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Products
Products range
Units
4.-Electricity

ELEMENTS ALLOCATION



TRA04=Three-phase Power Transformer.

ALI01 = Industrial Main Power Supply Module.

CAR01 = Fixed Resistive Load, 150 ohms, 500 W Module

MED72=Energy Counter Module.



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)

SPECIFICATIONS

This complete application includes:

Unit, in a metallic box, including the following modules:

ALI01. Industrial Main Power Supply:

One single-phase voltage output and one three-phase voltage output for industrial installation, presented as industrial sockets, and terminals in phase R, S, T, of line L and neutral N.

Safety elements as: a removable key with two positions (ON and OFF) that works as the main switch and an emergency-stop security mushroom.

2 lamps.

8 terminals.

CAR01. Fixed Resistive Load, 150 ohms, 500 W:

Resistance: 150 ohms.

Power: 500 W.

2 terminals.

Fan for heat dissipation.

MED72. Energy Counter:

Single phase electrical energy meter for low voltage networks, provided with a 6 digit Kilo-Watt-Hour LCD Display. Simultaneously shown are the voltage, current and Kilowatt load. Every minute the KWH display changes for a few seconds to show the maximum demand power in KW.

Voltage: 110-230V AC.

Tolerance: -15% + 20%.

Frequency: 50/60Hz.

Rating: 60 Amp.

Overload: 120A continuous.

Accuracy: Class 1.

Display: 6 digits KWh.

Maximum count: 999999 KWh.

Voltage: 3 digits.

Current: 2 digits.

KW: 2 digits.

Automatic four-pole differential switch at 240V/30mA/25A (with test) and automatic four-pole magneto-thermic switch at 230/400V-16A/6kA for the security of the elements. The switches are placed on the back panel of the unit.

TRA04. Three-phase Power Transformer:

Three-phase power Transformer.

1 KVA.

380/220 Vac.

8 terminals: three for the Primary, three for the Secondary, one for Neutral, one for Earth.

Cables and Accessories, for normal operation.

Manuals: This application is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

PRACTICAL POSSIBILITIES

- 1.-Identification of the elements of the main power supply.
- 2.-Checking the main power supply.
- 3.-To measure the energy consumed by the load with the energy counter.
- 4.-Checking the three-phase power transformer.

REQUIRED SERVICES

-Electrical supply : Three-phase.

DIMENSIONS & WEIGHTS

Application (AE6):

Unit (in a metallic box):

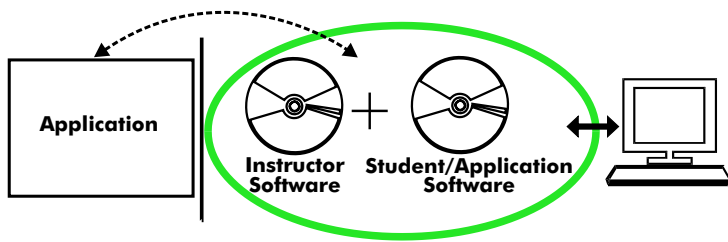
-Dimensions: 490 x 330 x 310 mm. approx.

-Weight: 15 Kg. approx.

Transformer TRA04:

-Dimensions: 195 x 152 x 215 mm. approx.

-Weight: 6 Kg. approx.



With no physical connection between application/module and computer, this complete package consists on an Instructor Software (INS/SOF) totally integrated with the Student/Application Software. Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students. These, on the other hand, get a virtual instructor who helps them to deal with all the information on the subject of study.

With the **INS/SOF. Classroom Management Software Package (Instructor Software)**, the Teacher has a whole range of options, among them:

- Organize Students by Classes and Groups.
 - Create easily new entries or delete them.
 - Create data bases with student information.
 - Analyze results and make statistical comparisons.
 - Print reports.
 - Develop own examinations.
 - Detect student's progress and difficulties.
- ...and many other facilities.

Examples of the Software screens



The Instructor Software is the same for all the applications, and working in network configuration, allows controlling all the students in the classroom.

A.../SOF Computer Aided Instruction Software Packages (Student/Application Software).

It explains how to use the application/module, run the experiments and what to do at any moment.

Each application has its own Student Software package.

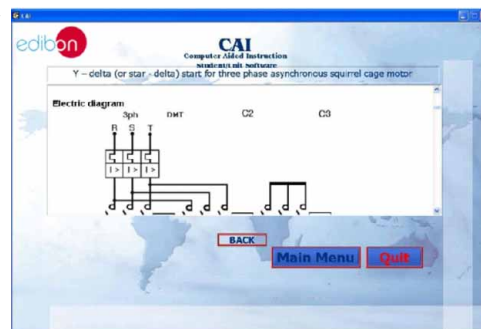
- The options are presented by pull-down menus and pop-up windows.
- Each Software Package contains:

Theory: that gives the student the theoretical background for a total understanding of the studied subject.

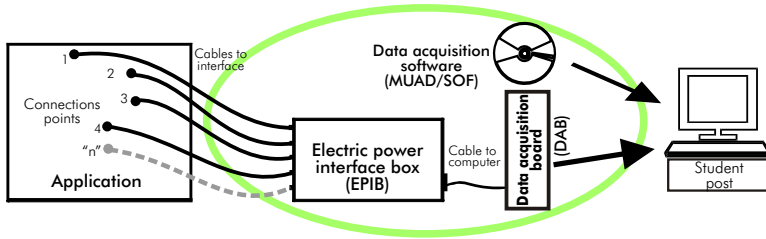
Exercises: divided by thematic areas and chapters to check out that the theory has been understood.

Guided Practices: presents several practices to be done, alongside the applications/modules, showing how to complete the exercises and practices.

Exams: set of questions presented to test the obtained knowledge.



MUAD. Electric Power Data Acquisition System



MUAD is the perfect link between the application/module and the PC. MUAD is a continuous data acquisition system with virtual instrumentation, that measures, analyzes and represents the parameters involved in the process.

MUAD allows voltage and current acquisition and measurement, data processing, frequency spectrum and all the functions of a digital oscilloscope.

We easily connect the Electric Power Interface Box (EPIB) to the application/module with the supplied cables (there are several connection points placed for it). The EPIB is connected to the PC through the Data Acquisition Board (DAB), and by using the Data Acquisition with Virtual Instrumentation Software (MUAD/SOF), the student can get results from the undertaken experiment/practice, see them on the screen and work with them.

The MUAD system allows voltage and current measurement and acquisition, data processing, frequency spectrum and the functions of a digital oscilloscope.

This MUAD System includes EPIB + DAB + MUAD/SOF:

1) Hardware :

1.1) EPIB. **Electric power interface box** (dimensions: 300 x 120 x 180 mm. approx.):

Interface that carries out the conditioning of the diverse signals that can be acquired in a process, for their later treatment and visualisation.

In the front panel, the elements are separated in two parts: left-hand part to VOLTAGE sensors, and right-hand part corresponds with CURRENT sensors.

Analog Input Channels:

8 analog input channels. Sampling range: 250 KSPS (kilo samples per second).

4 Tension sensors AC/DC, 400V. 4 Current sensors.



EPIB

1.2) DAB. **Data acquisition board** :

PCI Data acquisition board (National Instruments) to be placed in a computer slot.

Bus PCI.

Analog input:

Number of **channels**= 16 single-ended or 8 differential.

Resolution= 16 bits, 1 in 65536.

Sampling rate up to: 250 KSPS (Kilo samples per second).

Input range (V)= $\pm 10V$.

Data transfers=DMA, interrupts, programmed I/O.

Number of DMA channels=6.

Analog output:

Number of **channels**=2.

Resolution= 16 bits, 1 in 65536.

Maximum output rate up to: 833 KSPS.

Output range(V)= ± 10 .

Data transfers=DMA, interrupts, programmed I/O.

Digital Input/Output:

Number **channels**=24 inputs/outputs.

D0 or DI Sample Clock frequency: 0 to 1 MHz.

Timing: **Counter/timers**=2.

Resolution: Counter/timers: 32 bits.



DAB

2) MUAD/SOF. **Data acquisition software** :

Data Acquisition Software with Graphic Representation:

Friendly graphical frame.

Compatible with actual Windows operating systems.

Configurable software allowing the representation of temporal evolution of the different signals.

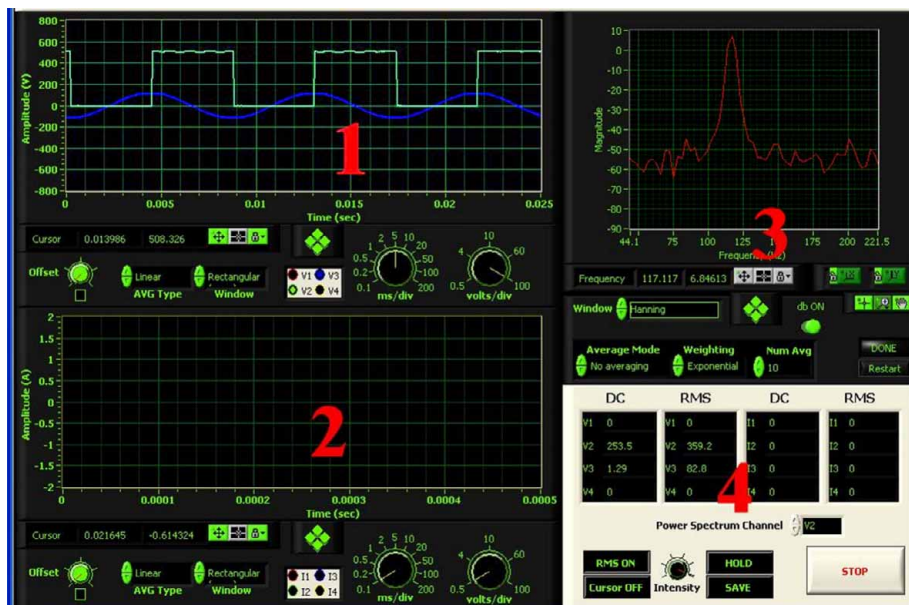
Visualization of a tension of the circuits on the computer screen.

Sampling velocity up to 250 KSPS (Kilo samples per second) guaranteed.



MUAD/SOF

Software Main Screen



1.- Voltage channels section

2.- Current channels section

3.- Power spectrum section

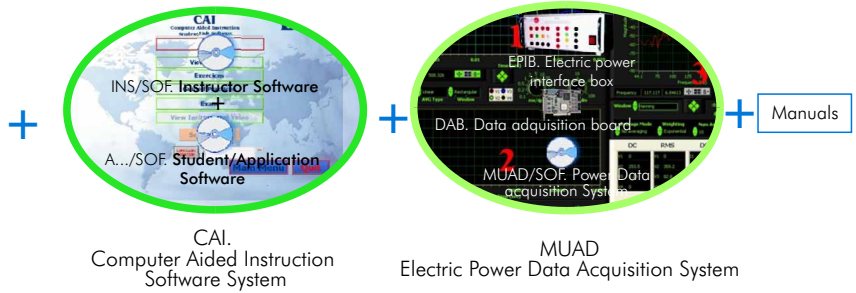
4.- General control panel section

Working possibilities:

1) Working possibility CAI + MUAD (EDIBON complete system)



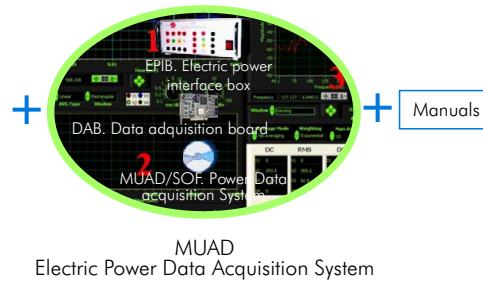
Application
(AE6)



2) Working possibility MUAD



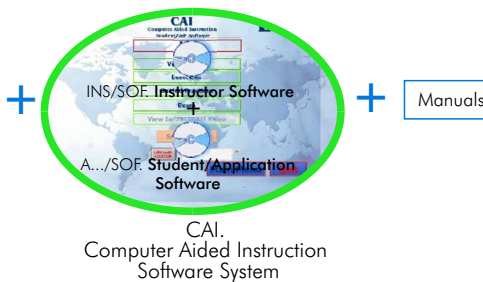
Application
(AE6)



3) Working possibility CAI



Application
(AE6)



4) Simplest Working possibility



Application
(AE6)



*Specifications subject to change without previous notice, due to the convenience of improvements of the product.



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REPRESENTATIVE: