edibon

Engineering and Technical
Teaching Equipment

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⤷PRODUCTS
⤷4.- ELECTRICITY

INTRODUCTION

The advent of digital dimming offers a new option with clear advantages over traditional analog dimming.

Dimming of fluorescent lighting offers significant benefits in terms of supporting visual needs with good lighting, giving users control of their own lighting and energy savings. Digital dimming can be used almost anywhere that analog dimming can be used for the same purposes: visual needs, personal control, daylight harvesting, scheduling and other control strategies. If fluorescent dimming is desirable for a given application, digital dimming can offer distinct advantages related to intelligence, flexibility and two-way communication.

DALI technology offers several particluar benefits as easy planning, lower costs and interoperability. It is the most flexible and reliable control system for innovative lighting solutions.

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 DALI Installations Application, "AEL-DALI", is designed by Edibon to study the most important subjects related to DALI technology, giving special hands-on training on this field.

The AEL-DALI consists of different modules to study the functionality of the most important components in the field of the DALI control systems. These components are, for example the DALI controller, external buttons, DALI-Controlled brightness and motion sensor. With this modules can be studied energy saving schedules, energy efficiency, lighting automation, on-off functions and discharge lamps using DALI control. In addition to these modules, a network analyzer is optionally provided to study energy savings by comparing DALI technology with conventional lighting installations.

The DALI controller module can be programmed by the user to get the following functions: automatic and semi-automatic motion sensing, regulation of constant light output, scene setting, push-button function, on-off function, staircase function (timer function), addressing capabilities.

The DALI Installations Application provides simplified wiring and high level control (flexibility) for an easy and hands-on learning.

The AEL-DALI includes the following modules:

- N-ALI02.   Domestic Main Power Supply.
- N-DAC.   DALI Controller Module.
- N-LED1.   LED Lamps Module.
- N-MSE1.   DALI Motion sensor Module.
- N-PUS1.   DALI Push-buttons Module.
- N-SFU1.   Staircase Module.
- N-LAM10.   Two Halogen Lamps.

Additional and recommended modules:

- N-MED60.   Network Analyzer.
- N-TCP1.   DALI Touch Control Panel Module.
- N-DKG.   DALI-KNX Gateway.

This application can be extended with the following applications:

- AEL-KNX1.   KNX/EIB Shutter Control Application.
- AEL-KNX2.   KNX/EIB Heating Control Application.
- AEL-KNX3.   KNX Security Control Application.
- AEL-KNX4.   KNX/EIB Lighting Control Application.
- AEL-KNX5.   KNX/EIB Energy Management Application.
- AEL-BCS.   Building Automation and Control Networks BacNet Application.

Expansion learning software:

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

Option A:

This application needs the following racks:

- N-RACK-M (2 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 Application includes the following modules:

- **N-ALI02. Domestic Main 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 wire connecting plug.

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

N-ALI02

- **N-DAC. DALI Controller Module.**

    DALI input controller.

    4 independent inputs for floating contacts.

    For connecting standard momentary-action switch or switches.

    Adjustable operating mode and range via rotary selector.

    Power supply via DALI line: 24 VDC.

N-DAC

- **N-LED1. LED Lamps Module.**

    Power supply: 230 VAC.

    Typ. luminous flux category: 1,000 / 2,000 lm.

    High system efficacy up to 90 lm/W at tp = 65 °C.

N-LED1

- **N-MSE1. DALI Motion sensor Module.**

    Component of the comfortDIM system (DALI standalone).

    With ambient light dependent control and presence detection.

    Simple group assignment via rotary switch.

    Multiple MSensors possible in a group.

    Lighting control and presence detection can be deactivated.

    Individual adjustment of the parameters with configuration software.

    Power supply via DALI line: 24VDC.

N-MSE1

- **N-PUS1. DALI Push-buttons Module.**

    2 x Push buttons.

N-PUS1

- **N-SFU1. Staircase Module.**

    Relay contact: 16 A.

    Timer 0 – 17 min.

N-SFU1

- N-LAM10. **Two Halogen Lamps.**

    Nominal voltage: 230 VAC.

    Nominal Power: 2x40W.

Additional and recommended modules:

- N-MED60. **Network Analyzer.**

    ON-OFF switch.

    Supply voltage: 230 VAC.

    Input terminals: Input connection with the measurement point.

    Output terminals: Output connection with the measurement point.

    Digital outputs: Three digital outputs are used for pulses or alarms, or for combining both.

    Fuses: 3x10 A.

    Network Analyzer Display. It shows:

        Active, reactive and apparent power.

        Active, reactive and apparent energies.

        Lines and phase currents.

        Line and phase voltages.

        Frequencies.

        Power Factor.

- N-TCP1. **DALI Touch Control Panel Module.**

    Control panels for DALI systems.

    For controlling multiple luminaire groups and calling up preset lighting scenes.

    Power supply via DALI line: 24 VDC.

    Individual adjustment of the control panel and button assignments with configuration software.

    Setting group addresses or "broadcast".

    Setting scenes.

- N-DKG. **DALI-KNX Gateway.**

    Power supply: 230 VAC.

    DC BUS: 24 VDC.

- **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.

N-LAM10

N-MED60

N-TCP1

N-DKG

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Connection of automatic and semi-automatic motion sensor to the main controller.

2.- Programming and regulation of constant light output.

3.- Scene setting.

4.- Testing the push-button function

5.- Testing of on-off lights function

6.- Staircase function (timer function)

7.- System analysis software

8.- Addressing capabilities.

