and computer (PC), 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.

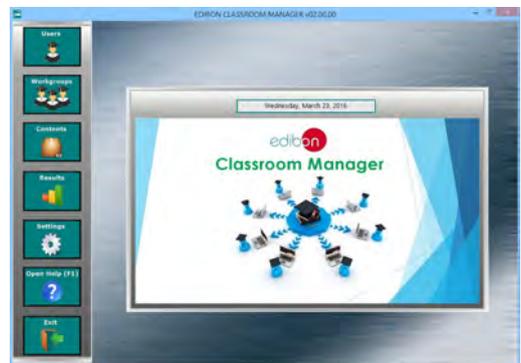
Instructor Software

- 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:

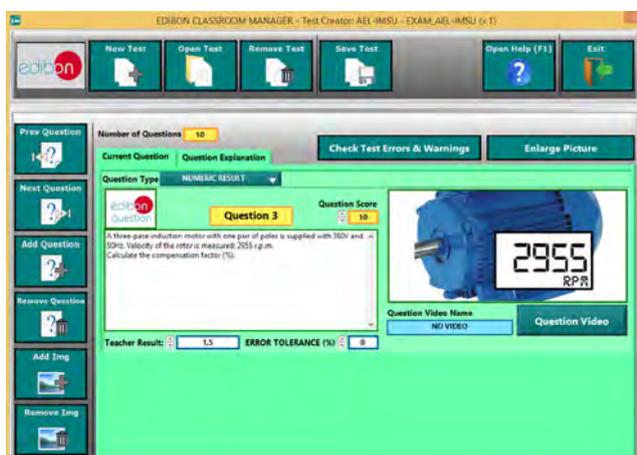
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.
- 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)**.

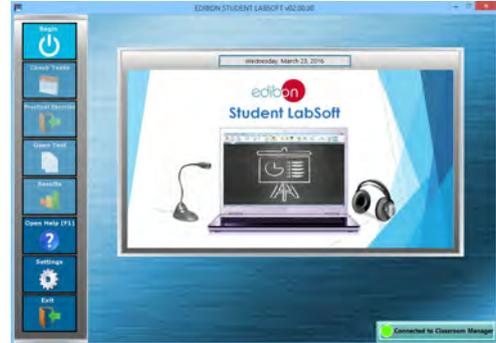
ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are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

For more information see **ICAI** catalogue. Click on the following link:

www.edibon.com/en/files/expansion/ICAI/catalog



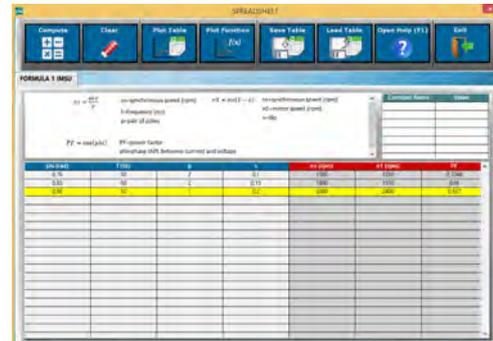
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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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REPRESENTATIVE:

