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↳ PRODUCTOS  
↳ 4.- ELECTRICIDAD

## INTRODUCTION

The students who begin their professional career as electrical installers, assemblers or electrical maintenance technicians require a hands-on learning with equipments that reflect faithfully the electrical installations in which they will work in the future. In the industrial field most processes need to be electrically protected against overload, short-circuit, overvoltage, etc.



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 Wiring Installation Training, Industrial Electrical Protections application, "WIT-IEP", has been designed by Edibon for the formation at professional-practical level in the field of the installations, wiring and testing of existing electrical protections in industry.

This application provides the future professionals with knowledge and essential skills on the assembly, installation, wiring and testing of industrial electrical protections. This application also offers different kits to provide experience in the installation of numerous protection elements such as contactors, differential and magnetothermal switches or thermal, overvoltage and overcurrent relays that combined can compose different protection systems.

To acquire a complete knowledge, the application includes a specific manual in which is explained, at theoretical-practical level, the aspects concerning to the installation procedures and wiring of these installations.

The WIT-IEP application includes the following elements:

- FP-STR. Assembly Frame with Safe Electrical Power Supply.
- FP-KIT-1. Feeders Installation Kit.
- FP-KIT-4. Wiring Installation Kit.
- FP-KIT-10. Tubes and Fittings for Channelling Wiring Kit.
- FP-KIT-9. 400 VAC Contactors Kit.
- FP-KIT-24. Differential Circuit Breakers Kit.
- FP-KIT-25. Magnetothermal Circuit breakers Kit.
- FP-KIT-27. Thermal Relays Kit.
- FP-KIT-28. Overvoltage Protection Kit.
- FP-KIT-30. Electrical Protections Testing Kit.

Required elements:

- CHER. Tool Box.

Recommended elements:

- MED65. Digital Multimeter.
- FP-KIT-5. Measuring Kit.
- FP-KIT-10/B. Rigid Tube Kit.
- FP-KIT-26. Isolation Transformers Kit.

## SPECIFICATIONS

The WIT-IEP application includes the following elements:

- **FP-STR. Assembly Frame with Safe Electrical Power Supply.**

Aluminum structure:

Three aluminum struts.

Easy assembly of components via hammer head screws.

Possibility of simultaneous work of several students.

Four swiveling casters to facilitate the movement.

Dimensions:

Structure height: 1800 mm.

Useful working height: 1000 mm.

Width: 1500 mm.

Three-Phase connection plug.

Safe electric box:

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

Emergency stop mushroom (230/400V AC).

5-wire hose for connection to frame.

Signal lamp of voltage presence. Armature voltage: 200V DC.

- **FP-KIT-1. Feeders Installation Kit.**

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

Single-phase fuse holder for DIN rail mounting:

Fuse: 1 x 30 A.

Three-phase fuse holder for DIN rail mounting:

Fuses: 3 x 30 A.

- **FP-KIT-4. Wiring Installation Kit.**

100 meters of grey wire of 2.5 mm<sup>2</sup>.

100 meters of brown wire of 2.5 mm<sup>2</sup>.

100 meters of black wire of 2.5 mm<sup>2</sup>.

100 meters of green/yellow wire of de 2.5 mm<sup>2</sup>.

25 meters of screened wire.

- **FP-KIT-10. Tubes and Fittings for Channeling Wiring Kit.**

PVC electrical conduit for wiring installation, 20 m.

7 x Electrical box.

Cable guide.

20 x PMA cable clamp, 20 mm.

- **FP-KIT-9. 400 VAC Contactors Kit.**

5 x Three pole circuit breaker:

Nominal voltaje of power terminals: 400V AC.

Nominal voltaje of control terminals: 230V AC.

Nominal voltaje coil: 230V AC.

Auxiliary contacts: 3 NO / 2 NC.

- **FP-KIT-24. Differential Circuit Breakers Kit.**

Differential circuit breaker, selective (S), 4 poles, 63A, 300mA, A.

Differential circuit breaker, 2 poles, 25A, 300mA, A.

Differential circuit breaker, 2 poles, 16A, 10mA, A.

Differential circuit breaker, 2 poles, 25A, 30mA, AC.

- **FP-KIT-25. Magnetothermal Circuit Breakers Kit.**

Magnetothermal circuit breaker, 4 poles, 16A, C curve, 6kA.

Magnetothermal circuit breaker, 2 poles, 10A, C curve, 6kA.

Magnetothermal circuit breaker, 2 poles, 6A, C curve, 6kA.

Magnetothermal circuit breaker, 2 poles, 6A, B curve, 6kA.

- **FP-KIT-27. Thermal Relays Kit.**

Thermal Relay:

Three-phase.

Adjustable current range: 2,5-4 A.

Auxiliary contacts: NO / NC.

Electronic thermal relay:

Three-phase.

Adjustable current range: 1-4 A.

Auxiliary contacts: NO / NC.

- **FP-KIT-28. Overvoltage Protection Kit.**

Transient overvoltage suppressor:

Protects against transient overvoltage.

- **FP-KIT-30. Electrical Protections Testing Kit.**

Equipment to inject differential adjustable current for testing:

Current range: 0-30 Ma.

Equipment to inject adjustable current for magnetothermal testing:

Current range: 0-50 A.

Required elements:

- **CHER. Tool Box.**

Crimper.

Tin.

Meter.

Insulation tape.

Heat shrink.

Voltage tester screwdriver.

Cross-head screwdriver and flat-head screwdriver.

Allen keys.

Soldering iron.

Rubber hammer.

Wire terminals and Connection terminals.

Flanges.

Wire cutter.

Screw Clamp Terminals.

Wire Stripper.

Recommended elements:

- **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.

- **FP-KIT-5. Measuring Kit.**

Clamp Meter:

Clamp for alternating current measurements contactless.

The clamp can measure:

Current.

Voltage.

Resistance.

A voltage and continuity tester:

Voltage range: 12-690V AC.

Phases rotating detection in three-phase systems.

Polarity tester.

- **FP-KIT-10/B. Rigid Tube Kit.**

20 m PVC Rigid Tube.

10 x Threaded connector.

5 x Elbow for conducts clamping.

- **FP-KIT-26. Isolation Transformers Kit.**

Single-phase isolation transformer, 230/230V AC, 400 VA.

Single-phase isolation transformer, 230/24V AC, 100 VA.

Three-phase isolation transformer, 230/230V AC.

- **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.- Wiring and installation of the magnetothermal differential protection and the fuses.
  - 2.- Connections identification and wiring of the selective differential switch.
  - 3.- Connections identification and wiring of the 2 pole differential switches.
  - 4.- Connections identification and wiring of the 4 pole magnetothermal switch for three-phase installations without neutral (IT scheme).
  - 5.- Connections identification and wiring of the 4 pole magnetothermal switch for three-phase installations with neutral.
  - 6.- Connections identification and wiring of the 2 pole magnetothermal switches.
  - 7.- Wiring and setting of the thermal relay.
  - 8.- Wiring and setting of the overload electronic relay.
  - 9.- Wiring and setting of the transient overvoltage suppressor.
  - 10.- Current injection for differential switches operation.
  - 11.- Current injection for magnetothermal switches operation.
  - 12.- Checking and testing of the protection elements selectivity by combining them and the injection of currents.
  - 13.- Wiring, installation and testing of the isolation transformers.
- Several other exercises can be done and designed by the user

### REQUIRED SERVICES

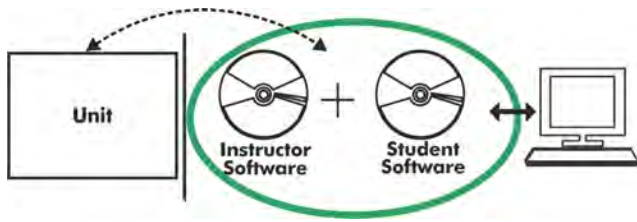
- Electrical supply: three-phase, 380V/50 Hz or 208V/60 Hz, 1 kW.

### DIMENSIONS AND WEIGHTS

WIT-IEP:

- Dimensions: 1500 x 400 x 1800 mm approx.  
(59.05 x 15.75 x 70.86 inches approx.)
- Weight: 80 Kg approx.  
(194 pounds approx.)

**WIT-IEP/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.

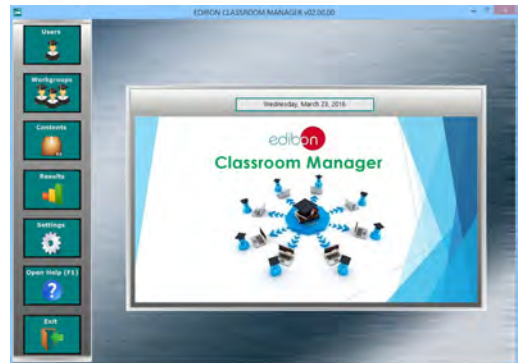
**Instructor Software**

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

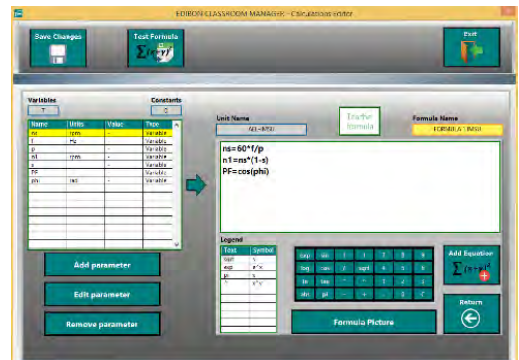
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

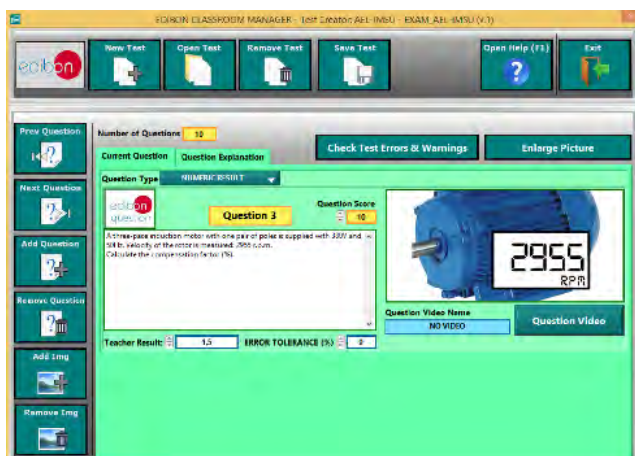
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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



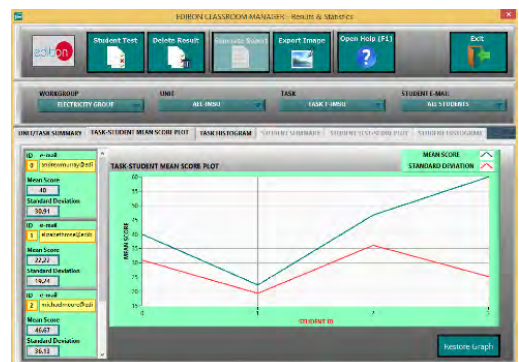
ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



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

**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:

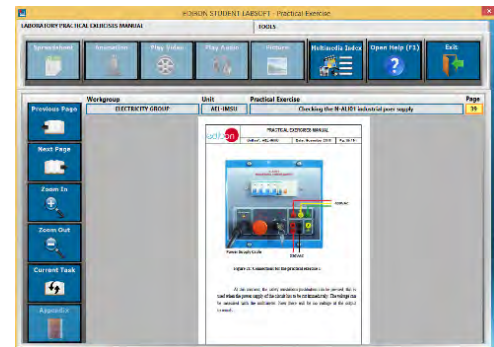
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.
- 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](http://www.edibon.com/en/files/expansion/ICAI/catalog)



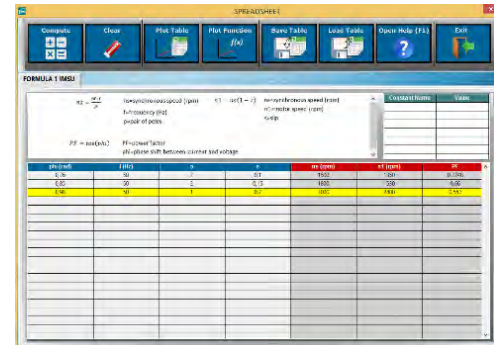
ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen



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:

