# Control System for Home Electric Services through the Telephone

## AEL-AD25A



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## INTRODUCTION

With the development of new technologies, they help us more and more to solve problems in our daily life. One of the most important problems is home safety.

Nowadays, several safety systems are used in the houses. They help us to keep our homes safe in the event of floods, gas leakages or intruders.

In addition, a problem appears when there are a lot of control systems installed in a house, for this reason, they have appeared a lot of methods to do the control of these system more centralized.

The Control System for Home Electric Services through the Telephone, "AEL-AD25A", is a system designed to study some home safety applications. This system includes the most common ones, such as the flooding control, gas leakage detection or intrusion detection. To control all these applications, a remote control central via telephone is also included. It allows the user to access the system remotely and execute actions in emergency situations.

These applications are described below:

### - AEL-AD22. Flooding Control Application:

The Flooding Control Aplication, "AEL-AD22", is designed to know and study the operation of the most common flooding control systems. This application has two parts. On one hand, there is a water tank divided into two parts: one to simulate the flooding and the other one to evacuate water. There is a solenoid valve to exchange the water through a water pump between both parts. On the other hand, the application includes the following elements: two flood detectors, one of them built-in, a pilot lights module that can be activated by sensors and an indoor siren. Therefore, this application allows the student to learn about the operation of flooding control systems.

The AEL-AD22 includes the following modules:

- N-ALI02. Domestic Main Power Supply.
- N-ALI03. AC Auxiliary Power Supply.
- N-DET03. Fitted Power Supply (gas and flooding detector).
- N-DET01. Flooding Detector.
- N-DET04. Fitted Flooding Detector.
- N-SEL03. Three-Pilots Lights.
- N-SEL21. Indoor Siren.

### - AEL-AD23. Wireless Intrusion detection Application (RF):

The Wireless Intrusion Detection Application (RF), "AEL-AD23", is designed with the aim to understand the operation of a wireless intrusion detection system. For that, this application includes a wireless presence detector that works via infrared radiation, detecting temperature changes, a panic pushbutton to use in emergency situations and a wireless receptor that receives the signals from all sensors. In order to check the operation of these devices, the application also includes a pilot light module and a bell and buzzer module, which can be activated by the sensors. Thus, the user can check different types of intrusion alarms.

The AEL-AD23 includes the following modules:

- N-ALI02. Domestic Main Power Supply.
- N-ALI03. AC Auxiliary Power Supply.
- N-DET13. Wireless Intrusion Detector RF.
- N-DET14. Wireless Panic Push-Button RF.
- N-DET15. Wireless One Channel Receptor RF.
- N-SEL01. Light Signaling Beacons.
- N-TIM05. Bell + Buzzer.

## - AEL-AD30. Gas and Smoke Detection Application:

The Gas and Smoke Detection Application, "AEL-AD30", is designed to study the operation of a gas leak detection and fire prevention system. This application includes two types of sensors. On one hand, there is a gas detector capable to detect explosive and toxic gases, such as natural gas, propane, butane, etc. It can also detect smoke from combustion, so it is a very complete sensor. On the other hand, there is an optic smoke detector, capable to detect visible gases, although it must not be installed close to water heaters to avoid a false positive result. The application also includes a solenoid valve to close the gas circuit in case of leakage. The student can simulate with all of these devices some emergency situations to understand the operation of the main gas detection systems in the market.

The AEL-AD30 includes the following modules:

- N-ALI02. Domestic Main Power Supply.
- N-ALI03. AC Auxiliary Power Supply.
- N-DET02. Gas Detector.
- N-DET03. Fitted Power Supply (gas and flooding detector).
- N-DET36. Smoke Detector.
- N-DET12. Gas electrovalve.

## - AEL-AD40. Remote Control Application Via Telephone:

The Remote Control Application Via Telephone, "AEL-AD40", is designed to study the operation of a remote control system via telephone, in other words, for the remote control of sensors, alarms, etc. installed in a house, office, etc. With this application, the user can simulate real situations, such as a flooding, a gas leakage, an intrusion or other accident detected by sensors, which trigger an alarm. In that case, the system cuts off the supply and warns the user. Then, through dialing codes, the user can take decisions on the system. To make this possible, the application includes control module to connect the rest of detection modules to control them, and a telephone to introduce the dialing codes.

The AEL-AD40 includes the following modules:

- N-ALI02. Domestic Main Power Supply.
- N-CTR01. Control Module.
- N-VAR05. Tone Dialing Telephone.

Expansion learning software:

In addition, Edibon provides expansion learning software (AEL-AD25A/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-AD25A can be mounted on rack (option A) or on rail (option B):

Option A:

This application needs the following racks:

- N-RACK-M. (4 units).

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.

The system includes the following modules:

• N-ALI02. **Domestic Main Power Supply. (4 units)**

    Voltage supply (Single-Phase): 230 VAC, PH+N+G.

    ON-OFF removable key.

    Output Voltage Connections:

        Two Single-Phase: 230 VAC.

        Single-Phase supply wire connecting plug.

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


N-ALI02

• N-ALI03. **AC Auxiliary Power Supply. (3 units).**

    Voltage supply (Single-Phase): 230 VAC PH+N+G.

    Output voltage:

        Single-Phase 24 VAC/12 VAC.

        24 VDC.

        0 - 24 VDC through potentiometer.


N-ALI03

• N-CTR01. **Control Module.**

    Two voltage inputs, 230 VAC.

    Frequency, 50 Hz.

    Five inputs.

    Five outputs per relay (20 outputs).

    One telephone connection input.

    One telephone connection output.


N-CTR1

• N-VAR05. **Tone Dialing Telephone.**

    Standard telephone with tones.


N-VAR05

• N-DET02. **Gas Detector.**

    Voltage supply, 12 VAC.

    Two alarm outputs.

    Acoustic alarm indicator.

    Status indicator light.

    Test button.


N-DET02

• N-DET03. **Fitted Power Supply (gas and flooding detector). (2 units).**

    Voltage supply, 230 VAC.

    Output voltage 12 VAC.

    Ground connection.

    Service LED.


N-DET03

• N-DET36. **Smoke Detector.**

    Voltage supply, 230 VAC.

    Two alarm outputs.

    Alarm sound and status LED.



N-DET36

• N-DET12. **Gas electrovalve.**

    Voltage supply, 230 VAC.

    Power, 14 W.

    Ground connection.

    Automatic reset.

    Maximum pressure, 500 mBar.

    Closing time, 0.1s.



N-DET12

• N-DET13. **Wireless Intrusion Detector RF.**

    Vision angle: 90°.

    Frequency: 433.92 MHz.

    Voltage supply: battery of 3.6 VDC.

    Max. Area 12 x 12 m.

    Status LED.



N-DET13

• N-DET14. **Wireless Panic Push-button RF.**

    Frequency 433.92 MHz.

    Voltage supply: battery of 12 VDC.

    Battery status LED.

    Working temperature 0 – 49°C.

    Dimensions: 32 x 53 x 17 mm.



N-DET14

• N-DET15. **Wireless 1-channel Receptor RF.**

    Communication with 10 transmitter modules.

    Frequency: 433.92 MHz.

    Voltage supply: 12 VDC.

    One alarm output.

    One tamper output.

    Dimensions: 110 x 63 x 25 mm.



N-DET15

• N-SEL01. **Light Signaling Beacons.**

    Two pilots, yellow and red.

    Voltage supply: 230 VAC.



N-SEL01

- N-TIM05. **Bell + Buzzer.**

    Voltage supply: 230 VAC.

    Bell sound 70 dB.

    Buzzer sound 80 dB.

N-TIM05

- N-DET01. **Flooding Detector.**

    Voltage supply, 230 VAC.

    Frequency: 50/60 Hz.

    Power: 5 W.

    Alarm LED.

    One input for probe.

    Two alarm outputs.

    Connectable to the solenoid valve.

    Status LED.

N-DET01

- N-DET04. **Fitted Flooding Detector.**

    Voltage supply 12 VAC.

    One input for probe.

    Two alarm outputs.

    Alarm and status LED.

    Acoustic alarm.

N-DET04

- N-SEL03. **Three-Pilots Lights.**

    Voltage supply, 24 VAC.

    Colors: red, yellow and green.

N-SEL03

- N-SEL21. **Indoor Siren.**

    Volume configuration through voltage, 12-24 VDC.

    87-112 dB.

    12 – 30 mA.

    32 tones.

N-SEL21

- **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 and measuring on the main power supply.

2.- Checking the working of the auxiliary power supply.

3.- Checking the working of pilot-lights by connecting as visual alarms.

4.- Checking the working of the built-in power supply.

5.- Checking the operation of the flooding detector.

6.- Checking the operation of the built-in flood detector.

7.- Checking the operation of the siren, used as visual and acoustic alarm.

8.- Simulate floods and evacuations with the water tank and the electrovalve.

9.- Checking the working of the bell + buzzer module using as acoustic alarm.

10.- Checking the working of the light signaling beacons module, using as visual alarm.

11.- Checking the working of the wireless emergency pushbutton.

12.- Use of the alarms with the wireless intrusion detector.

13.- Control of gas electrovalve through the smoke sensor.

14.- Configuration of the Control Module.

15.- Control of the flooding detector through the Control Module.

16.- Control of the gas detector through the Control Module.

17.- Control of the motion detector through the Control Module.

- Several other exercises can be done and designed by the user.

## REQUIRED SERVICES

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

## DIMENSIONS AND WEIGHTS

AEL-AD22:

   - Dimensions: 640 x 320 x 670 mm approx.

                (25.19 x 12.59 x 26.37 inches approx.)

   - Weight:      60 Kg approx.

                (132 pounds approx.)

AEL-AD23:

   - Dimensions: 640 x 320 x 670 mm approx.

                (25.19 x 12.59 x 26.37 inches approx.)

   - Weight:      60 Kg approx.

                (132 pounds approx.)

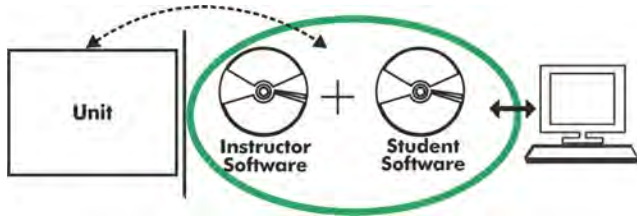AEL-AD30:

   - Dimensions: 640 x 320 x 670 mm approx.

                (25.19 x 12.59 x 26.37 inches approx.)

   - Weight:      60 Kg approx.

                (132 pounds approx.)

AEL-AD40:

   - Dimensions: 640 x 320 x 670 mm approx.

                (25.19 x 12.59 x 26.37 inches approx.)

   - Weight:      60 Kg approx.

                (132 pounds approx.)

## AEL-AD25A/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.
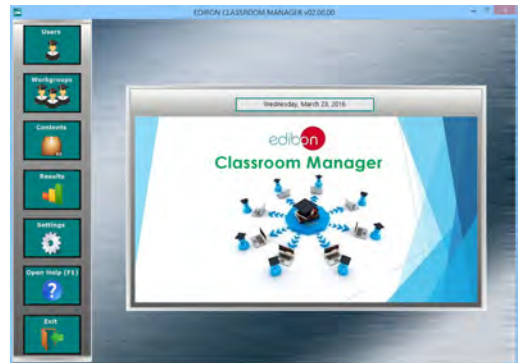
### Instructor Software

- 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
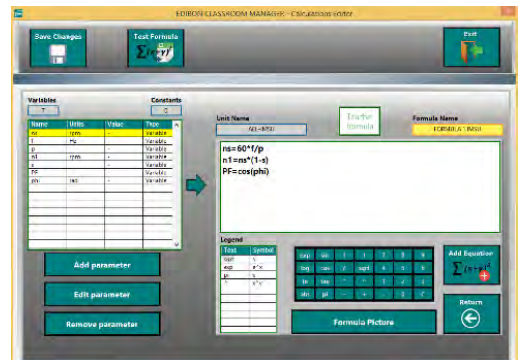


ECAL. EDIBON Calculations Program Package - Formula Editor Screen
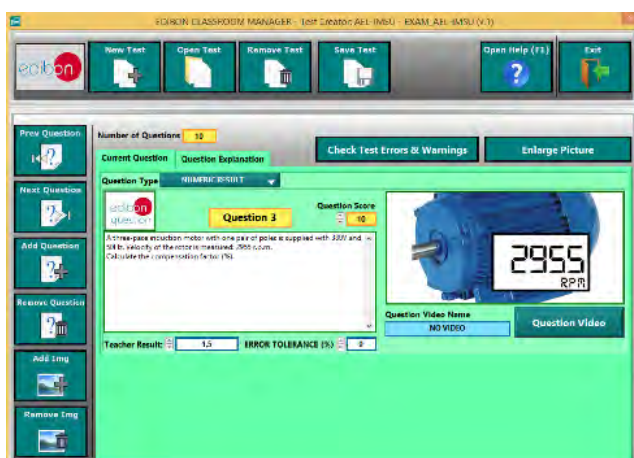


ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question



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

## 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.

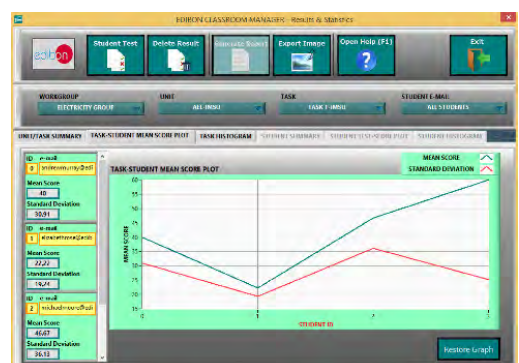• Default contents & scheduled tasks available to be used from the first session.

• 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.



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



EPE. EDIBON Practical Exercise Program Package Main Screen

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

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



ECAL. EDIBON Calculations Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation

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✱ Specifications subject to change without previous notice, due to the convenience of improvement of the product.



**INTERNATIONAL**

C/ Julio Cervera, 10-12-14. Móstoles Tecnológico.
28935 MÓSTOLES. (Madrid). ESPAÑA - SPAIN.
Tel.: 34-91-6199363   Fax: 34-91-6198647
E-mail: edibon@edibon.com   Web: **www.edibon.com**

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REPRESENTATIVE: