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 ↳ PRODUCTS
 ↳ 40.- ELECTRICITY

INTRODUCTION

Electrical engineering is the base of the electric knowledge in most of industrial processes. Transformers belong to this discipline and are one of the most important electric machines. Transformers are devices capable of adapting the electrical energy, voltage or current, to the appropriate conditions for its usage. Besides, transformers are present in multitude of industrial processes from current or voltage meters to power adapters.



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 AEL-AI13-D Modular Trainer of Electrotechnics (Transformers) is a basic trainer which has been designed by Edibon to introduce the students in the basic concepts about how three-phase and single-phase transformers work.

Transformers are used extensively in the industry. For example, a step-up transformer is needed in power plants in order to avoid losses in the transmission lines. The customers consume energy in another level voltage, so a step-down transformer is needed now. Besides, transformers are used in electronic devices to decrease the supply voltage to a level suitable for the low voltage circuits which they contain.

This trainer is provided with a set of practical exercises, which the user will understand how to work with different types of transformer. The student will learn to assemble single phase and three-phase transformers, realize connections, study the three-phase autotransformer and analyze the behavior of this important machine.

The AEL-AI13-D includes the following modules:

- N-ALI01. Industrial Power Supply.
- VAR17. Dismantled Transformer Kit.
- TRA28. Three-Phase Transformer Module.
- N-MED65. Digital Multimeter.

Expansion learning software:

In addition, Edibon provides expansion learning software (AEL-AI13-D/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-AI13-D can be mounted on rack (option A) or on rail (option B):

Option A:

This application needs the following racks.

- N-RACK-B.

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 trainer includes the following modules:

- **N-ALI01. Industrial Power Supply.**

Supply voltage: 400 VAC, 3PH+N+G.

ON-OFF removable key.

Output voltage connections:

Three-Phase + Neutral: 400 VAC.

Single-Phase: 230 VAC.

Three-Phase supply hose with IP44 3PN+E 32A 400V connecting plug.

Differential magnetothermal, 4 poles, 25 A, 300 mA AC 6 KA.



N-ALI01

- **VAR17. Dismantled Transformer Kit.**

Nominal supply voltage: 230 V.

Nominal output voltage: 110 V.

Nominal power: 185 VA.

Four removable elements.

Coil of 2000 turns (0.8A).

Coil of 1000 turns (1.6A).



VAR17

- **TRA28. Three-Phase Transformer Module.**

Nominal supply voltage: 400 and 230 VAC (3PH).

Nominal output voltage: 3 x (3 x 73 VAC).

Nominal power: 500 VA.

Free configuration (delta, star and zig-zag).



TRA28

- **N-MED65. Digital Multimeter.**

This module has a digital multimeter of about 3 ½ digits, with double-jack ending cables of about 4 mm to facilitate interconnections.

With this digital multimeter we will be able to measure:

Voltage.

Current.

Resistance.

Capacitors capacity.

Temperature.



N-MED65

- **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.- Checking the industrial power supply.
- 2.- Assembling the single phase transformer.
- 3.- Studying of the step-down transformer.
- 4.- Studying of the step-up transformer.
- 5.- Studying of the autotransformer.
- 6.- Wiring of a single-phase transformer.
- 7.- Wiring of Three-phase direct delta/delta configuration.
- 8.- Wiring of Three-phase star/delta configuration.
- 9.- Wiring of three-phase delta/star connection.
- 10.- Wiring of three-phase/six-phase connection.
- 11.- Wiring of transformers with coils in series.

REQUIRED SERVICES

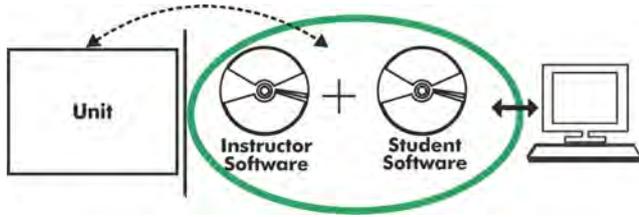
- Electrical supply: three-phase, 380V/50 Hz or 208V/60 Hz, 20 Kw.

DIMENSIONS AND WEIGHTS

- AEL-AI13-D:
- Dimensions: 640 x 320 x 320 mm approx.
(25.19 x 12.59 x x 12.59 inches approx.)
 - Weight: 30 Kg approx.
(66 pounds approx.)

Optional

AEL-AI13-D/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.

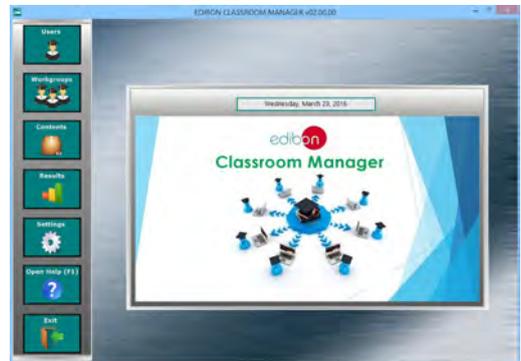
Instructor Software

- 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:

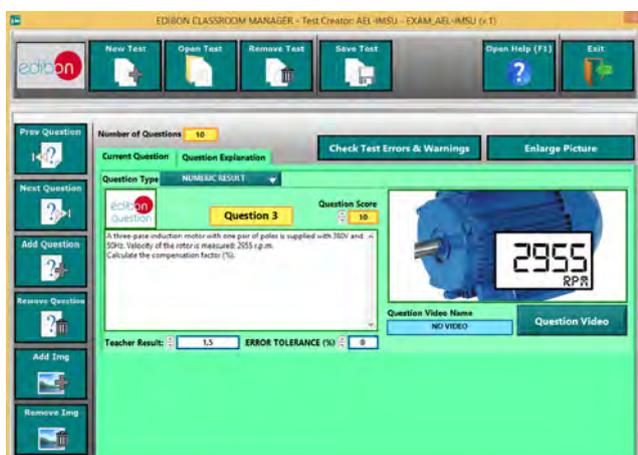
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

