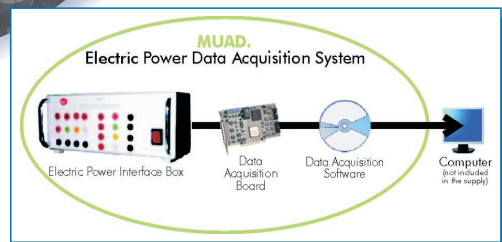


HIGHER EDUCATION ELECTRICITY LABORATORY (4HE)



* Center:
* Country:
* Date:
* Issue:

Quality Certificates:



ISO 9000: Quality Management
(for Design, Manufacturing,
Commercialization and After-sales service)



European Union Certificate
(total safety)



Certificates ISO 14000 and
ECO-Management and Audit Scheme
(environmental management)



Worlddidac Quality Charter
Certificate
(Worlddidac Member)

Higher Education Electricity Laboratory

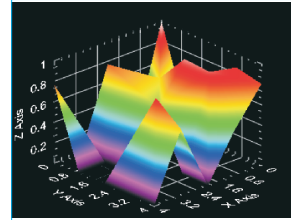
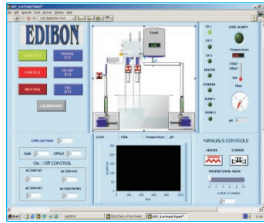
(4HE)

Index

- Project content.
- Technical areas available.
- Economical proposal.
- Classroom and Laboratory Lay Out (Example).
- Main teaching units (included in priority 1).
- Main target.
- Project options covered.
- Project conditions.
- Teaching techniques used.

Project content

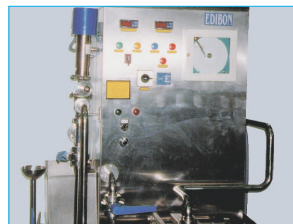
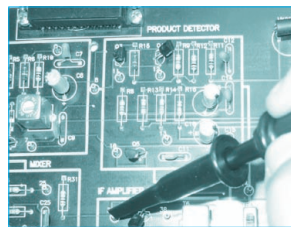
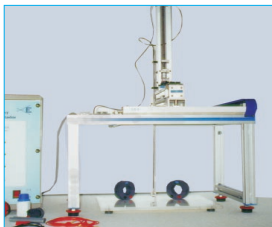
Modern design



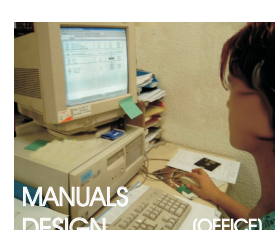
Main blocks



Products



Full units design



Technical areas available

- Physics.
- Electronics.
- * **Electricity.**
- Energy.
- Automatics & Systems.
- Process Control.
- Complements, Instruments and Tools.

***Main area directly related with Electricity laboratory labelled in bold letters.**

Note: The complete technical design "is ready" at our premises

Economical Proposal

Teaching Units:

"Priority 1"

0200 Electronics

0213-210/10S: Elementary Electronics (10 CAI + CAL)

0213-211/10S: Elementary Electronics (10 CAI + CAL)

0260: Industrial Electronics Module

0400 Electricity

0413-410/10S: Domestic Electric Installations (10 CAI + CAL)

0413-411/10S: Domestic Electric Installations (10 CAI + CAL)

0413-412/10S: Domestic Electric Installations (10 CAI + CAL)

0413/5A: Domestic Electric Installations (5 MUAD)

0423K-420K/10S: Domestic Electric Installations "kit" (10 CAI + CAL)

0423K-421K/10S: Domestic Electric Installations "kit" (10 CAI + CAL)

0423K-422K/10S: Domestic Electric Installations "kit" (10 CAI + CAL)

0423/10B: Domestic Electric Installations "kit" (10 BASK + CABD)

0433-430/10S: Industrial Electric Installations (10 CAI + CAL)

0433-431/10S: Industrial Electric Installations (10 CAI + CAL)

0433-432/10S: Industrial Electric Installations (10 CAI + CAL)

0433/10A: Industrial Electric Installations (10 MUAD)

0443K-440K/10S: Industrial Electric Installations "kit" (10 CAI + CAL)

0443K-441K/10S: Industrial Electric Installations "kit" (10 CAI + CAL)

0443K-442K/10S: Industrial Electric Installations "kit" (10 CAI + CAL)

0453-450/10S: Energy Installations (10 CAI + CAL)

0453-451/10S: Energy Installations (10 CAI + CAL)

0453-452/10S: Energy Installations (10 CAI + CAL)

0463K-460K/10S: Energy Installations "kit" (10 CAI + CAL)

0463K-461K/10S: Energy Installations "kit" (10 CAI + CAL)

0463K-462K/10S: Energy Installations "kit" (10 CAI + CAL)

0472/10S: Industrial Relays Basic Module (10 CAI + CAL)

0473/10S: Industrial Relays Medium Module (10 CAI + CAL)

0480: Electrical Machines Basic Module

0481: Electrical Machines Medium Module

0482: Electrical Machines Advanced Module

0483: Electrical Machines "Disassembly" Module

0600 Automation & Systems

0633/10S: Industrial PLC (Any)

1000 Process Control

1010: Process Control Basic Module

1010/PLC: PLC's Module

1000/ESN: EDIBON Scada-Net for Process Control

"Priority 2"

0200 Electronics

0230: Transducers and Sensors Module

0231: Sensors Instrumentation

0232: Controllers

0240: Control Electronics Module

0250: Digital Electronics Module

0500 Energy

0510: Energy: Modular Power System Simulator Basic Module

0511: Energy: Modular Power Simulator "ESN"

0531/10S: Main Advanced Renewable Energies (10 CAI + CAL)

0531/PLC: PLCs Module

0538/10S: Turbine Troubleshooting Renewable Energies (10 CAI + CAL)

0538/PLC: PLCs Module

0500/ESN: EDIBON Scada-Net for Renewable Energies

0600 Automation & Systems

0610: PLC Trainer

0620: PLC Process Emulators Applications Module

1000 Process Control

1011: Process Control Medium Module

1011/PLC: PLC's Module

"Priority 3"

0100 Physics

0110: 3D Physics Basic Module

0500 Energy

0520: Energy: Advanced Power Plant Simulator Basic

0521: Energy: Advanced Power Plant Simulator Medium

0522: Energy: Advanced Power Plant Simulator Advanced

0600 Automation & Systems

0621: PLC Small Scale Real Applications Module

0650: Automation & System Module

0651: Automation (Regulation and Control) Module

1000 Process Control

1020: Industrial Process Module

1020/PLC: PLC's Module

Complements, Instruments and Tools:

5100 Complements, Instruments and Tools

5110-1: Cupboard & Shelves Module (1 unit)

5120-10: Computer Module (10 units)

5122: Teaching Aids Module

5124: Complete Health & Safety

5142-1: Electricity Toolkit Module (1 unit)

5143-20: Electronics Toolkit Module (20 units)

Services:

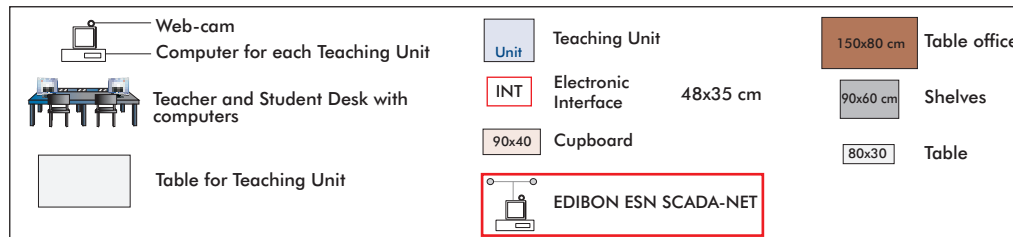
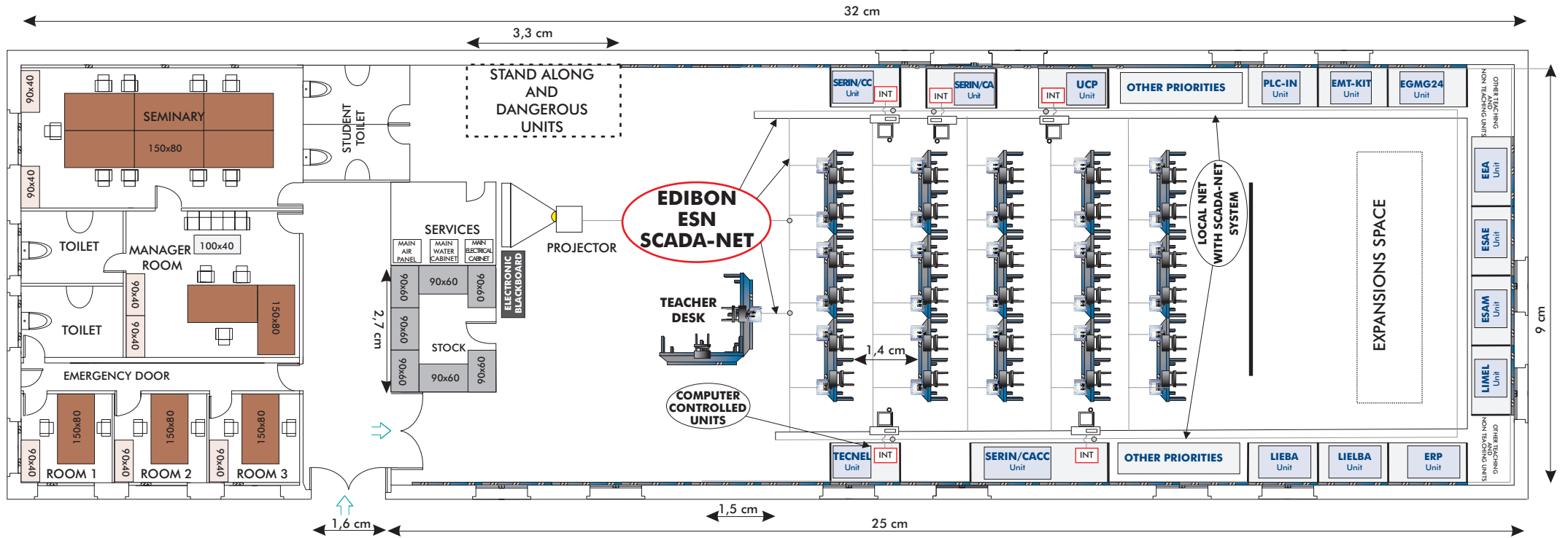
* Furnitures

* Electrical, Water and Air Installation and others laboratory services

* Installation of all units supplied, Starting up, Training, Teacher Training and Technology Transfer

Classroom and Laboratory Lay Out

HIGHER EDUCATION ELECTRICITY LABORATORY (Example of Priority 1) (4HE)



E: 1:100

Main Teaching Units (included in priority 1) Priority 01:

LIEBA	Basic Electronics and Electricity Integrated Laboratory.
TECNEL	<u>Computer Controlled</u> Teaching Unit for the Study of Power Electronics. (Converters: DC/AC+AC/DC+DC/DC+AC/AC).
SERIN/CACC	<u>Computer Controlled</u> Industrial Servosystems Trainer (for AC and DC Motors).
LIELBA	Electrical Installations Integrated Laboratory.
ERP	Protection Relay Test.
LIMEL	Integrated Laboratory for Electrical Machines
ESAM	Faults Simulation Trainer in Electrical Motors.
ESAE	Electrical Faults Simulation Trainer
EEA	Alternators Study Unit.
EGMG24	Motor -Generator Group
SERIN/CC	<u>Computer Controlled</u> Industrial Servosystems Trainer (for DC Motors).
SERIN/CA	<u>Computer Controlled</u> Industrial Servosystems Trainer (for AC Motors).
EMT-KIT	Disassembly Machines Kit.
PLC-IN	PLC Industrial Control System
UCP	<u>Computer Controlled</u> Process Control System (with electronic control valve).

Main target

* To help the students:

- By "quick" understanding.
- By "clear" understanding (clear concepts).
- By "saving" time.
- By "extending" the laboratory to their homes.

* To help the teachers:

- By "easy" teaching.
- By increasing the teaching "efficiency".
- By "reducing" teaching costs (less time consume).
- By "integrating" classroom and laboratory in the same place.

Project options covered

This “*Higher Education Electricity Laboratory*” will cover the following:

- a) To train students at laboratory.
- b) To train trainers.
- c) To be used for training and update educators in current teaching technologies.
- d) To give courses to workers in the industry, as it simulates industrial process.
- e) To be used for carrying out applied research, in several processes and different technical areas.
- f) To be used as research tool for international projects.
- g) To train other countries teachers.

Project conditions

The “*Higher Education Electricity Laboratory*” includes the following technical and commercial conditions:

a) Technical conditions:

- Laboratories adaptation.
- Installation of all units supplied.
- Starting up for all units.
- Training about the exercises to be done with any unit.
- Teacher training related with the teaching unit and the teaching techniques used.
- Technology transfer.

b) Commercial conditions:

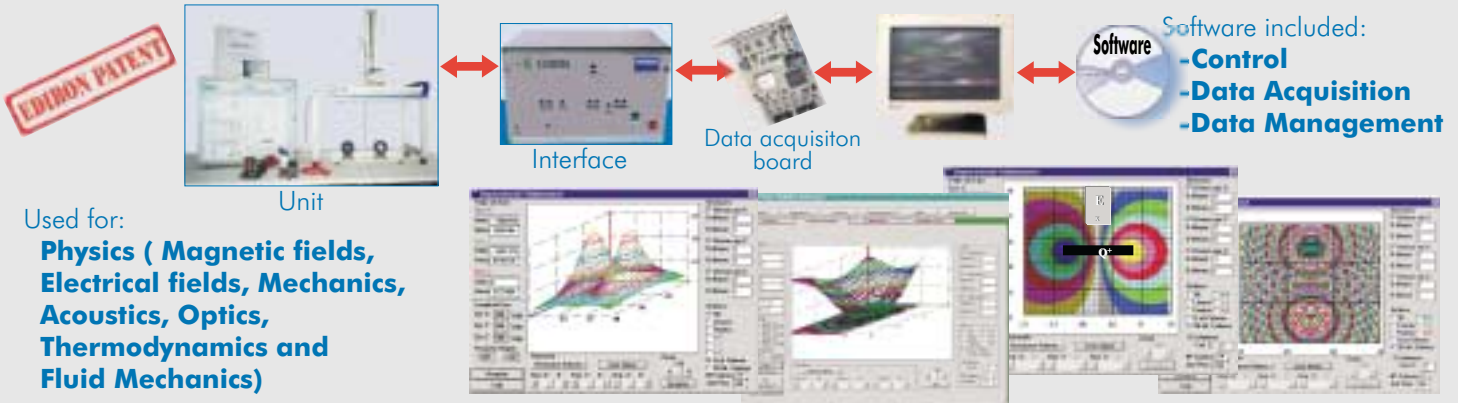
- Packing.
- Financing Charges.
- C.I.F. Charges.

c) Other conditions:

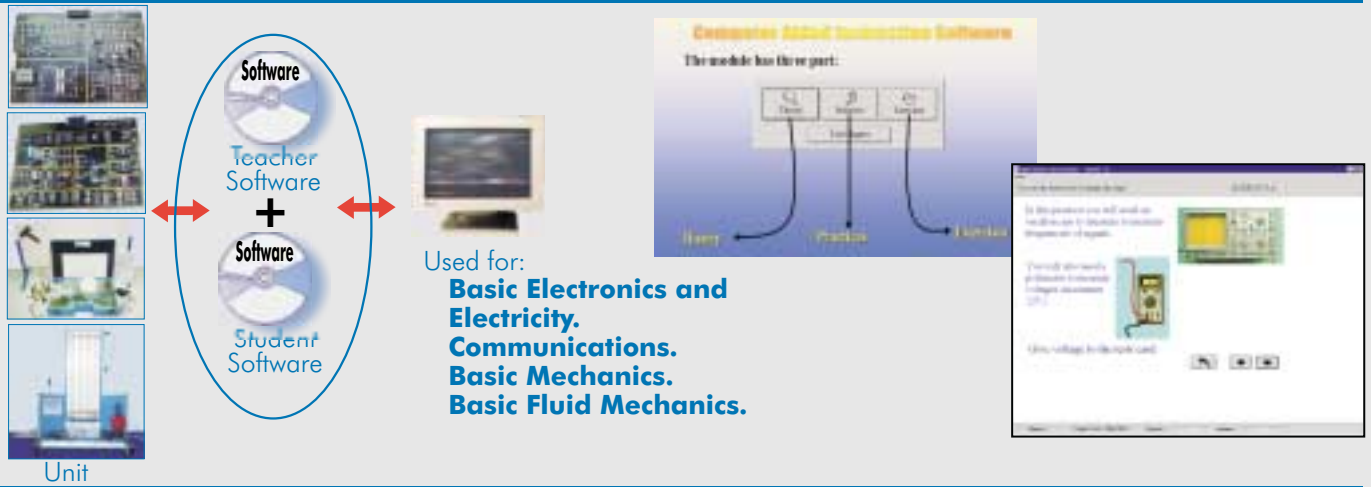
- 8 Manuals for each teaching equipment:
 - . Required services manual.
 - . Assembly and installation manual.
 - . Interface and software/control console manual.
 - . Set in operation manual.
 - . Safety norms manual.
 - . Practices manual.
 - . Maintenance manual.
 - . Calibration manual.

TEACHING TECHNIQUES USED

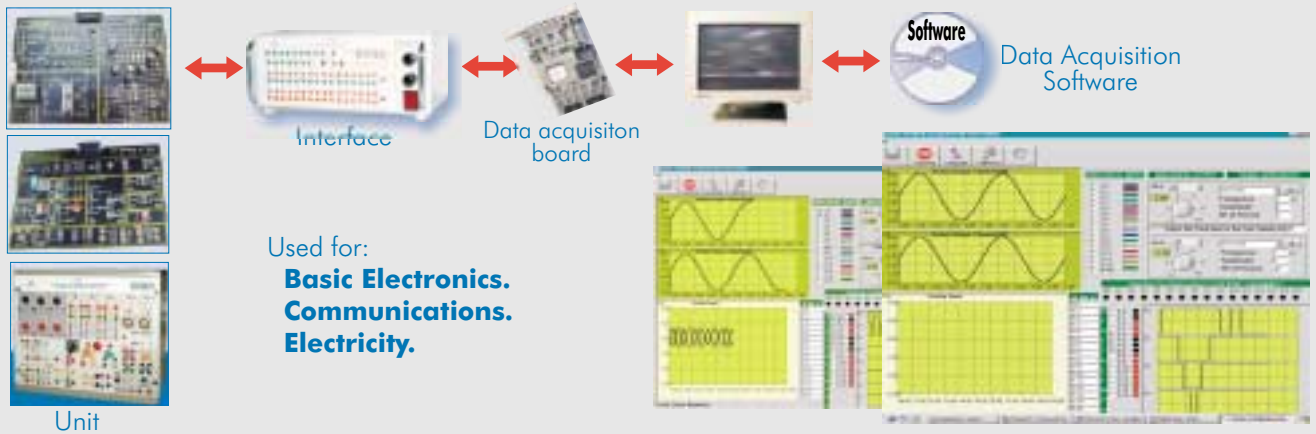
3D. EDIBON THREE DIMENSIONS SYSTEM



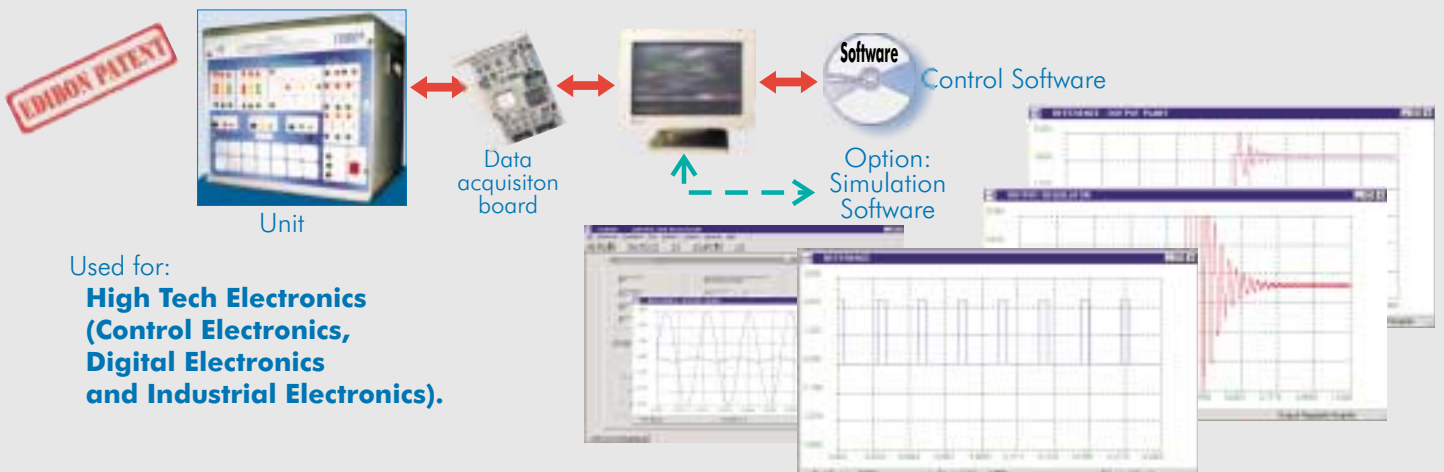
CAI. COMPUTER AIDED INSTRUCTION SYSTEM



EDAS. EDIBON DATA ACQUISITION SYSTEM



RTC. EDIBON SYSTEM FOR HIGH ELECTRONICS (Real time control)



HYBRID. EDIBON TEACHING HYBRID SYSTEM (ENERGY)

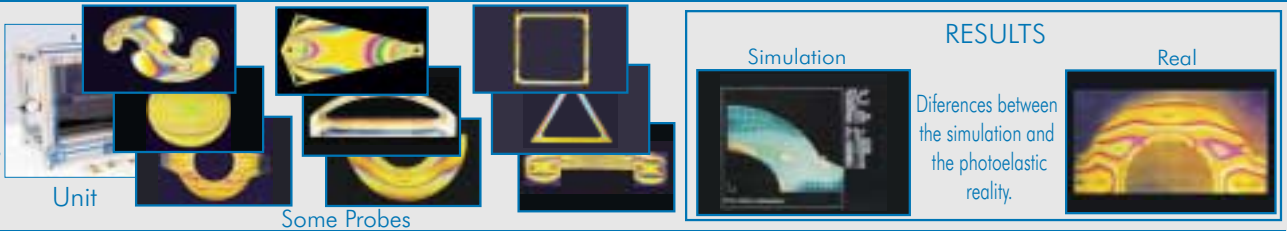
EDIBON PATENT

Used for:
Energy Power Plants.



PHOTOELASTICITY

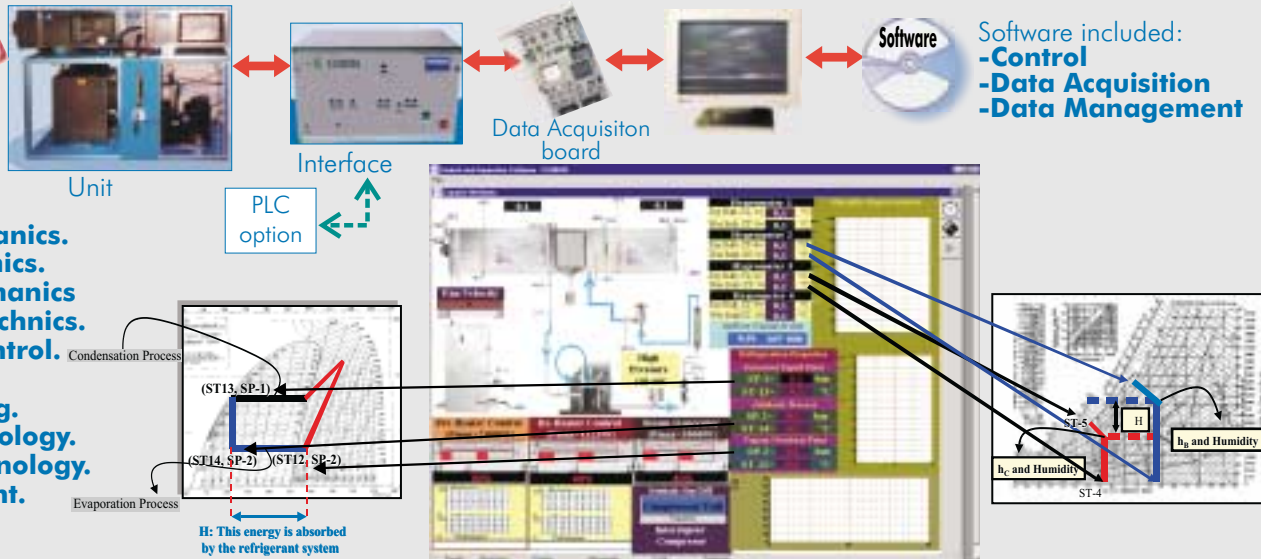
Used for:
Strength of Materials.



SACED. EDIBON COMPUTER CONTROL SYSTEM: Control+Data Acquisition+Data Management

EDIBON PATENT

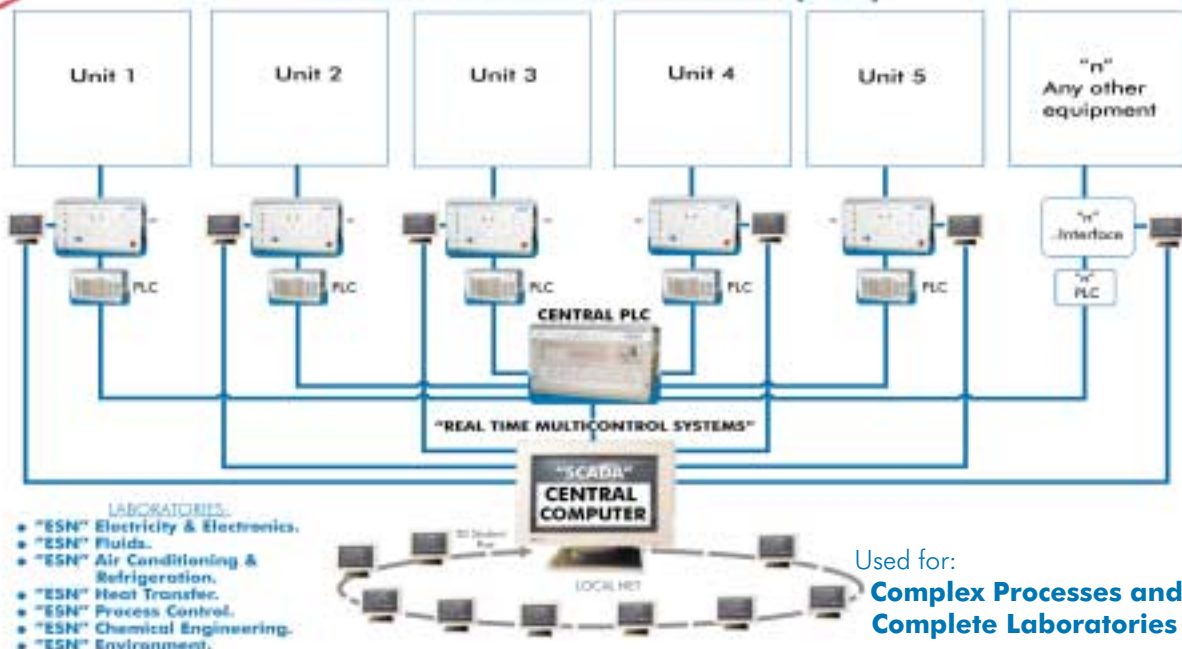
Used for:
**Fluid Mechanics.
Aerodynamics.
Thermodynamics & Thermotechnics.
Process Control.
Chemical Engineering.
Food Technology.
Water Technology.
Environment.**



ESN. EDIBON SCADA-NET SYSTEM

EDIBON PATENT

EDIBON SCADA-NET SYSTEM (ESN)



Used for:
Complex Processes and Complete Laboratories