9.- Comparison conventional lighting energy consumption and DALI lighting systems.

- 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-DALI:

    - Dimensions: 1380 x 840 x 2010 mm approx.

            (54.33 x 33.07 x 79.13 inches approx.).

    - Weight: 30 Kg approx.

            (66 pounds approx).

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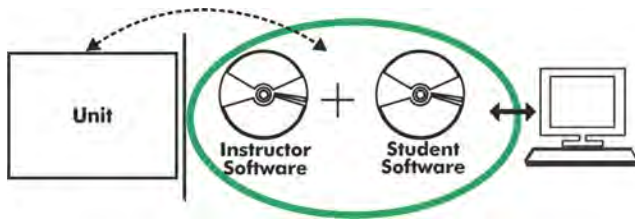
With no physical connection between unit and computer (PC), **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF).** Both are interconnected so that the teacher knows at any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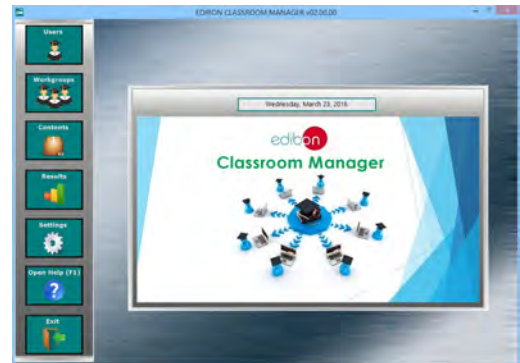
Instructor Software

-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.**
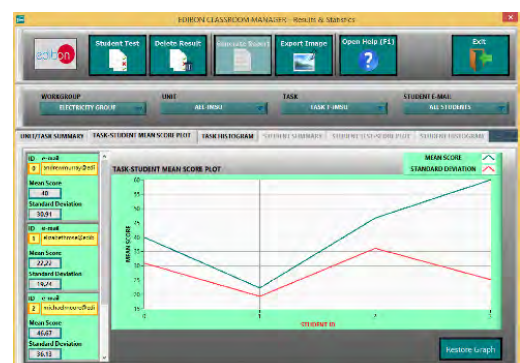

ECM. EDIBON Classroom Manager (Instructor Software)
Application Main Screen
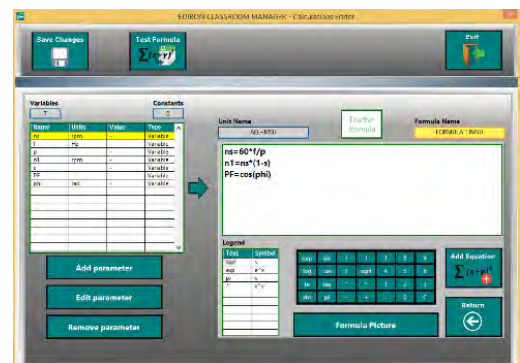
ECAL. EDIBON Calculations Program Package -
Formula Editor Screen
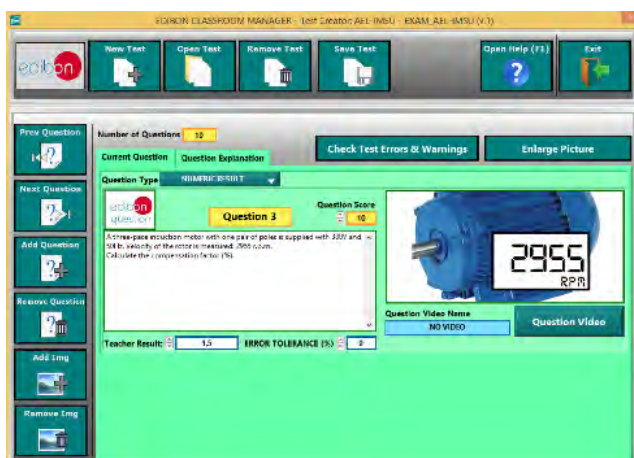
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with
Numeric Result Question

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

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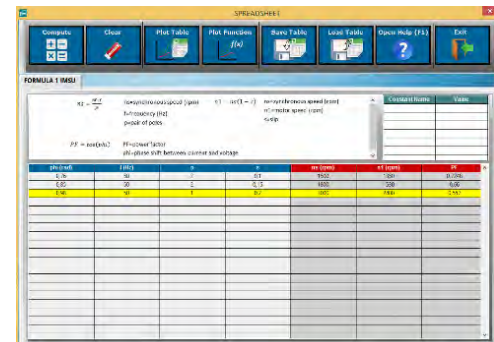www.edibon.com/en/files/expansion/ICAI/catalog

ESL. EDIBON Student LabSoft (Student Software)
Application Main Screen
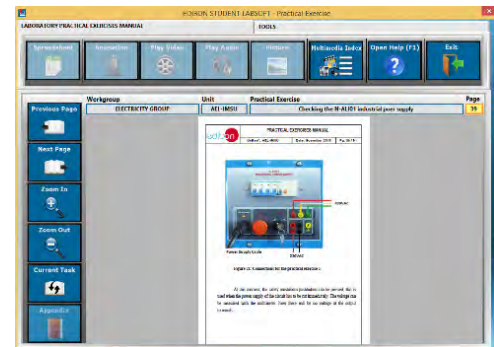
EPE. EDIBON Practical Exercise Program Package Main Screen

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.

REPRESENTATIVE: