

The complete laboratory includes part 1, 2, 3, 4, and 5, and any part can be supplied individually or additionally.
Minimum supply: Frame (BASB or BASS) + one Application + Manuals.

Available Applications:

• Domestic Electric Installations:

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|--|--|
| AD1A. Robbery alarm station. | AD22. Flooding control station. |
| AD3A. Fire alarm station. | AD23. Wireless basic control station (RF). |
| AD5. Temporization of stairs. | AD25A. Control station for domestic electric services through the telephone. |
| AD6A. Luminosity control station. | AD28A. Integral control station of domestic electric systems. |
| AD8. Blinds activator. | AD30. Gas control station. |
| AD9A. Heating control station. | AD31. Movement and sound detection and control. |
| AD11A. Network analyzer. | AD32. 24 Vac / 12 Vdc circuits analyzer. |
| AD13. Audio door entry system. | AD33. Installations faults simulator. |
| AD14. Audio and video door entry system. | |
| AD15A. Position control station. | |
| AD17A. Photoelectric control position station. | |
| AD24. Position Switch. | |
| AD19A. Sound station. | |

• Industrial Electric Installations:

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| AI1. Star-delta starter. |
| AI2. Starter through auto-transformer. |
| AI3. Speed commutator for Dahlander motor. |
| AI4. Starter-inverter. |
| AI5. AC wound rotor motor starter. |
| AI6. DC motor starter. |
| AI7. Automatic change of speed of a Dahlander motor with change of direction. |
| AI8. Reactive power compensation (Power factor correction). |
| AI9. People safety against indirect electrical contacts in TT neutral regimen. |

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| AI10. People safety against indirect electrical contacts in TN neutral regimen. |
| AI11. People safety against indirect electrical contacts in IT neutral regimen. |
| AI12. Modular trainer (AC motors). |
| AI13. Modular trainer for Electrotechniques |

• Energy Installations:

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| AE1. Aerial line model. |
| AE2. Reactive energy control and compensation. |
| AE3. Test unit for magneto-thermal automatic switches. |
| AE4. Test unit for differential automatic switches. |
| AE5. Relay control station. |
| AE6. Energy counters control station. |
| AE7. Multi-functional electrical protection station. |
| AE8. Power & torque measurements of electrical motors. |
| AE9. Directional Relay: Earth fault detection. Directional power flow detection. Reactive power flow detection. |

① Frame:

- **BASB. Basic Frame** or **BASS. Double Frame**, single side working post

② APPLICATIONS:

Painted steel modules.

All modules have handles and diagram.

Automatic anchorage system for housing the modules in the frame.

Automatic earth connection in the modules.

Safety connections.

Safety wires.

Available Applications:

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③ CAI. Computer Aided Instruction Software System:

The best help in classroom for both teacher and students.

Includes:

- INSTRUCTOR SOFTWARE. INS/SOF. Classroom Management Software Package (Teacher software). Only one package is needed per classroom. Helps creating databases, reports and statistical comparisons among many more features.
- STUDENT SOFTWARE. A.../SOF. Computer Aided Instruction Software Packages. Each Application has its own package. Gives the students the proper assistance on theoretical knowledge as well as in practice, presenting exercises and questions.

④ MUAD. Electric Power Data Acquisition System:

Includes:

- Hardware: EPIB. Electric power interface box + DAB Data acquisition board.
- Software: MUAD/SOF. Data acquisition software.

⑤ Manuals and Accessories:

There is a **manual for each application**. (8 manuals normally supplied).

With the application will be safety wires kit for doing all the practices (CABD).

- **Complete LABORATORY** included: ① + ② + ③ + ④ + ⑤

Minimum supply: ① Frame + ② one APPLICATION + ⑤ Manuals.

- See **Working possibilities** in page 22.

① Frame

• BASB. Basic Frame:

Anodized aluminium structure and modular building.

Possibility of housing until 10 different modules.

Automatic anchorage system for any module.

Automatic earth connection system.



• BASS. Double Frame, single side working post:

Anodized aluminium structure and modular building.

Dimensions approx.: 1300mm x 800mm x 700mm.

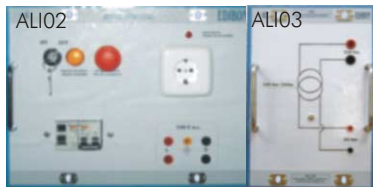
Possibility of housing until 12 different modules at the same time.

Transparent internal separation.

Automatic anchorage system for any module.

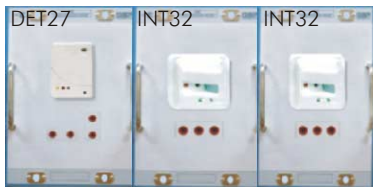
Automatic earth connection system.

AD1A. ROBBERY ALARM STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

DET27. Glass Break Detector

- 12 Vdc, 21 mA.
- ASIC technology.
- Adjustable sensitivity.
- It can protect more than 1 window.
- 10m diameter of the window maximum.



Included Modules:

INT32. Intrusion Switch/Detector with Relay 1000W. (2 units)

- Incandescent and halogen loads.
- Adjustable disconnection 4 seconds -10min.
- 40 to 300 W.
- Relay switch.

SEL03. 3 Pilot-Lights

- 3 pilot lamps.
- Green, red and yellow colours.
- 10 W lamps.

SEL21. Indoor Siren

- Indoor siren.
- 3 Volume Levels.
- 87-112 dB.
- 12-30mA
- 3 selectable tones.

VAR07. Kit: Burglar Alarm Central + infrared ele. + battery

- 4 zones.
- Telephone lines.
- PC and radio communication.
- Portable Eprom.
- Battery + Passive infrared detector.

Practical Possibilities:

- 1.- Assembly of the station with intrusion detector and alarm.
- 2.- Assembly of the station with glass breaking detector and alarm.
- 3.- Assembly of the station with both types of detectors and alarm.
- 4.- Assembly of the station with infrared detectors.

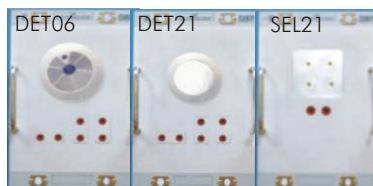
*Option: **AD1B. BASIC ROBBERY ALARM STATION.** (Includes only the following modules: ALI02 + ALI03 + DET27 + INT32 (2 units) + SEL03 + SEL21)

AD3A. FIRE ALARM STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

ALA02. Fire Alarm Station (with battery)

- 2 surveillance zones.
- Fault surveillance.
- Reset and silent mode.



Included Modules:

DET06. Smoke Detector for domestic control

- Ionic Smoke detector.
- 230 Vac, 50/60 Hz.
- Inverter relay alarm output no voltage.
- Service led and test function.
- Led and sound alarm.

DET21. Fire Detector through Ionization for Central

- Ionization detection.
- Connectable to control module.
- NC contacts.

SEL21. Indoor Siren

- Indoor siren.
- 3 Volume Levels.
- 87-112 dB.
- 12-30mA
- 3 selectable tones.

DET10. Water Electro-valve

- NO contact for water supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- Ip54.

DET22. Fire Thermal Detector

- Thermal fire detection.
- NC contacts.

SEL17. Fire Indicators, Bell type

- Fire alarm indicator.
- Triggered by pulsation 2.5 Kg.
- 1 NONC contact.
- 0.1A.
- 48 Vdc.

Practical Possibilities:

- 1.- Assembly of the station with fire detector, smoke detector and alarm.
- 2.- Test of the station with fire detector.
- 3.- Test of the station with smoke detector.
- 4.- Test of the station with detection of fire by the thermal detector.
- 5.- Activation of the electro-valve following the detection of the fire.

*Option: **AD3B. BASIC FIRE ALARM STATION.** (Includes only the following modules: ALI02 + ALI03 + ALA02 + DET06 + DET21 + SEL21)

AD5. TEMPORIZAZION OF STAIRS



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



CTI10. Automatic of Stairs

- 3 or 4 wires connection.
- 45 seconds to 7 minutes.
- 230 Vac, 10 A.
- Ip20 protection.
- 2 positions.



Included Modules:

INT21. Switch+Commutator Group+ Bell Push-Button (2 units)

- 1 One pole switch.
- 1 group commutator + bell pushbutton.
- 10 A.
- 250 Vac.
- Domestic use.

LAM13. 2 Low Consumption Fluorescent Lamps (2 units)

- 2 fluorescent lamps.
- 5 W.
- 250 lumens.
- With an integrated starter.

LAM08. 2 Lamp-holders + Incandescent Lamps 40W (2 units)

- 2 lampholders.
- Two 40 W incandescent lamps.

Practical Possibilities:

- 1.- Assembly of the basic set of temporization.
- 2.- Test of the set from two points with incandescent lamps.
- 3.- Test of the set from two points with fluorescent lamps.

② Applications

Domestic Electric Installations (continuation)

AD6A. LUMINOSITY CONTROL STATION



- ALI02. Domestic Main Power Supply**
- Magneto-thermal protection.
 - Differential protection.
 - Single -phase plug and terminals.
 - 2 lamps.
 - 5 terminals.
 - Mushroom security button.
 - Removable key.

- COM14. 2 Commutators**
- 2 commutators for domestic use.
 - 10 A.
 - 250 Vac.



- LAM08. 2 Lamp-holders + Incandescent Lamps 40W**
- 2 lampholders.
 - Two 40 W incandescent lamps.

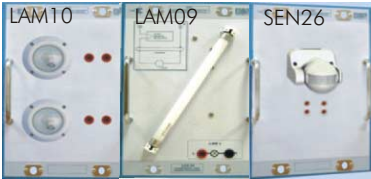
- Included Modules:**
- REG06. Voltage Electronic Regulator (Switch) 40 to 300W /230Vac**
- Incandescent, halogen loads.
 - Protection fuse 1.6 A.
 - 230 Vac.
 - 300 W/VA.
 - Switch.

- LAM10. 2 Halogen Lamps**
- 2 Halogen lamps.
 - 12 V.
 - High quality light bulbs.
 - 20 W.

- LAM09. Fluorescent Lamp**
- 230 Vac Fluorescent lamp.
 - 4 - 6- 8 W reactance.
 - Starter.

- INT18. 1-pole Switch + 1-pole Switch with Light**
- 1 One pole switch.
 - 1 One pole switch with light.
 - 10 A.
 - 250 Vac.
 - Domestic use.

- SEN26. Presence and Movement Sensor (Wall)**
- 0 to 180° detection.
 - 12m.
 - Timing 5 sec.-12min.
 - Glow regulation 2-1000 lux.
 - Ip44.



Practical Possibilities:

- 1.- Assembly of the control station.
- 2.- Control of luminosity of an halogen lamp.
- 3.- Control of luminosity of an incandescent lamp.
- 4.- Test of the station by movement sensor.
- 5.- Luminosity control.
- 6.- Complete control.

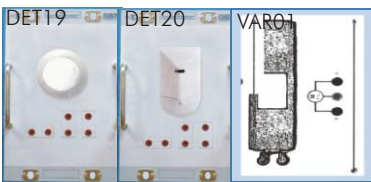
*Option: **AD6B. BASIC LUMINOSITY CONTROL STATION.** (Includes only the following modules: ALI02 + COM14 + LAM08 + REG06 + INT18 + LAM10)

AD8. BLINDS ACTIVATOR



- ALI02. Domestic Main Power Supply**
- Magneto-thermal protection.
 - Differential protection.
 - Single -phase plug and terminals.
 - 2 lamps.
 - 5 terminals.
 - Mushroom security button.
 - Removable key.

- INT22. 2 Switches for Blinds**
- 2 Switches.
 - Specially designed for blinds.
 - 250 Vac.
 - 10 A.
 - Domestic use.



- DET19. Twilight Detector**
- Lighting and blinds use.
 - 24 Vdc.
 - 1 NO contact.
 - 5 to 100 lux.
 - 1 NC led indication.
 - 10 to 20 seconds connection delay.

Included Modules:

- DET20. Light Detector**
- Fluorescent lighting regulation.
 - Only connection to 1-10V output module.
 - 1 - 600 lux.
 - Ip54.

- PUL30. 2 Push-Buttons Group for Blinds (with Interlock)**
- 2 push buttons.
 - Use for blinds.
 - With interlocking between push buttons.
 - 10 A.
 - 250 Vac.

- VAR01. Motor for Blinds / Curtains**
- Connectable to domestic control modules.
 - Domotic applications.

- PUL29. 2 Push-Buttons Group for Blinds (without Interlock)**
- 2 push buttons.
 - Use for blinds.
 - No interlocking between push buttons.
 - 10 A.
 - 250 Vac.



Practical Possibilities:

- 1.- Assembly of the activator (motor, detectors and switches).
- 2.- Blind activation by pulsators (push-buttons).
- 3.- Blind activation by sensors.

AD9A. HEATING CONTROL STATION



- ALI02. Domestic Main Power Supply**
- Magneto-thermal protection.
 - Differential protection.
 - Single -phase plug and terminals.
 - 2 lamps.
 - 5 terminals.
 - Mushroom security button.
 - Removable key.

- MED76. Thermostat for Heating**
- 10 A, 230 Vac.
 - 5° to 30° regulation.
 - Accuracy 0.25°C.



Included Modules:

- MED77. Thermostat for Heating and Refrigeration**
- 10 A, 230 Vac.
 - 5° to 30° regulation.
 - Accuracy 0.5°C.
 - ON/OFF switch.

- TIM01. 2 Bell 70dB,230V (2 units)**
- 230 Vac bell.
 - 70 dB.

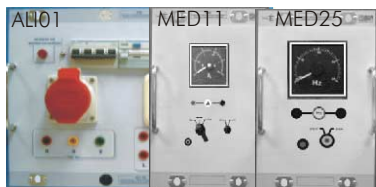
- SEL09. 2 Double Luminous Signalling red-green 230Vac (2 units)**
- Red and green light advisers.
 - 230 Vac, 3 W.
 - Led indicator.

Practical Possibilities:

- 1.- Assembly of the heating control station.
- 2.- Assembly of the heating and refrigeration control.
- 3.- Test with several temperatures.

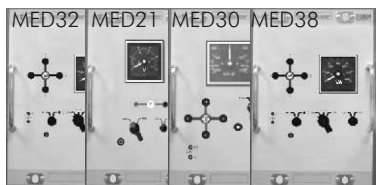
*Option: **AD9B. BASIC HEATING CONTROL STATION** (Includes only the following modules: ALI02 + MED76 + TIM01 + SEL09)

AD11A. NETWORK ANALYZER



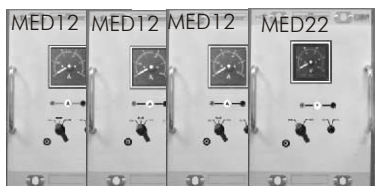
ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+single-phase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



MED11. AC Ammeter (0-10A)

- AC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-10A.



MED25. Pointer Frequency Meter (45-65Hz)

- Pointer frequency meter.
- Scale 90°.
- Accuracy 1.5%.
- Range Un 15%.
- 45 - 65 Hz.



MED32. 1-Phase Wattmeter 230V

- 1 wattmeter.
- 230 Vac.
- Scale 90°.
- Accuracy 1.5%.
- 50 or 60 Hz.



MED21. AC Voltmeter (0-250V)

- AC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-250V.

Included Modules:

MED30. 1-Phase Phasemeter 230V

- 1 phasemeter.
- 230 Vac.
- CAP 0.5-1-0.5 IND.
- Accuracy 1.5 % of 90°.
- 50 or 60 Hz.

MED39. 3-Phase Balanced Varmeter 440V

- 3 phase balanced varmeter.
- 440 Vac.
- Scale 90°.
- Accuracy 1.5%.
- 50 or 60 Hz.

MED38. 1-Phase Varmeter 230V

- 1-phase varmeter.
- 230 Vac.
- Scale 90°.
- Accuracy 1.5%.
- 50 or 60 Hz.

MED33. 3-Phase Balanced Wattmeter 440V

- 3 phase balanced wattmeter.
- 440 Vac.
- Scale 90°.
- Accuracy 1.5%.
- 50 or 60 Hz.

MED12. AC Ammeter (custom made) (3 units)

- AC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- Value (A) to be chosen by the customer.

MED63. Synchronoscope

- AC current.
- 1.5 class.
- 50/60Hz.
- 400 Vac.

MED22. AC Voltmeter (0-400V) (3 units)

- AC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-400V.

MED64. Phase Sequence Indicator

- Phase sequence indicator.
- 400 Vac.

MED31. 3-Phase Phasemeter 400V (3 units)

- 3 phasemeter.
- 400 Vac.
- CAP 0.5-1-0.5 IND.
- Accuracy 1.5 % of 90°.
- 50 or 60 Hz.

Practical Possibilities:

- 1.- Assembly of the analyzer to measure current, voltage, frequency, active power, reactive power, sequence of phases of a 220V single-phase circuit.
- 2.- Assembly of the analyzer to measure current, voltage, frequency, active power, reactive power, sequence of phases of a 380V three-phase circuit.

*Option: **AD11B. BASIC NETWORK ANALYZER.** (Includes only the following modules: ALI01 +MED11 +MED25 +MED32 +MED21 +MED30 +MED38)

AD13. AUDIO DOOR ENTRY SYSTEM



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



POR01. Phones Power Supply

- Input 230 Vac,25mA,50/60Hz.
- Output 12 Vac,500mA.

POR02. Phone

- Telephone of domestic use.
- Bell connection.
- Sound connection.
- Music connection.



Included Modules:

POR03. Interphone

- Interphone of domestic use.
- Bell connection.
- Sound connection.
- Music connection.

POR06. Lock

- 12 Vac lock.
- Connectable to control module (interphone).
- Domestic door lock.

Practical Possibilities:

- 1.- Assembly of the system.
- 2.- To check the interphone operation.

② Applications

Domestic Electric Installations (continuation)

AD14. AUDIO AND VIDEO DOOR ENTRY SYSTEM



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

POR06. Lock

- 12 Vac lock.
- Connectable to control module (interphone).
- Domestic door lock.

Included Modules:

POR05. Phone/Monitor

- For entry door.
- Bell connection.
- Sound connection.
- Music connection.
- TV connection.

POR04. Video Camera

- Video camera.
- For entry door.
- Bell connection
- Sound connection.
- Music connection.
- TV connection.

POR07. Digital Station

- For video door entry control.
- Connectable to intercom system modules.

POR08. Video-Interphone Power Supply

- Power supply for video door entry system.
- Connectable to control module (interphone).

Practical Possibilities:

- 1.- Assembly of the system.
- 2.- To check of the video and audio operation.

AD15A. POSITION CONTROL STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

INT14. 1-pole 2 Switches

- 2 one pole switches.
- 10 A.
- 250 Vac.
- Domestic use.

Included Modules:

SEL01. Light Signalling Beacons

- 2 signalling beacons.
- Red and yellow colours.
- Incandescent lamps 24 Vac.
- 10 W.

SEN04. Cylindrical Inductive Proximity Sensor type PNP

- 1NO contact.
- PNP output.
- 15 mm.
- 30 mm diameter.
- 12-48 Vdc.
- Inverse polarity protection.

SEN14. AC Cylindrical Capacitive Proximity Sensor

- Insulating material detection.
- 2 wire output.
- 15 mm.
- 110-220 Vac / 50-60 Hz.

SEN29. AC Cylindrical Inductive Proximity Sensor

- 15 mm.
- 30 mm diameter.
- 20 to 264 Vac.
- NO auxiliary contact.
- Inductive sensor.

SEN01. Instantaneous Micro-switch

- Instantaneous Micro-switch.
- Steel push-button.
- 2 auxiliary contacts 1NO + 1NC.

SEN26. Presence and Movement Sensor (Wall)

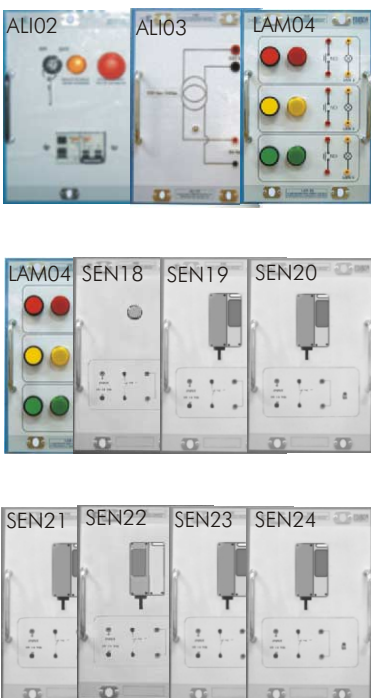
- 0 to 180° detection.
- 12m.
- Timing 5 sec.-12min.
- Glow regulation 2-1000 lux.
- Ip44.

Practical Possibilities:

- 1.- Assembly of the station with sensors.
- 2.- Test of the capacitive detection of a body.
- 3.- Test of the inductive position detection of a body.
- 4.- Assembly of the station with presence and movement wall sensor.
- 5.- To check the movement detection of a body.

*Option: AD15B. BASIC POSITION CONTROL STATION (Includes only the following modules: ALI02 + ALI03 + INT14 + SEL01 + SEN04 + SEN14 + SEN29)

AD17A. PHOTOELECTRIC CONTROL POSITION STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

LAM04. 3 Push-buttons and Lamps (24Vac) (2 units)

- 3 push buttons.
- NO contacts.
- Three 24 Vac lamps.

SEN18. Cylindrical Photoelectric Sensor

- PNP (NO)output.
- 0.12m.
- Infrared.
- 12-24 Vdc.
- Inverse polarity protection.

Included Modules:

SEN19. Miniature Photoelectric Sensor

- PNP (NO)output.
- 0.10m.
- Infrared or red.
- 12-24 Vdc.
- Inverse polarity protection.

SEN20. Compact Photoelectric Sensor

- PNP (NO)output.
- 0.3m.
- Infrared or red.
- 12-24 Vdc.
- Inverse polarity protection.

SEN21. Barrier Photoelectric Sensor (Emitter)

- PNP (NO)output.
- 15-20m.
- Infrared or red.
- 12-24 Vdc.
- Inverse polarity protection.
- Emitter.

SEN22. Barrier Photoelectric Sensor (Receptor)

- PNP (NO)output.
- 15-20m.
- Infrared or red.
- 12-24 Vdc.
- Inverse polarity protection.
- Receiver.

SEN23. Reflecting Photoelectric Sensor (Emitter)

- PNP (NO)output.
- 2-3m.
- 12-24 Vdc.
- Inverse polarity protection.
- Emitter.

SEN24. Reflecting Photoelectric Sensor (Receptor)

- Plastic receiver.
- 50 x 50 mm.

Practical Possibilities:

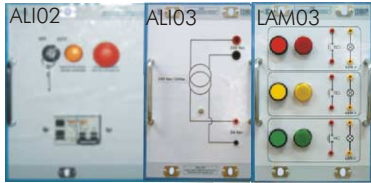
- 1.- Assembly of the control station.
- 2.- Test of the detection with cylindrical sensor.
- 3.- Test of the detection with miniature sensor.
- 4.- Test of the detection with compact sensor.
- 5.- Assembly of the control station with battery and sensors.
- 6.- Test of the detection with emitters and receivers.
- 7.- Test with only emitters and receptors.

*Option: AD17B. BASIC PHOTOELECTRIC CONTROL STATION (Includes only the following modules: ALI02 + ALI03 + LAM04 + SEN18 + SEN19 + SEN20)

② Applications

Domestic Electric Installations (continuation)

AD24. POSITION SWITCH



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

LAM03. 3 Push-buttons and Lamps (220Vac)

- 3 push buttons.
- NO contacts.
- Three 230 Vac lamps.

SEN02. MBB Micro-switch

- Micro-switch.
- Steel push-button.
- 2 auxiliary contacts 1NO+1NC.
- MBB Contacts (make before break).

SEN03. BBM Micro-switch

- Micro-switch.
- Steel push-button.
- 2 auxiliary contacts 1NO+1NC.
- BBM Contacts (break before make).

SEN01. Instantaneous Micro-switch

- Instantaneous Micro-switch.
- Steel push-button.
- 2 auxiliary contacts 1NO + 1NC.

Practical Possibilities:

- 1.- Instantaneous Micro-switch.
- 2.- MBB Micro-switch.
- 3.- BBM Micro-switch.



AD19A. SOUND STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

AUD01. Analog Sound Regulator

- 1 monophonic sound system channel
- Warning reception.
- Volume regulation.
- 16 Vdc.
- Remote control.

AUD04. Speaker of 2", 2W, 8 ohm. (3 units)

- 2".
- 2 W.
- 8 ohms.
- 350Hz - 15 kHz.

Included Modules:

AUD06. Basic Audio Central

- 1 stereo channel.
- Audio output regulation.
- Remote control.
- Electronic power supply protection.
- Manual / automatic.

AUD20. Analog Sound Regulator (mono-stereo)

- 1 stereo-monophonic sound system channel.
- 1.5 + 1.5 W.
- Volume regulation.
- 16 Vdc.
- Remote control.
- Stereo earphones output.

AUD02. Digital Sound Regulator

- 1 stereo-monophonic sound system channel.
- Warning reception.
- Volume regulation.
- 16 Vdc.
- Remote control.
- Stereo earphones output.
- Audio external input.

AUD05. Speaker of 4", 7W, 8 ohm. (3 units)

- 4".
- 7 W.
- 8 ohms.
- 130Hz - 15kHz.

AUD03. Warnings Emitter Module

- 5 zones.
- 16 Vdc.
- Omnidirectional microphone.

AUD08. Background Music Regulator 3W

- 3 W.
- 27 ohms.

AUD10. Double Background Music Regulator

- 5 + 5 W.
- 47 ohms.

Practical Possibilities:

- 1.- Mono-stereo system installation.
- 2.- Mono system with warnings reception.
- 3.- Mono-stereo system installation with warnings reception.
- 4.- Stereo system installation with warnings reception.
- 5.- Background Music installation.

*Option: **AD19M. INTERMEDIATE SOUND STATION** (Includes only the following modules: ALI02 + ALI03 + AUD01 + AUD04 (3 units) + AUD06 + AUD20 + AUD02 + AUD05 (3 units) + AUD03)

*Option: **AD19B. BASIC SOUND STATION** (Includes only the following modules: ALI02 + ALI03 + AUD01 + AUD04 (3 units) + AUD06 + AUD20)

AD22. FLOODING CONTROL STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

DET03. Fitted Power Supply (gas and flooding detector)

- 12 Vac.
- Service Led.

Included Modules:

DET04. Flooding Detector (with probe)

- Flooding detection.
- Includes probe.
- 230 Vac, 50/60 Hz.
- Alarm output by inverter relay.
- Service and alarm leds.
- Buzzer for acoustic alarm.

DET10. Water Electro-valve

- NO contact for water supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- Ip54.

DET11. Probe for Water Electro-valve (2 units)

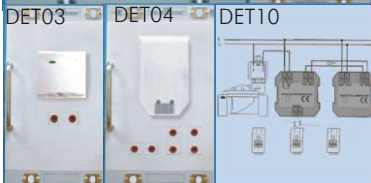
- Probe for water electro-valve.

SEL03. 3 Pilot-Lights

- 3 pilot lamps.
- Green, red and yellow colours.
- 10 W lamps.

SEL21. Indoor Siren

- Indoor siren.
- 3 Volume Levels.
- 87-112 dB.
- 12-30mA
- 3 selectable tones.



Practical Possibilities:

- 1.- Assembly of the flooding control with a probe.
- 2.- Test of the flooding control.
- 3.- Test of the flooding control acting on an eletro-valve.

② Applications

Domestic Electric Installations (continuation)

AD23. WIRELESS BASIC CONTROL STATION (RF)



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

DET13. Wireless Intrusion Detector RF

- Angle vision 90°.
- Radio frequency communication.
- 12 x 12 meters.
- 3.6 Vdc lithium battery.



Included Modules:

DET14. Wireless Panic Push-button RF

- 32x53x17 mm.
- Radio frequency communication.
- 12 Vdc alkaline battery.

TIM05. Bell + Buzzer

- 230 Vac bell, 70 dB.
- 230 Vac buzzer, 80 dB.

DET15. Wireless 1-channel Receptor RF

- 12 Vdc.
- Up to 10 transmitters memory.
- 150m maximum distance open field.
- 70m indoor.

SEL01. Light Signalling Beacons

- 2 signalling beacons.
- Red and yellow colours.
- Incandescent lamps 24 Vac.
- 10 W.

Practical Possibilities:

- 1.- Wireless intrusion detection and alarm.
- 2.- Wireless panic button alarm.

AD25A. CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

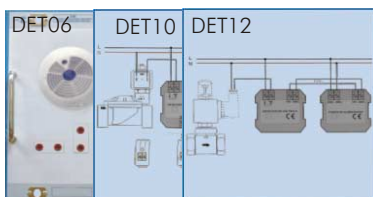
CTR01. Basic Control Module

- 230 Vac - 50 Hz.
- 5 inputs (NO/NC).
- 5 relay outputs.



DET01. Flooding Detector

- Flooding detection.
- Led and sound alarm.
- Connectable to electrovalve.
- Service led and test function.
- Up to 3 probes.



DET03. Fitted Power Supply (gas and flooding detector) (3 units)

- 12 Vac.
- Service Led.

Included Modules:

DET04. Flooding Detector (with probe)

- Flooding detection.
- Includes probe.
- 230 Vac, 50/60 Hz.
- Alarm output by inverter relay.
- Service and alarm leds.
- Buzzer for acoustic alarm.

DET05. Gas Detector for domestic control

- Toxic gas detection.
- Butane ,propane, methane.
- Led and sound alarm.
- 230 Vac, 50/60 Hz.
- Service led and test function.

DET06. Smoke Detector for domestic control

- Ionic Smoke detector.
- 230 Vac, 50/60 Hz.
- Inverter relay alarm output no voltage.
- Service led and test function.
- Led and sound alarm.

DET10. Water Electro-valve

- NO contact for water supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- Ip54.

DET12. Gas Electro-valve

- NO contact for gas supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- Ip54.

DET13. Wireless Intrusion Detector RF

- Angle vision 90°.
- Radio frequency communication.
- 12 x 12 meters.
- 3.6 Vdc lithium battery.

DET14. Wireless Panic Push-button RF

- 32x53x17 mm.
- Radio frequency communication.
- 12 Vdc alkaline battery.

DET15. Wireless 1-channel Receptor RF

- 12 Vdc.
- Up to 10 transmitters memory.
- 150m maximum distance open field.
- 70m indoor.

VAR05. Tones Dialling Telephone

- Standard telephone.
- Tones telephone.



Practical Possibilities:

- 1.- Smoke detection.
- 2.- Gas detection and electro-valve control.
- 3.- Flooding detection and electro-valve control.
- 4.- Temperature and Battery.
- 5.- Intrusion detection.
- 6.- Wireless detection.
- 7.- Complete control of home electric services through the telephone.

*Option: **AD25M. MEDIUM CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE** (Includes only the following modules: ALI02 + ALI03 + CTR01 + DET01 + DET03 (3 units) + DET04 + DET05 + DET06 + DET10 + DET12 + VAR05)

*Option: **AD25B. BASIC CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE** (Includes only the following modules: ALI02 + ALI03 + DET03 (3 units) + DET04 + DET05 + DET06 + DET10 + DET12)

② Applications

Domestic Electric Installations (continuation)

AD28A. INTEGRAL CONTROL STATION OF DOMESTIC ELECTRIC SYSTEMS



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single-phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

CTR02. Advanced Control Module

- 128 Inputs.
- 128 Outputs.
- Connection to computer via RS 232.
- EPROM program.
- Programmable easy language by computer.

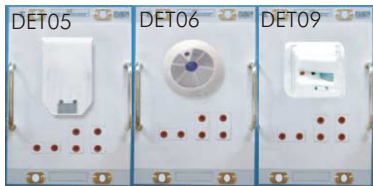


CTR05. Power Module 72W

- 230 Vac, 50/60Hz.
- Output 24Vdc, 3 A.
- 72 W.

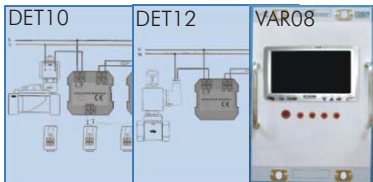
CTR07. Timers Module

- 128 week temporizers.
- Hour and date.
- Clock program for control modules.



CTR08. Inputs Module 24V.

- 16 digital inputs.
- 24 Vdc inputs.
- 1 Kohm inputs.



CTR11. Outputs Module 24V.

- 8 transistor outputs.
- 12-48 Vdc Outputs.
- Maximum output current 500mA.

Included Modules:

CTR17. Infrared Remote Control for Control Modules

- Infrared comand control.
- 16 functions.
- Double pulsation program.
- 6 to 8 meters.

CTR18. Infrared Receptor

- Infrared comand control.
- 24 Vdc.
- 6 elements in series connection.

DET04. Flooding Detector (with probe)

- Flooding detection.
- Includes probe.
- 230 Vac, 50/60 Hz.
- Alarm output by inverter relay.
- Service and alarm leds.
- Buzzer for acoustic alarm.

DET05. Gas Detector for domestic control

- Toxic gas detection.
- Butane, propane, methane.
- Led and sound alarm.
- 230 Vac, 50/60 Hz.
- Service led and test function.

DET06. Smoke Detector for domestic control

- Ionic Smoke detector.
- 230 Vac, 50/60 Hz.
- Inverter relay alarm output no voltage.
- Service led and test function.
- Led and sound alarm.

DET09. Intrusion Detector for domestic control

- Intrusion detection.
- Led alarm.
- Power supply through control module.

Practical Possibilities:

- 1.- Assembly of the complete system with the smoke, flooding and gas detectors.
- 2.- Test of the station with smoke, flooding and gas detectors.
- 3.- To set the temporization and monitoring the results.
- 4.- Assembly of the complete system with infrared and intrusion detectors.
- 5.- Test of the station with infrared and intrusion detectors.
- 6.- Electro-valves activation.
- 7.- Wireless assembly of the sensor through infrared control.

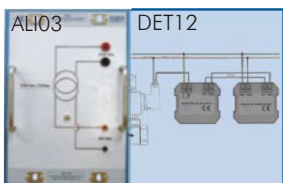
*Option: **AD28B. BASIC INTEGRAL CONTROL STATION OF DOMESTIC ELECTRIC SYSTEMS** (Includes only the following modules: ALI02+ALI03 + CTR02 + CTR05 + CTR07 + CTR08 + CTR11 + DET04 + DET05 + DET06 + VAR08)

AD30. GAS CONTROL STATION



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single-phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

DET12. Gas Electro-valve

- NO contact for gas supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- Ip54.



Included Modules:

DET03. Fitted Power Supply (gas and flooding detector)

- 12 Vac.
- Service Led.

DET02. Gas Detector

- Toxic gas detection.
- Butane, propane, methane.
- Led and sound alarm.
- Connectable to electrovalve.
- Service led and test function.

Practical Possibilities:

- 1.- Gas detection.
- 2.- Electro-valve activation.

② Applications

Domestic Electric Installations (continuation)

AD31. MOVEMENT AND SOUND DETECTION AND CONTROL



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

INT15. 2 Switches with Light

- 2 one pole switches with light.
- 10 A.
- 250 Vac.
- Domestic use.

Included Modules:

LAM08. 2 Lamp-holders + Incandescent Lamps 40W

- 2 lampholders.
- Two 40 W incandescent lamps.

INT31. Intrusion Switch/Detector from 40 to 300W

- Incandescent and halogen loads.
- Adjustable disconnection 4 seconds- 10min.
- 40 to 300 W.

LAM10. 2 Halogen Lamps

- 2 Halogen lamps.
- 12 V.
- High quality light bulbs.
- 20 W.

PUL22. 2 Light Push-Buttons

- 2 light push buttons.
- 250 Vac.
- 10 A.

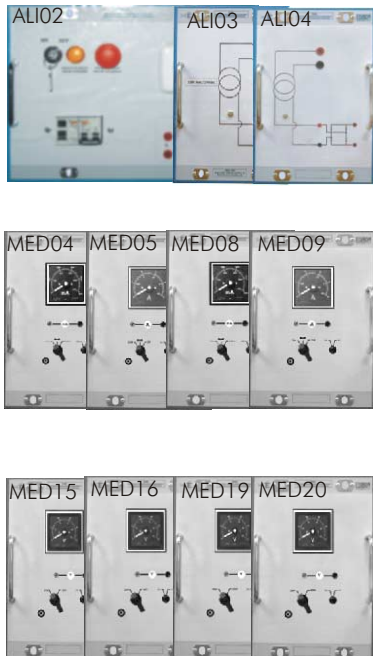
TIM05. Bell + Buzzer

- 230 Vac bell, 70 dB.
- 230 Vac buzzer, 80 dB.

Practical Possibilities:

- 1.- Movement and sound detection controlled by switches.
- 2.- Movement and sound detection controlled by pulsators.

AD32. 24Vac/12Vdc CIRCUITS ANALYZER



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

ALI04. DC Auxiliary Power Supply (+12, 0, -12 Vdc)

- Transformer and rectifier.
- 230 Vac / 12 Vdc (+ -).
- 5 terminals.

Included Modules:

MED04. DC Milliammeter (0-600 mA)

- DC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-600mA.

MED05. DC Ammeter (0-1.5A)

- DC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-1.5A.

MED08. AC Milliammeter (0-600mA)

- AC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-600mA.

MED09. AC Ammeter (0-2.5A)

- AC current measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-2.5 A.

MED15. DC Voltmeter (0-5V)

- DC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-5V.

MED16. DC Voltmeter (0-50V)

- DC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-50V.

MED19. AC Voltmeter (0-10V)

- AC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-10V.

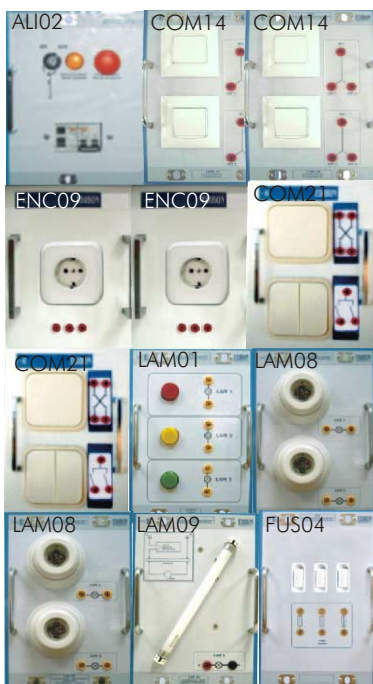
MED20. AC Voltmeter (0-60V)

- AC voltage measurement.
- Scale 90°.
- Accuracy 1.5%.
- 0-60V.

Practical Possibilities:

- 1.- AC circuits analyzer (2 ranges).
- 2.- DC circuits analyzer (2 ranges).

AD33. INSTALLATIONS FAULTS SIMULATOR



ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

COM14. 2 Commutators (2 units)

- 2 commutators for domestic use.
- 10 A.
- 250 Vac.

ENC09. 2-pole European Socket with Safety Device (2 units)

- 2 pole socket.
- Security.

Included Modules:

COM21. Inverter + Group of 2 Commutators (2 units)

- 2 inverter, 2 positions.
- 1 group 2 one pole switches for domestic use.
- 10 A.
- 250 Vac.

LAM01. Lamps

- 3 Lamps.
- 230 Vac.

LAM08. 2 Lamp-holders + Incandescent Lamps 40W (2 units)

- 2 lampholders.
- Two 40 W incandescent lamps.

LAM09. Fluorescent Lamp

- 230 Vac Fluorescent lamp.
- 4 - 6- 8 W reactance.
- Starter.

MED65. Digital Multimeter

- Digital multimeter.
- Voltage and current meter.
- Resistances and capacitors.

FUS04. 3 Fuse-holders 10A, 230Vac (include 2, 4, 6, 10A)

- 3 fuseholders.
- Fuses 5 x 20.
- 10 A, 230 Vac.
- Fuses 2, 4, 6, 10 A.

Faults Box

Practical Possibilities:

- 1.- Ground fault simulation of a plug base.
- 2.- Fault simulation between phases of a plug base.
- 3.- Ground fault simulation of an incandescent lamp base.
- 4.- Ground fault simulation of a fluorescent lamp base.
- 5.- Fault simulation between phases of an incandescent lamp base.
- 6.- To simulate fault of power-supply contact in the lamp base.
- 7.- To simulate fault of contact of the switch.
- 8.- To simulate fault of contact of the fuse.
- 9.- To simulate fault of contact of the fluorescent base.

AI1. STAR-DELTA STARTER



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

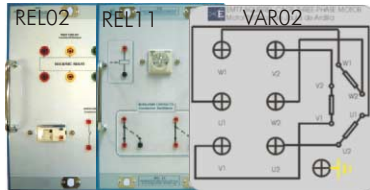


ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

CON01. 3-pole Contactor (24Vac (3 units))

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



Included Modules:

IAM20. 3-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 3 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

MED60. Network Analyzer

- Line and phase voltage.
- Current measurement.
- Active and reactive power.
- 3 phase system.

PUL04. Push-Buttons with Light (24Vac)

- 3 push buttons with light.
- 24 Vac.
- NO and NC contacts.

RELO2. Thermal Relay (1.6-2.5A)

- Thermal protection.
- Range 1.6 - 2.5 A.
- NONC contact.
- It needs to be connected to a contactor.

REL11. Time Relay (0.6-60 sec.)

- Temporized relay.
- Range 0.6 - 60 seconds.
- 24 Vac coil.
- 5 A on contacts.
- Led indicator.

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 270 W.
- 3000 rpm.

Practical Possibilities:

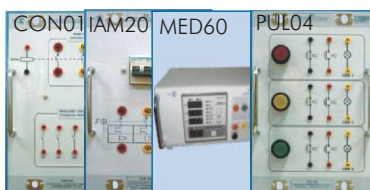
- 1.- Assembly of the starter.
- 2.- Test of the starter with a squirrel cage motor.
- 3.- Measurement of the star current and delta current.
- 4.- Direct start of the motor. Measurement of the starting current.

AI2. STARTER THROUGH AUTO-TRANSFORMER



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

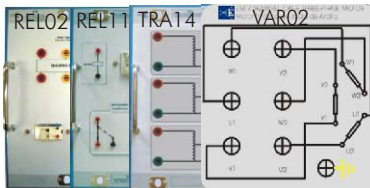


ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

CON01. 3-pole Contactor (24Vac (3 units))

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



Included Modules:

IAM20. 3-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 3 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

MED60. Network Analyzer

- Line and phase voltage.
- Current measurement.
- Active and reactive power.
- 3 phase system.

PUL04. Push-Buttons with Light (24Vac)

- 3 push buttons with light.
- 24 Vac.
- NO and NC contacts.

REL11. Time Relay (0.6-60 sec.)

- Temporized relay.
- Range 0.6 - 60 seconds.
- 24 Vac coil.
- 5 A on contacts.
- Led indicator.

TRA14. 3-Phase Auto-transformer

- Three phase auto-transformer.
- 3 x 230/400 Vac.
- 630 VA.

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 270 W.
- 3000 rpm.

Practical Possibilities:

- 1.- Assembly of the starter.
- 2.- Test of the starter with a squirrel cage motor.
- 3.- Measurement of both the star and delta current.

AI3. SPEED COMMUTATOR FOR DAHLANDER MOTOR



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

CON01. 3-pole Contactor (24Vac (3 units))

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



Included Modules:

IAM20. 3-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 3 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

MED60. Network Analyzer

- Line and phase voltage.
- Current measurement.
- Active and reactive power.
- 3 phase system.

PUL04. Push-Buttons with Light (24Vac)

- 3 push buttons with light.
- 24 Vac.
- NO and NC contacts.

RELO2. Thermal Relay (1.6-2.5A)

- Thermal protection.
- Range 1.6 - 2.5 A.
- NONC contact.
- It needs to be connected to a contactor.

REL11. Time Relay (0.6-60 sec.)

- Temporized relay.
- Range 0.6 - 60 seconds.
- 24 Vac coil.
- 5 A on contacts.
- Led indicator.

VAR03. Motor (EMT9) (Dahlander motor)

- 2 speeds.
- Three phase asynchronous motor.
- 250 W.
- 2800/1400 rpm.

Practical Possibilities:

- 1.- Assembly of the commutator.
- 2.- Test of the commutator changing the speed of a Dahlander motor.
- 3.- Measurement of the voltage and current.

② Applications

Industrial Electric Installations (continuation)

AI4. STARTER-INVERTER



AI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



AI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.



CON02. 3-pole Contactor (220Vac)

- 3 pole contactor, 9 A.
- Control coil 220 Vac.
- Auxiliary contacts 3NO + 2NC.

CON11. 3-pole Contactor-Inverter (220Vac)

- 3 pole inverter contactor (9A).
- 2 Control coils 220 Vac.
- Auxiliary contacts, 1NO + 1NO.
- 2 turning directions.

MED60. Network Analyzer

- Line and phase voltage.
- Current measurement.
- Active and reactive power.
- 3 phase system.

PUL03. Push-Buttons with Light (220Vac) (2 units)

- 3 push buttons with light.
- 230 Vac.
- NO and NC contacts.

REL05. Thermal Relay/3-pole Phase fault (0.8-1.2A)

- Motor thermal protection.
- Phase fault detection.
- Range 0.8 - 1.2 A.
- 1 NO contact.
- 1 NC contact.
- Manual or automatic reset function.

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 270 W.
- 3000 rpm.

Practical Possibilities:

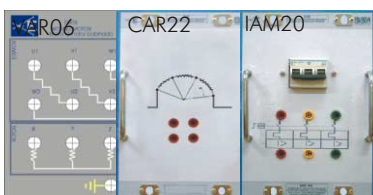
- 1.- Assembly of the starter.
- 2.- To test of the direct start of a squirrel cage motor.
- 3.- To invert the rotation direction of the motor.

AI5. AC WOUND ROTOR MOTOR STARTER



AI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



AI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

Included Modules:

CAR22. AC Starting Rheostat

- Commutable value resistances.
- Adapted to the EDIBON AC motors.
- Parameters adjusted by the customer.

IAM20. 3-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 3 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

PUL04. Push-Buttons with Light (24Vac)

- 3 push buttons with light.
- 24 Vac.
- NO and NC contacts.



VAR06. Motor (EMT8) (wound rotor)

- Wound rotor.
- Three phase asynchronous motor.
- 270 W.
- 1413 rpm.

CON01. 3-pole Contactor (24Vac)

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.

Practical Possibilities:

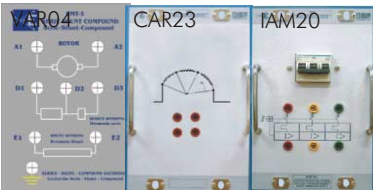
- 1.- Assembly of the starter.
- 2.- To test the starter changing the resistances step by step.

AI6. DC MOTOR STARTER



AI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



AI04. DC Auxiliary Power Supply (+12, 0, -12 Vdc)

- Transformer and rectifier.
- 230 Vac/12 Vdc (+ -).
- 5 terminals.

Included Modules:

CAR23. DC Starting Rheostat

- Commutable value resistances.
- Adapted to the EDIBON DC motors.
- Parameters adjusted by the customer.

IAM20. 3-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 3 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

PUL04. Push-Buttons with Light (24Vac)

- 3 push buttons with light.
- 24 Vac.
- NO and NC contacts.



VAR04. Motor (EMT5) (DC motor)

- Dc series-shunt-compound motor.
- 250 W.
- 3000 rpm.
- 230 Vdc.

CON03. 3-pole Contactor (12Vdc)

- 3 pole contactor, 9 A.
- Control coil 12 Vdc.
- Auxiliary contacts 3NO + 2NC.

Practical Possibilities:

- 1.- Direct starter.
- 2.- Starter rheostat.

② Applications

Industrial Electric Installations (continuation)

AI7. AUTOMATIC CHANGE OF SPEED OF A DAHLANDER MOTOR WITH CHANGE OF DIRECTION

Included Modules:



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



IAM24. 3-pole + neutral Magneto-thermal Automatic Switch, 6A, Curve C

- 3 pole + neutral automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 6 A.



CON01. 3-pole Contactor (24Vac) (5 units).

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



REL05. Thermal Relay/3-pole Phase fault (0.8-1.2A) (2 units).

- Motor thermal protection.
- Phase fault detection.
- Range 0.8 - 1.2 A.
- 1 NO contact.
- 1 NC contact.
- Manual or automatic reset function.



PUL16. Push-Button for Industrial use (NC Contacts) (5 units).

- Classic industrial push button.
- Led indicator.

PUL16. Push-Button for Industrial use (NO Contacts) (5 units).

- Classic industrial push button.
- Led indicator.

VAR03. Motor (EMT9) (Dahlander motor)

- 2 speeds.
- Three phase asynchronous motor.
- 250 W.
- 2800/1400 rpm.

Practical Possibilities:

- 1.- Assembly of the set.
- 2.- Motor starting with right turning direction at high speed. R.p.m and consumption measurements.
- 3.- Motor stop and change to left the turning direction at high speed.
- 4.- Change to low speed.
- 5.- Motor stop and change to right the turning direction.
- 6.- Change to high speed. R.p.m and consumption measurements.

AI8. REACTIVE POWER COMPENSATION (POWER FACTOR CORRECTION)

Included Modules:



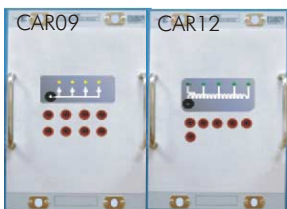
ALI02. Domestic Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Single -phase plug and terminals.
- 2 lamps.
- 5 terminals.
- Mushroom security button.
- Removable key.

CAR12. Inductive Load 0-33-78-140-193-236 mH (2 units).

- Coil with several outlets.
- 0 - 33 - 78 - 140 - 193 - 236 mH.

MED60B. Network Analyzer with active and reactive energy counters



CAR04. Variable Resistive Load, 150 ohm, 500W

- Variable 150 ohms resistance.
- Easy value control.
- 500 W.



CAR09. Capacitive Load 4 x 7 μ F

- Four 7 microF capacitors.

Practical Possibilities:

- 1.- Measurement of active power consumed by a receiver.
- 2.- Measurement of reactive power consumed by a receiver.
- 3.- Measurement of apparent power consumed by a receiver.
- 4.- Measurement of power factor of a receiver.
- 5.- Measurement of active energy consumed by a receiver.
- 6.- Measurement of reactive energy consumed by a receiver.
- 7.- Compensation of reactive energy (improvement of the power factor).
- 8.- Comparison of the active energy consumed after the compensation.
- 9.- Comparison of the reactive energy consumed after the compensation.
- 10.- Measurement of power factor after the compensation.



② Applications

Industrial Electric Installations (continuation)

AI9. PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN TT NEUTRAL REGIMEN



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

CAR05. Double Variable Resistive Load, 150 ohm, 500 W

- 2 Variable 150 ohms resistances.
- Easy value control.
- 500 W.

Included Modules:

Resistance 1600 Ω

COM12. Commutator/Switch

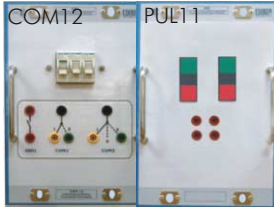
- 1 pole switch 20 A.
- Commutator, 2 positions 20 A.
- Commutator, 2 positions + 0,20 A.

TRA12. 3-Phase Current Transformer

- Three phase current transformer.
- 25/5 A.
- 2.5 VA.
- 50/60 Hz.

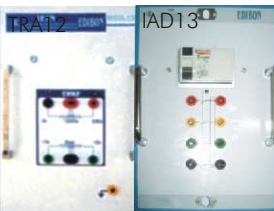
IAD13. 3-pole + neutral Differential Automatic Switch, 25A, 300mA, class AC, instantaneous

- 3 pole + neutral.
- 25 A.
- Sensitivity 30 mA.
- AC class.
- Instantaneous tripping.



PUL11. 2 Double Push-Buttons (230Vac)

- 2 double push buttons.
- 230 Vac.
- Power circuit.



Practical Possibilities:

- 1.- Study of an isolation fault in TT neutral regimen.
- 2.- Structure of a differential switch. Necessity to use a differential switch.
- 3.- Study of the selectivity among differential switches.

AI10. PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN TN NEUTRAL REGIMEN



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

COM12. Commutator/Switch (2 units)

- 1 pole switch 20 A.
- Commutator, 2 positions 20 A.
- Commutator, 2 positions + 0, 20 A.

Included Modules:

TRA12. 3-Phase Current Transformer

- Three phase current transformer.
- 25/5 A.
- 2.5 VA.
- 50/60 Hz.

Resistance 200 W

IAD01. 1-pole+neutral Differential Automatic Switch, 6A, 30mA, class A

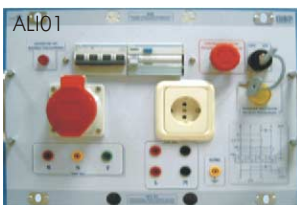
Resistance 100 Ω , 72W.

- 1 pole + neutral.
- 6 A.
- Sensitivity 30 mA.
- A class.

Practical Possibilities:

- 1.- Study of an isolation fault in TN neutral regimen.
- 2.- Measurement of the ground loop impedances.
- 3.- Indirect contact with defect mass.
- 4.- The case in which the automatic switches are not suitable in TN-C conditions.
- 5.- The case in which the automatic switches are not suitable in TN-S conditions.

AI11. PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN IT NEUTRAL REGIMEN



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

Included Modules:

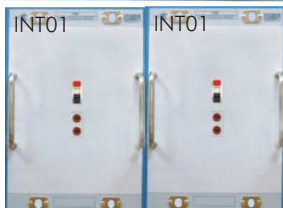
INT02. 2-pole Load Switch (2 units).

- 2 pole switch.
- 250 Vac.
- Up to 20 A.
- Red light indicator.

Resistance 10 Ω

Capacitor 300V. 200 nF (2 units)

CPA. Isolation Permanent Controller

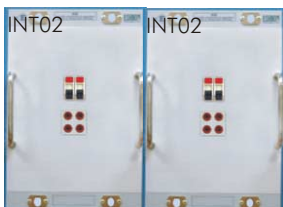


INT01. 1-pole Load Switch (2 units). Resistance 100 Ω

- 1 pole switch.
- 250 Vac.
- Up to 20 A.
- Red light indicator.

Practical Possibilities:

- 1.- Study of an isolation simple fault.
- 2.- Study of an isolation double fault (only with one mass).
- 3.- Study with several masses.
- 4.- Operation of the isolation controller.
- 5.- Study of the ground loop impedance.



A12. MODULAR TRAINER (AC MOTORS)



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.



ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.



PUL48. 3 Double Chamber Push-buttons. (2 units)

- 3 double chamber push buttons (one closed and one open)
- For actions of start/stop of motors.



LAM02. Auxiliary Lamps(3 lamps)

- 3 Lamps.
- 24 Vac.



CON01. 3-pole Contactor (24Vac) (4 units)

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



VAR09. Frequency variator

- Frequency, voltage and current control and programming.
- Motor specification required for programming.



CAR10. Capacitive Load (custom made)

- Value (F) to be chosen by the customer.



- 1.-Direct starting of a three-phase motor through contactor, with some stop and start push-buttons.
- 2.-Configuration of a magnetic protection system, with stop mushroom button.
- 3.-Direct starting of a three-phase motor by GV protector with a switch.
- 4.-Direct starting of a three-phase motor through impulses contactor.
- 5.-Direct starting of a three-phase motor by GV protector with push-buttons and signalling.
- 6.-Direct starting of a three-phase motor by GV protector with two boxes of push-buttons and signalling.
- 7.-Turning inverted starter of a three-phase motor stopping before turning in the opposite direction.
- 8.-Turning inverted starter of a three-phase motor without stopping before turning in the opposite direction.
- 9.- Turning inverted starter of a three-phase motor with microswitch and push-buttons box.
- 10.-Star-delta starting with an turn inverter of a three-phase motor.
- 11.-Automatic star-delta starting of a three-phase motor.
- 12.-Turning inverted starter of a three-phase motor with microswitch, with start push-buttons, stop and function cycle. (Direct).
- 13.-Manual star-delta starting of a three-phase motor.
- 14.-Control of a single phase motor direct and, with time-delay connection and disconnection.
- 15.-Starting of a three-phase motor with single- phase voltage.
- 16.-Motor speed control with a variator.
- 17.-Parameters of the motor through software.
- 18.-Control of a two-speeds Dahlander motor.



Included Modules:

REL30. Synchronization Relay (variable delay)

- 2 regulation relays.
- Work and rest activation time control.
- Digital display.
- Adjustable delay.

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 270 W.
- 3000 rpm.

REL47. Thermal relay (GV protector) module (2 units)

- Three-phase of 10A.

VAR03. Motor (EMT9) (Dahlander motor)

- 2 speeds.
- Three phase asynchronous motor.
- 250 W.
- 2800/1400 rpm.

REL45. Module with disjuncteur

IAM31. 4-pole Magneto-thermal Automatic Switch, 4A, Curve C

- 4 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 4 A.

VAR15. Single-phase motor of capacitor.

FUS10. Module with 3 fuse-holders and power fuses.

- 3 fuse-holders
- Power fuses up to 30A, and a manoeuvre fuse.

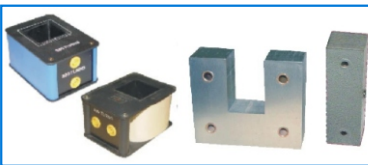
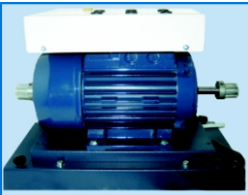
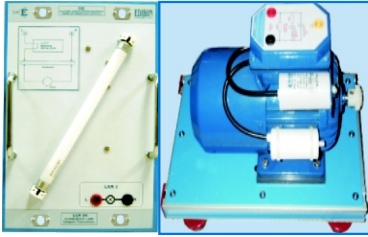
TRA06. 3-Phase Power Transformer (custom made)

- Three phase power transformer.
- Values to be chosen by the Customer.

Some Practical Possibilities:

AI13. MODULAR TRAINER FOR ELECTROTECNICS

Example of some modules



ALI10. Power Supply Module

- AC and DC power supply module that allows the following output voltages:
 - Alternating:
 - 15 + 25 V, 0.5 A
 - 24 V, 2 A
 - Direct:
 - 24 V, 2 A
 - 0-20 V, 2 A

CAR30. Inductances Module

- 9 inductances from 1 mH to 45 mH for assemblies in alternating of R, L, C components, together with the CAR33 Module.
- Assemblies that can be made: Filters and RL, RC, RLC circuits in series and in parallel.
- Alternating input frequency for the assemblies, the one of 24 V from the supply module is used.

CAR31. Capacitors Module

- With this module we can study, among others:
 - RLC circuits.
 - Electric capacity.
 - Load and unload of a capacitor.
 - Type of capacitors.
 - Capacitors in series and in parallel.
- 7 independent not polarised ones, from 56 nF 470 nF.
- 2 polarised of 220 F and 470 F V.

CAR32. Rectifier Diodes Module

- Rectifier diodes of 40 A (6 units).
- Together with CAR30 module, filtrate of voltage of the assemblies can be made.
- Some assemblies:
 - Positive/negative simple rectification.
 - Single-phase and three-phase bridge rectification.
 - Double rectification.

CAR33. Resistive Components Module

- Fixed resistances, with values from 47 to 159 K ohms. (14 units).
- Linear potentiometers (2 units), one of them coiled of 5 W.
- Logarithmic potentiometers. (2 units).

Included Modules:

LAM09. Fluorescent Lamp

- 230 Vac Fluorescent lamp.
- 4 - 6- 8 W reactance.
- Starter.

LAM26. Lighting Module

- For electric installations of signalling and lighting at low voltage (24 V).
- Bayonette 24V lamps (4 units).
- Switches (2 units)
- Inverter
- Single commutators (2 units).
- Buzzer
- Push-button.
- We can made the following practices:
 - Lamps control by switches.
 - Lamps control by relays.
 - Lamp control from three points.
 - Lighting level control.
 - Lamps ignition by button.
 - Simultaneous connection of lamp and push-button.
 - Acoustic alarms.
 - Etc...

MED65. Digital Multimeter

- Digital multimeter.
- Voltage and current meter.
- Resistances and capacitors.

REL50. Relays Module

- Relays with a coil and at 24 V A C voltage and double contact (2 units).

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 3000 rpm.

VAR15. Single-phase motor of capacitor.

TRA28. Three-phase transformer

- Transformer of three branches:
 - Primary ones: 220 and 380 V.
 - Secondary ones: 3x73 V by branch.
 - Power: 500 W.
- Possible practices:
 - Transformers in series and in parallel (single-phase).
 - The transformer as a booster (single-phase).
 - The transformer as a reducer (single-phase).
 - Autotransformer (single-phase).
 - Star connection (three-phase).
 - Delta connection (three-phase).

VAR16. Electromagnetism Kits with group of motor/generator

- It is based on a printed circuit with the components that can be easily seen.
- Longitudinal magnet.
- Group motor/generator with its axis united.
- Set of two coils.
- Case.

VAR17. Dismantled transformer kit

- A nucleus in "U".
- A coil with 1000 turns.
- A coil with 2000 turns.
- Nucleus close in "I".
- Case.

VAR18. Electrostatic kit

- Ebonita bar.
- Plexiglas bar.
- Vertical base and hook.
- Acetate sheets.
- Aluminium sheets.
- Electrometer.
- Balls.
- Cat skin.
- Case for the components storage.

VAR25. Open Universal Motor

- Universal motor open by its sides to see inside, specially the brushes.

Some Practical Possibilities:

Static Electricity:

- 1.- Static electricity checking, with an electroscope and an electrometer.
- 2.- Static electricity experiments.

Direct current (DC) and Alternating Current (AC):

- 3.- Ohm's law verification.
- 4.- Installation of the resistive components module.
- 5.- Total resistance of a circuit in series.
- 6.- Resistance of a circuit in parallel.
- 7.- Power measurement of a resistive circuit.
- 8.- Total resistance of a circuit in series/in parallel.
- 9.- Connection of lamps in series.
- 10.- Lamps in parallel.
- 11.- Analysis of the variable resistances response curve.
- 12.- Voltage divider analysis.
- 13.- Lamp with variable lighting.
- 14.- Simplification systems: Application of Kirchhoff's first law. Application of Kirchhoff's second law. Thevenin's and Norton's Theorem.
- 15.- Application of the superposition theorem.
- 16.- Resistive circuits in delta.
- 17.- Measurement and visualization of the alternating current.
- 18.- Measurement of the phase angle among voltages (AC).

Dynamic Electricity:

- 19.- Identification of the components of the trainer.
- 20.- Preparation of the power supply and of the measurement instruments.

Electric capacity:

- 21.- Load and unload analysis of a capacitor.

Magnetism, Electromagnetism and Electromagnetic induction:

- 22.- Electromagnetic Induction.
- 23.- Electromagnetic Induction.
- 24.- Electromagnet: Oersted's experiment.
- 25.- The electromagnetic field (Electromagnets).

Motors:

- 26.- Electric motors
- 27.- Generators.

- 28.- Identification, coils measurement and starting-up of a single-phase motor.
- 29.- Identification, measurement and starting-up of an universal motor.
- 30.- Identification, coils measurement and starting-up of a three phase motor.

Transformers:

- 31.- Experiments and practices with a dismantled transformer.
- 32.- Identification of the three-phase transformer.
- 33.- Connection as single-phase transformer.
- 34.- Star/star three-phase connection.
- 35.- Reverse star/star three-phase connection.
- 36.- Direct delta/delta three-phase connection.
- 37.- Star/delta three-phase connection.
- 38.- Three-phase/six-phase connection.
- 39.- Transformer with coils in series in phase.

RL, RC and RLC Circuits:

- 40.- Analysis of a RL circuit in series.
- 41.- Analysis of a RL circuit in parallel.
- 42.- Analysis of a RC circuit in series.
- 43.- Analysis of a RC circuit in parallel.
- 44.- Analysis of a RLC circuit in series.
- 45.- Analysis of a RLC circuit in parallel.

Rectification and filtrate:

- 46.- Analysis of the rectifier diode response curve.
- 47.- Half wave rectification.
- 48.- Rectification to feed the universal motor.
- 49.- Double wave rectification with two windings.
- 50.- Double wave with a Graetz's bridge.
- 51.- Half wave three-phase rectification.
- 52.- Three-phase rectification in bridge.

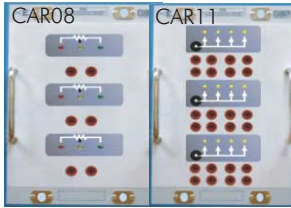
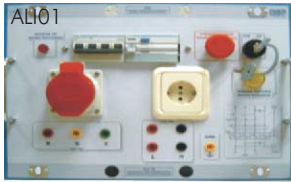
Electric circuits:

- 53.- Basic electric installation with lamps.
- 54.- Lamps controlled from two points and from three points.
- 55.- Lamps control by a switch relay.
- 56.- Lamps control by a commutator relay.
- 57.- Installation of a fluorescent tube

② Applications

Energy Installations

AE1. AERIAL LINE MODEL



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

CAR08. 3-phase Variable Resistive Load (custom made)

- Value (ohms and W) to be chosen by the customer.

CAR11. 3-phase Capacitive Load

- 3 x 4.7microF.

Included Modules:

CAR14. 3-phase Inductive Load

- Coil with several outlets.
- Value (H) to be chosen by the customer.

TRA05. 3-Phase Power Transformer 220/127V, 1000VA

- Three phase power transformer.
- 1000 VA.
- 220/127 Vac.

TRA18. Petersen Coil

- Connectable to star transformers.
- Earth protection.

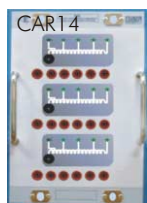
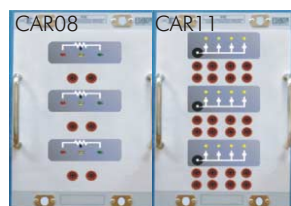
CAR18. Aerial Line Model

- 380 kV.
- 360 Km.
- Scale 1:1000.
- 380 Vac, 1A.

Practical Possibilities:

- 1.- Assembly of the set.
- 2.- Measurement of the voltage without loads.
- 3.- Measurement of the voltage with loads.
- 4.- Power Factor ($\cos \varphi$) measurement.
- 5.- Fault to earth and measurement of the current through the Petersen coil.

AE2. REACTIVE ENERGY CONTROL AND COMPENSATION



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

CAR08. 3-phase Variable Resistive Load (custom made)

- Value (ohms and W) to be chosen by the customer.

CAR11. 3-phase Capacitive Load

- 3 x 4.7microF.

Included Modules:

CAR14. 3-phase Inductive Load

- Coil with several outlets.
- Value (H) to be chosen by the customer.

Practical Possibilities:

- 1.- Assembly of the set with inductive load.
- 2.- Power Factor ($\cos \varphi$) measurement.
- 3.- To calculate the necessary capacitors to get $\cos \varphi = 1$.
- 4.- Capacitors connection and power factor measurement.

AE3. TEST UNIT FOR MAGNETO-THERMAL AUTOMATIC SWITCHES



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase + singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

Included Modules:

IAM13. 2-pole Magneto-thermal Automatic Switch, 1A, Curve C

- 2 pole automatic switch.
- Magneto thermal protection.
- C tripping curve.
- 1 A.

CAR04. Variable Resistive Load, 150 ohm, 500W

- Variable 150 ohms resistance.
- Easy value control.
- 500 W.

TRA19. Transformer for Experiments (custom made)

- Parameters to be chosen by the customer.

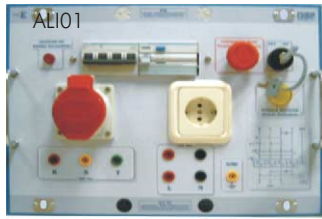
Practical Possibilities:

- 1.- To connect the set.
- 2.- To simulate a high current (thermal) and to test if the automatic switch breaks.
- 3.- To measure the current and to check the tripping.

② Applications

Energy Installations (continuation)

AE4. TEST UNIT FOR DIFFERENTIAL AUTOMATIC SWITCHES



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

Included Modules:

CAR04. Variable Resistive Load, 150 ohm, 500W

- Variable 150 ohms resistance.
- Easy value control.
- 500 W.



IAD01. 1-pole+neutral Differential Automatic Switch, 6A, 30mA, class A

- 1 pole + neutral.
- 6 A.
- Sensitivity 30 mA.
- A class.

Practical Possibilities:

- 1.- To simulate a fault to earth and to test if the differential breaks.

AE5. RELAY CONTROL STATION



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

Included Modules:

TRA10. Current Transformer 25/5A

- Single-phase current transformer.
- 2.5 VA.
- 25/5 A transformation.
- 3% precision.

CAR18. Aerial Line Model

- 380 kV.
- 360 Km.
- Scale 1:1000.
- 380 Vac, 1A.



REL23. Overcurrent Relay and Fault to Earth

- 1 overcurrent relay.
- 1 fault to earth relay.
- Alarm and breaking circuit capacity.

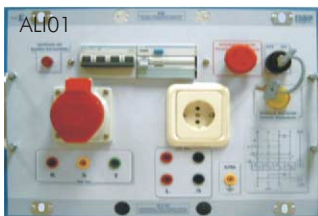
CON01. 3-pole Contactor (24Vac)

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.

Practical Possibilities:

- 1.- To connect the transformers to line.
- 2.- To connect the protection relay.
- 3.- To simulate a line fault and the relay will trip the circuit breaker.

AE6. ENERGY COUNTERS CONTROL STATION



ALI01. Industrial Main Power Supply

- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

Included Modules:

TRA10. Current Transformer 25/5A

- Single-phase current transformer.
- 2.5 VA.
- 25/5 A transformation.
- 3% precision.

MED72. Energy Counter

- For single phase systems.
- 5+1 digits.
- Powers supply led.
- Consumption LED.



CAR01. Fixed Resistive Load, 150 ohm, 500 W

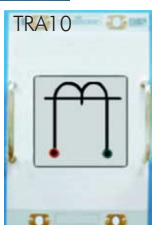
- 150 ohms.
- 500 W.

TRA04. 3-Phase Power Transformer 380/220V, 630VA

- Three phase power transformer.
- 630 VA.
- 380/220 Vac.

Practical Possibilities:

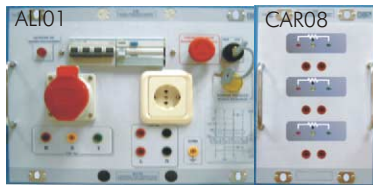
- 1.- Assembly of the voltage and current transformers.
- 2.- To measure the energy consumed by the load with the energy counter.



② Applications

Energy Installations (continuation)

AE7. MULTI-FUNCTIONAL ELECTRICAL PROTECTION STATION



ALI01. Industrial Main Power Supply

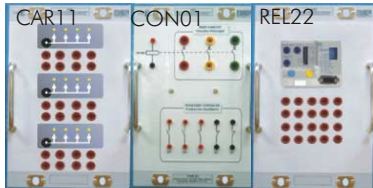
- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

CAR08. 3-phase Variable Resistive Load (custom made)

- Value (ohms and W) to be chosen by the customer.

CAR11. 3-phase Capacitive Load

- $3 \times 4.7 \mu\text{F}$.



Included Modules:

CON01. 3-pole Contactor (24Vac)

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.

REL22. Multi-function Protection Relay (software included)

- 0.2-1 or 1-5A.
- Software included.
- Multi-function protection.
- Relay outputs.

TRA04. 3-Phase Power Transformer 380/220V, 630VA

- Three phase power transformer.
- 630 VA.
- 380/220 Vac.

CAR14. 3-phase Inductive Load

- Coil with several outlets.
- Value (H) to be chosen by the customer.

TRA10. Current Transformer 25/5A

- Single-phase current transformer.
- 2.5 VA.
- 25/5 A transformation.
- 3% precision.



Practical Possibilities:

- 1.- Assembly of the station with the relay.
- 2.- To simulate faults in the line.
- 3.- To simulate under and/or overvoltage, changing the line parameters.
- 4.- To check if the relay trips the contactor.

AE8. POWER & TORQUE MEASUREMENTS OF ELECTRICAL MOTORS



ALI01. Industrial Main Power Supply

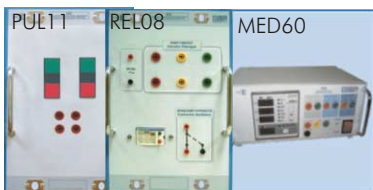
- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

ALI03. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.
- 4 terminals.

CON02. 3-pole Contactor (220Vac)

- 3 pole contactor, 9 A.
- Control coil 220 Vac.
- Auxiliary contacts 3NO + 2NC.



Included Modules:

PUL11. 2 Double Push-Buttons (230Vac)

- 2 double push buttons.
- 230 Vac.
- Power circuit.

REL08. Time Electronic Relay against Overcurrents (0.3-1.5A)

- Electronic thermal relay.
- Overload protection.
- Range 0.3- 1.5 A.
- Reset and test function.
- 1 NONC contact.
- Temporization.

MED60. Network Analyzer

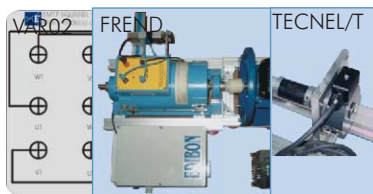
- Line and phase voltage.
- Current measurement.
- Active and reactive power.
- 3 phase system.

VAR02. Motor (EMT7) (squirrel cage)

- Squirrel cage.
- Three phase asynchronous motor.
- 270 W.
- 3000 rpm.

FREND. Dynamo Brake.

TECNEL/T. Tachodynamo.



Practical Possibilities:

- 1.- Assembly of the set and to start the motor and dynamo.
- 2.- To change the dynamo current and to measure both the power and the torque of the motor.
- 3.- To obtain the efficiency curve.

AE9. DIRECTIONAL RELAY: EARTH FAULT DETECTION. DIRECTIONAL POWER FLOW DETECTION. REACTIVE POWER FLOW DETECTION



ALI01. Industrial Main Power Supply

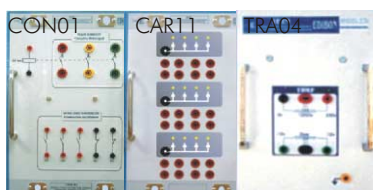
- Magneto-thermal protection.
- Differential protection.
- Double plug and terminals (three phase+singlephase).
- 2 lamps.
- 8 terminals.
- Mushroom security button.
- Removable key.

CAR08. 3-phase Variable Resistive Load (custom made)

- Value (ohms and W) to be chosen by the customer.

CON01. 3-pole Contactor (24Vac)

- 3 pole contactor, 9 A.
- Control coil 24 Vac.
- Auxiliary contacts 3NO + 2NC.



Included Modules:

CAR11. 3-phase Capacitive Load

- $3 \times 4.7 \mu\text{F}$.

TRA04. 3-Phase Power Transformer 380/220V, 630VA

- Three phase power transformer.
- 630 VA.
- 380/220 Vac.

CAR14. 3-phase Inductive Load

- Coil with several outlets.
- Value (H) to be chosen by the customer.

TRA10. Current Transformer 25/5A

- Single-phase current transformer.
- 2.5 VA.
- 25/5 A transformation.
- 3% precision.

REL20. 1-Phase Directional Relay

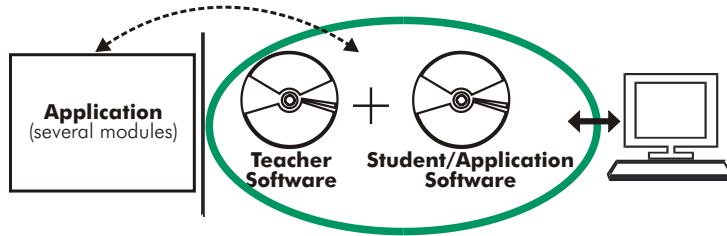
- Wide variety of input configurations.
- 0.5 to 6000 watts.
- Instantaneous, definite and inverse timing characteristics available.



Practical Possibilities:

- 1.- Assembly of the set.
- 2.- Directional relay tripping test, in a case of an earth fault.
- 3.- To test the tripping when power flows in the opposite direction.
- 4.- To test the tripping when the reactive power is over or under certain limit.

③ CAI. Computer Aided Instruction Software System

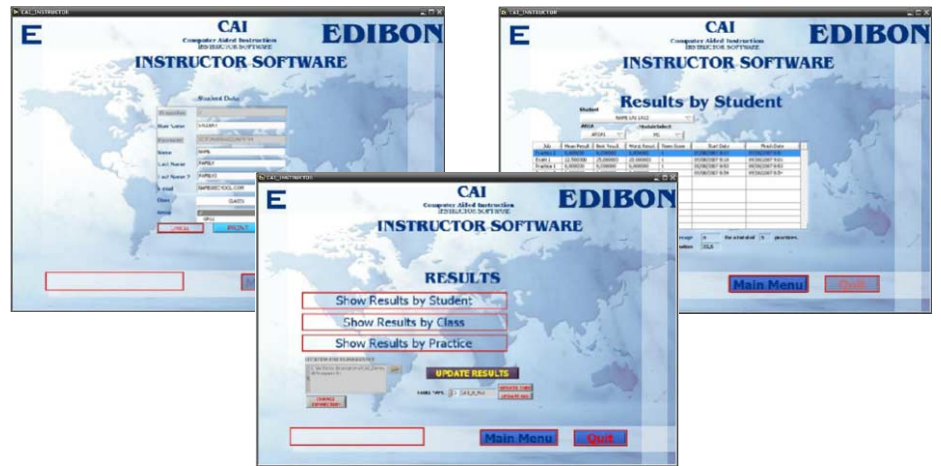


With no physical connection between application/module and computer, this complete package consists on an Instructor Software (INS/SOF) totally integrated with the Student/Application Software (A.../SOF). Both are interconnected so that the teacher knows at any moment what is the theoretical and practical 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.

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/Module Software).

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

Each application has its own Student Software package.

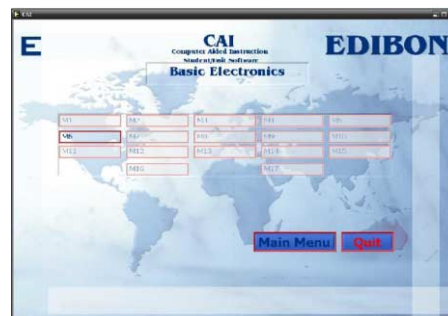
- The options are presented by pull-down menus and pop-up windows.
- Each Software Package contains:

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, showing how to complete the exercises and practices.

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



Available Student/Applications Software Packages:

• Domestic Electric Installations:

- AD1A/SOF. Robbery alarm station.
- AD3A/SOF. Fire alarm station.
- AD5/SOF. Temporization of stairs.
- AD6A/SOF. Luminosity control station.
- AD8/SOF. Blinds activator.
- AD9A/SOF. Heating control station.
- AD11A/SOF. Network analyzer.
- AD13/SOF. Audio door entry system.
- AD14/SOF. Audio and video door entry system.
- AD15A/SOF. Position control station.
- AD17A/SOF. Photoelectric control position station.
- AD24/SOF. Position Switch.

AD19A/SOF. Sound station.

- AD22/SOF. Flooding control station.
- AD23/SOF. Wireless basic control station (RF).
- AD25A/SOF. Control station for domestic electric services through the telephone.
- AD28A/SOF. Integral control station of domestic electric systems.
- AD30/SOF. Gas control station.
- AD31/SOF. Movement and sound detection and control.
- AD32/SOF. 24 Vac / 12 Vdc circuits analyzer.
- AD33/SOF. Installations faults simulator.

• Industrial Electric Installations:

- AI1/SOF. Star-delta starter.
- AI2/SOF. Starter through auto-transformer.
- AI3/SOF. Speed commutator for Dahlander motor.
- AI4/SOF. Starter-inverter.
- AI5/SOF. AC wound rotor motor starter.
- AI6/SOF. DC motor starter.
- AI7/SOF. Automatic change of speed of a Dahlander motor with change of direction.
- AI8/SOF. Reactive power compensation (Power factor correction).
- AI9/SOF. People safety against indirect electrical contacts in TT neutral regimen.

AI10/SOF. People safety against indirect electrical contacts in TN neutral regimen.

AI11/SOF. People safety against indirect electrical contacts in IT neutral regimen.

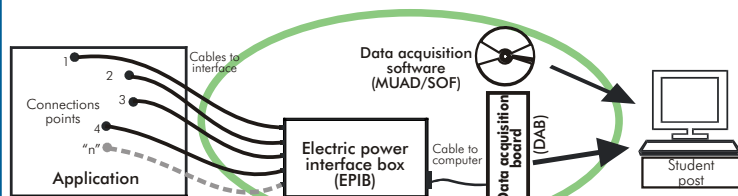
AI12/SOF. Modular Trainer (AC motors).

AI13/SOF. Modular Trainer for Electrotechniques

• Energy Installations:

- AE1/SOF. Aerial line model.
- AE2/SOF. Reactive energy control and compensation.
- AE3/SOF. Test unit for magneto-thermal automatic switches.
- AE4/SOF. Test unit for differential automatic switches.
- AE5/SOF. Relay control station.
- AE6/SOF. Energy counters control station.
- AE7/SOF. Multi-functional electrical protection station.
- AE8/SOF. Power & torque measurements of electrical motors.
- AE9/SOF. Directional Relay; Earth fault detection. Directional power flow detection. Reactive power flow detection.

* Both Instructor Software and Student/Module Software are available in English and Spanish. Any other language available on request.



MUAD is the perfect link between the applications/modules 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, 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.):

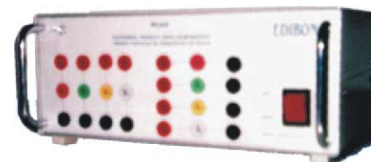
Interface that carries out the conditioning of the diverse signals that can be acquired in a process, for their later treatment and visualisation.

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.

Analogue Input Channels:

8 analogue input channels. Sampling range: 300KHz for single channel.

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.

Analogue input:

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

Resolution=16 bits, 1 in 65536.

Sampling rate up to: 250 KS/s (Kilo samples per second).

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

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

Number of DMA channels=6.

Analogue output:

Number of **channels=2**.

Resolution=16 bits, 1 in 65536.

Maximum output rate up to: 833 KS/s.

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:

Amicable 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.

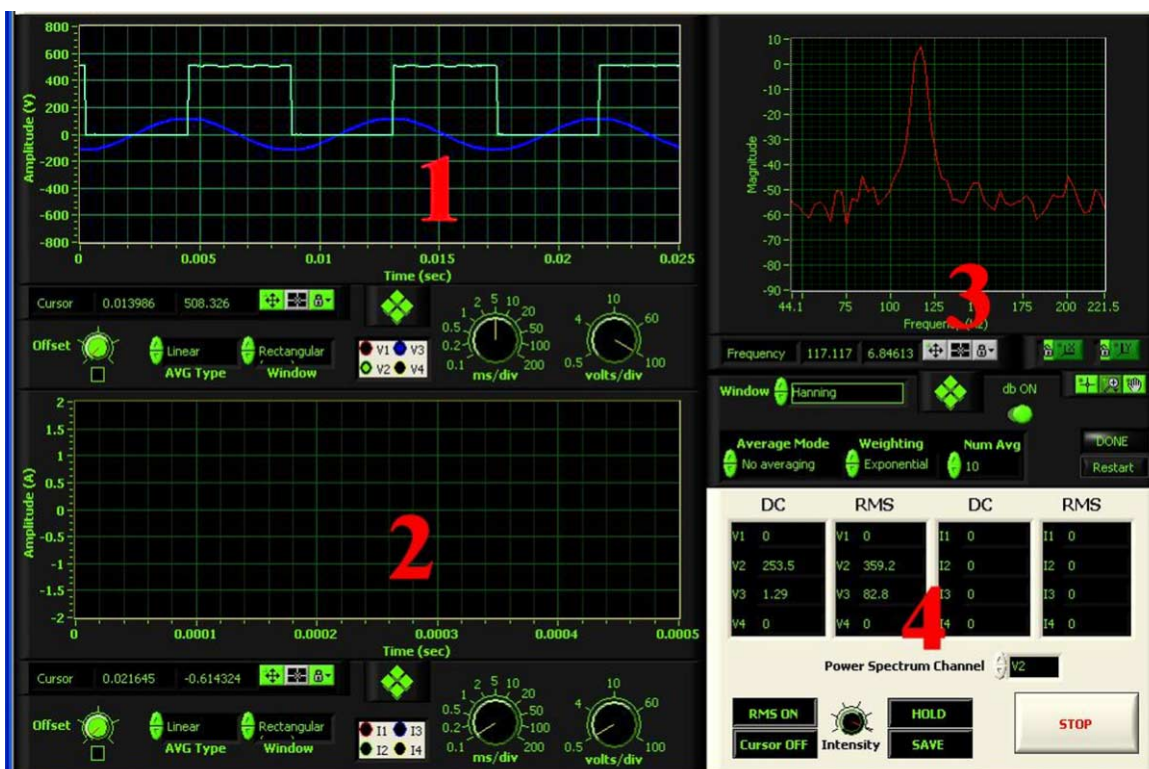
Sampling velocity up to 250 KS/s. (Kilo samples per second) guaranteed.

* Software is available in English and Spanish. Any other language available on request.



MUAD/SOF

Software Main Screen



- 1.- Voltage channels section
- 2.- Current channels section
- 3.- Power spectrum section
- 4.- General control panel section

5.1) Manuals:

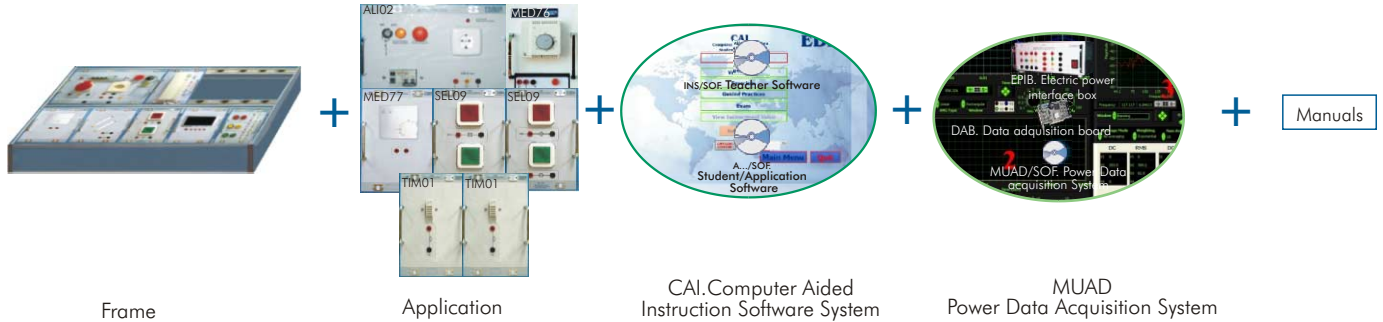
Manuals are developed following the SELF-TEACHING principle, thus facilitating to the utmost student's productivity when completing the practices/exercises. 8 Manuals are supplied with each application.

5.2) Accessories:

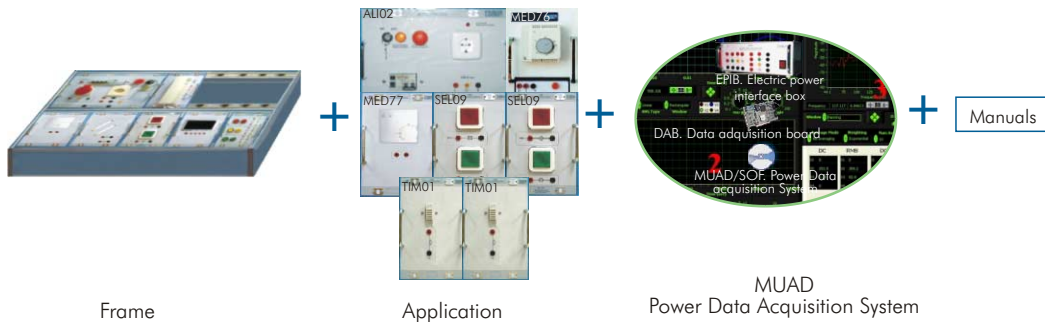
With the each application will be supplied a safety wires kit for doing all practices (CABD).

Working possibilities:

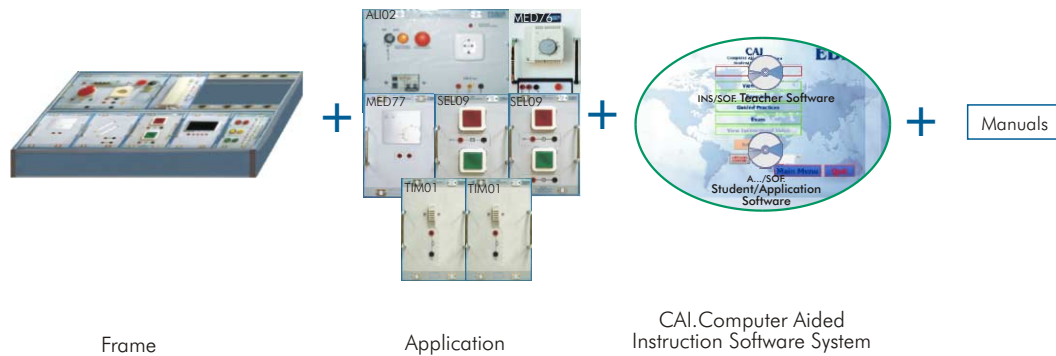
1) Working possibility CAI + MUAD (EDIBON complete system)



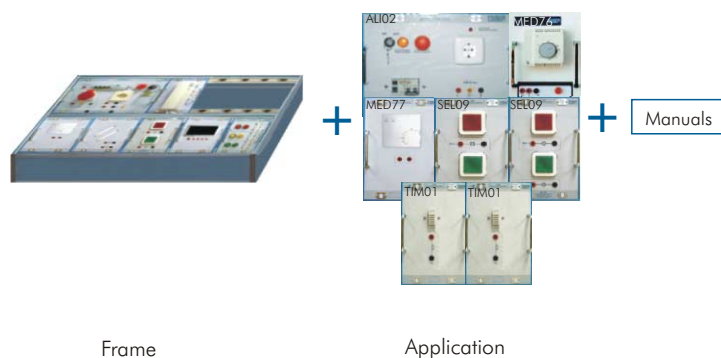
2) Working possibility MUAD



3) Working possibility CAI



4) Simplest Working possibility



Available Individual Modules

● (ALA) Alarms:

- ALA01 Intrusion Alarm Station (8 circuits).
- ALA02 Fire Alarm Station (with battery).
- ALA03 Coded Electronic key.
- ALA04 Intrusion Alarm Station by radio with programming (PC).

● (ALI) Power Supply:

- ALI01 Industrial Main Power Supply.
- ALI02 Domestic Main Power Supply.
- ALI03 AC Auxiliary Power Supply (24 Vac).
- ALI04 DC Auxiliary Power Supply (+12,0,-12Vdc).
- ALI05 Jumpers.
- ALI06 Adjustable AC Power Supply.
- ALI07 Adjustable DC Power Supply.
- ALI08 Standby Battery, 12 Vdc.
- ALI10 Power Supply Module.

● (ARR) Starters/Commutators:

- ARR01 Manual Star-Delta Starter.
- ARR02 Temporized Star-Delta Starter.
- ARR03 Manual Auto-transformer Starter.
- ARR04 Temporized Auto-transformer Starter.
- ARR05 Manual Star-Delta Starter with Inversion.
- ARR06 Temporized Star-Delta Starter with Inversion.
- ARR07 Manual Dahlander Commutator, 2 speeds.
- ARR08 Temporized Dahlander Commutator, 2 speeds.
- ARR09 Manual Independent Windings Commutator, 2 speeds.
- ARR10 Temporized Independent Windings Commutator, 2 speeds.
- ARR11 Poles Commutator with Inversion.
- ARR12 Direct Starter.
- ARR13 Direct Starter with Inversion.
- ARR14 DC Motor Speed Controller.
- ARR15 Frequency Variator.

● (AUD) Audio:

- AUD01 Analog Sound Regulator.
- AUD02 Digital Sound Regulator.
- AUD03 Warnings Emitter Module.
- AUD04 Speaker of 2", 2W, 8 ohm.
- AUD05 Speaker of 4", 7W, 8 ohm.
- AUD06 Basic Audio Central.
- AUD07 Advanced Audio Central.
- AUD08 Background Music Regulator 3W
- AUD09 Background Music Regulator 5W
- AUD10 Double Background Music Regulator.
- AUD11 Plug for Mono Speaker.
- AUD12 Plug for Stereo Speakers.
- AUD13 Digital Controls, Walkman Input and Earphones Output.
- AUD14 FM Digital Turner Controls + Earphones Output.
- AUD15 Digital Controls for Transmission and Reception of Warnings, Earphones Output and Walkman Input.
- AUD16 2 Channel Digital Controls with Inter-communicator and Display.
- AUD17 FM Digital Tuner Controls.
- AUD18 Warning Selector, 9 zones.
- AUD19 Amplifier (30 W).
- AUD20 Analog Sound Regulator (mono-stereo).

● (CAR) Loads:

- CAR01 Fixed Resistive Load, 150 ohm, 500 W.
- CAR02 Double Fixed Resistive Load, 150 ohm, 500 W.
- CAR03 Fixed Resistive Load (custom-made).
- CAR04 Variable Resistive Load, 150 ohm, 500 W.
- CAR05 Double Variable Resistive Load, 150 ohm, 500 W.
- CAR06 Variable Resistive Load (custom made).
- CAR07 3-phase Variable Resistive Load, 3 x 150ohm, 500 W.
- CAR08 3-phase Variable Resistive Load (custom made).
- CAR09 Capacitive Load 4 x 7 µF.
- CAR10 Capacitive Load (custom made).
- CAR11 3-phase Capacitive Load.
- CAR12 Inductive Load 0-33-78-140-193-236 mH.
- CAR13 Inductive Load (custom made).
- CAR14 3-phase Inductive Load.
- CAR15 Current Transformer Load.
- CAR16 Voltage Transformer Load.
- CAR17 Line Capacitor.
- CAR18 Aerial Line Model.
- CAR19 Bank of Commutable Capacitors.
- CAR20 Diodes and Thyristors.
- CAR21 Inductive and Capacitive Loads.

- CAR22 AC Starting Rheostat.
- CAR23 DC Starting Rheostat.
- CAR24 Field Rheostat.
- CAR30 Inductances Module.
- CAR31 Capacitors Module.
- CAR32 Rectifier Diodes Module.
- CAR33 Resistive Components Module.

● (COM) Commutators:

- COM01 2 Positions Commutator, 1 inverter.
- COM02 2 Positions Commutator, 2 inverters.
- COM03 2 Positions Commutator, 1 NO + 1 NC
- COM04 3 Positions Commutator, 1 inverter.
- COM05 3 Positions Commutator, 2 inverters.
- COM06 2 Positions Rotary Commutator with return to 0 Power).
- COM07 2 Positions Rotary Commutator with return to 0 (Control).
- COM08 2 Positions Rotary Commutator with Key.
- COM09 4 Positions Rotary Commutator + Stop
- COM10 Rotary Commutator for Voltmeter.
- COM11 Rotary Commutator for Ammeter.
- COM12 Commutator/ Switch.
- COM13 Double Commutator.
- COM14 2 Commutators.
- COM15 2 Commutators, 16 A.
- COM16 2 Commutators with Light.
- COM17 2 Inverters.
- COM18 2 Inverters with Light.
- COM19 Commutator + Inverter.
- COM20 Commutator + Group of 2 Switches.
- COM21 Inverter + Group of 2 Commutators.
- COM22 Commutator with Light + Inverter with Light.
- COM23 Commutator Group + Bell Push-Button + Switch.
- COM24 Commutator + Push-Button with Symbol to be chosen by the Customer.
- COM25 Removable Key Commutator, 2 Positions, 5A.
- COM26 Key Commutator, 2 Positions, with Interlock, 5A.
- COM27 Commutator with Label-Holder with Light.
- COM28 Group of 2 Commutators.
- COM29 Push-Button Group + Commutator.
- COM30 Commutator with Puller.
- COM31 4 Positions Rotary Commutator.
- COM32 3 Positions Rotary Commutator.
- COM33 Commutator with zero point.
- COM34 Commutator 20 A.
- COM35 Lighting Commutator.
- COM36 Lighting Commutator with zero point.
- COM37 Commutator with Luminous Screen (bell, bulb, wc, alarm...).

● (CON) Contactors:

- CON01 3-pole Contactor (24 Vac).
- CON02 3-pole Contactor (220 Vac).
- CON03 3-pole Contactor (12 Vdc).
- CON04 3-pole Contactor, work retarded (24 Vac).
- CON05 3-pole Contactor, work retarded (220 Vac).
- CON06 3-pole Contactor, work retarded (12 Vdc).
- CON07 3-poles Contactor, rest retarded (24 Vac).
- CON08 3-poles Contactor, rest retarded (220 Vac).
- CON09 3-poles Contactor, rest retarded (12 Vdc).
- CON10 3-pole Contactor-Inverter (24 Vac).
- CON11 3-pole Contactor-Inverter (220 Vac).
- CON12 3-pole Contactor-Inverter (12 Vdc).
- CON13 4-pole Contactor (24 Vac).
- CON14 4-pole Contactor (220 Vac).
- CON15 4-pole Contactor (12 Vdc).

(CTI) Time Control:

- CTI01 Multi-function Timer.
- CTI02 24 Hours Timer without Operation Reserve (1NO).
- CTI03 24 Hours Timer with Operation Reserve (1NO).
- CTI04 Weekly Timer per hours with Operation Reserve (1NO).
- CTI05 24 Hours Timer without Operation Reserve (1NONC).
- CTI06 24 Hours Timer with Operation Reserve (1NONC).
- CTI07 24 Hours/ Week Digital Timer (2NONC).
- CTI08 Astronomical Digital Timer (2NO).
- CTI09 Stairs Timer.
- CTI10 Automatic of Stairs.

● (CTR) Control:

- CTR01 Basic Control Module.
- CTR02 Advanced Control Module.
- CTR03 Burglar Control Module.
- CTR04 Power Module 15W.
- CTR05 Power Module 72 W.
- CTR06 Modem Module.

Continue...

- CTR07 Timers Module.
- CTR08 Inputs Module 24 V.
- CTR09 Inputs Module 230 V.
- CTR10 Outputs Module 1 - 10 V.
- CTR11 Outputs Module 24 V.
- CTR12 Outputs Module 230 V., 10 A.
- CTR13 Outputs Module 400 V., 10 A.
- CTR14 Outputs Module 400 V., 16 A.
- CTR15 Dimmer Module 350 LR.
- CTR16 Dimmer Module 350 CR.
- CTR17 Infrared Remote Control for Control Modules.
- CTR18 Infrared Receptor.
- CTR19 Local Control Module.
- CTR20 Integral Control Software.
- CTR21 Current Relays Station.
- CTR22 Energy Counters Station.
- (DET) **Detectors:**
 - DET01 Flooding Detector.
 - DET02 Gas Detector.
 - DET03 Fitted Power Supply (gas and flooding detector).
 - DET04 Flooding Detector (with probe).
 - DET05 Gas Detector for domestic control.
 - DET06 Smoke Detector for domestic control.
 - DET07 Ionization Smoke Detector.
 - DET08 Optic Smoke Detector.
 - DET09 Intrusion Detector for domestic control.
 - DET10 Water Electro-valve.
 - DET11 Probe for Water Electro-valve.
 - DET12 Gas Electro-valve.
 - DET13 Wireless Intrusion Detector RF.
 - DET14 Wireless Panic Push-button RF.
 - DET15 Wireless 1 - channel Receptor RF.
 - DET16 Battery Module for domestic control.
 - DET17 Temperature Probe.
 - DET18 Passive Infrared Detector PIR.
 - DET19 Twilight Detector.
 - DET20 Light Detector.
 - DET21 Fire Detector through Ionization for Central.
 - DET22 Fire Thermal Detector.
 - DET23 Gas Electronic Detector.
 - DET24 CO Detector with relay output (230V,50Hz).
 - DET25 Microwaves Detector/Switch.
 - DET26 Open Door Magnetic Detector.
 - DET27 Glass Break Detector.
 - DET28 Inertia Detector.
 - DET29 Passive Infrared Presence Detector.
 - DET30 Microwave Presence Detector.
 - DET31 Thermo-velocimetric Detector.
 - DET32 Magnetic Proximity Detector.
 - DET33 Optic Proximity Detector.
 - DET34 CO Detector.
 - DET35 Passive Infrared Alarm-Detector.
- (ENC) **Sockets:**
 - ENC01 1-Phase European Socket.
 - ENC02 1-Phase American Socket.
 - ENC03 1-Phase Industrial Socket.
 - ENC04 3-Phase Socket.
 - ENC05 3-Phase Socket with ground terminal + neutral.
 - ENC06 3-Phase Socket with ground terminal.
 - ENC07 3-Phase Industrial Socket with ground terminal.
 - ENC08 Universal Socket.
 - ENC09 2-pole European Socket with Safety Device.
 - ENC10 2-pole European Socket with Displaced ground terminal.
 - ENC11 2-pole European Socket with Lateral ground terminal and Safety Device.
 - ENC12 2-pole European Socket, French System.
 - ENC13 Mixed (European-American) 2-pole Polarized Socket with ground terminal.
 - ENC14 Wireless Socket/ Receptor.
 - ENC15 British Socket with ground terminal.
 - ENC17 2 Domestic Sockets.
 - ENC18 2 Industrial Single-phase Sockets.
 - ENC20 2 Industrial Three-phase Sockets.
- (FUS) **Fuses:**
 - FUS01 Fuses 20 A (include 2-5-10-20 A).
 - FUS02 Fuses 32 A (include 8-16-20-32 A).
 - FUS03 3 Fuse-holders 16 A, 380 Vac (include 2,4,6,10,16 A).
 - FUS04 3 Fuse-holders 10 A, 230 Vac (include 2,4,6,10 A).
 - FUS05 5 Sectionalizing Fuse-holders (until 25 A, include fuses 6 A).
 - FUS06 Rail Mount Fuse-holder + Panel Mount Fuse-holder.
 - FUS07 3 Panel Mount Fuse-holders.
 - FUS10 Module with 3 fuse-holders and power fuses.
- FUS11 4 Panel Mount Fuses.
- (IAD) **Differential Automatic Switches:**
 - IAD01 1-pole + neutral Differential Automatic Switch, 6 A, 30 mA, class A.
 - IAD02 1-pole + neutral Differential Automatic Switch, 10 A, 30 mA, class A.
 - IAD03 1-pole + neutral Differential Automatic Switch, 10 A, 30 mA, class AC.
 - IAD04 1-pole + neutral Differential Automatic Switch, 16 A, 30 mA, class A.
 - IAD05 1-pole + neutral Differential Automatic Switch, 16 A, 30 mA, class AC.
 - IAD06 1-pole + neutral Differential Automatic Switch, 25 A, 30 mA, class A.
 - IAD07 1-pole + neutral Differential Automatic Switch, 25 A, 30 mA, class AC.
 - IAD08 1-pole + neutral Differential Automatic Switch, 40 A, 30 mA, class A.
 - IAD09 1-pole + neutral Differential Automatic Switch, 40 A, 30 mA, class AC.
 - IAD10 2-pole Differential Automatic Switch 16 A, 10 mA, class AC.
 - IAD11 2-pole Differential Automatic Switch 25 A, 30 mA, class AC.
 - IAD12 2-pole Differential Automatic Switch 40 A, 30 mA, class AC.
 - IAD13 3-pole + neutral Differential Automatic Switch, 25 A, 300 mA, class AC, instantaneous.
 - IAD14 3-pole + neutral Differential Automatic Switch, 25 A, 300 mA, class AC, selective.
 - IAD15 3-pole + neutral Differential Automatic Switch, 40 A, 300 mA, class AC, instantaneous.
 - IAD16 3-pole + neutral Differential Automatic Switch, 40 A, 300 mA, class AC, selective.
 - IAD17 4-pole + neutral Differential Automatic Switch, 63 A, 300 mA, class AC, instantaneous.
 - IAD18 4-pole + neutral Differential Automatic Switch, 63 A, 300 mA, class AC, selective.
- (IAM) **Magneto-thermal Automatic Switches:**
 - IAM01 1-pole Magneto-thermal Automatic Switch 0.5 A, Curve C.
 - IAM02 1-pole Magneto-thermal Automatic Switch 1 A, Curve C.
 - IAM03 1-pole Magneto-thermal Automatic Switch 4 A, Curve C.
 - IAM04 1-pole Magneto-thermal Automatic Switch 10 A, Curve C.
 - IAM05 1-pole Magneto-thermal Automatic Switch 25 A, Curve C.
 - IAM06 1-pole Magneto-thermal Automatic Switch 40 A, Curve C.
 - IAM07 1-pole + neutral Magneto-thermal Automatic Switch, 1 A, Curve C.
 - IAM08 1-pole + neutral Magneto-thermal Automatic Switch, 4 A, Curve C.
 - IAM09 1-pole + neutral Magneto-thermal Automatic Switch, 10 A, Curve C.
 - IAM10 1-pole + neutral Magneto-thermal Automatic Switch, 25 A, Curve C.
 - IAM11 1-pole + neutral Magneto-thermal Automatic Switch, 40 A, Curve C.
 - IAM12 2-pole Magneto-thermal Automatic Switch, 0.5 A, Curve C.
 - IAM13 2-pole Magneto-thermal Automatic Switch, 1 A, Curve C.
 - IAM14 2-pole Magneto-thermal Automatic Switch, 4 A, Curve C.
 - IAM15 2-pole Magneto-thermal Automatic Switch, 10 A, Curve C.
 - IAM16 2-pole Magneto-thermal Automatic Switch, 25 A, Curve C.
 - IAM17 2-pole Magneto-thermal Automatic Switch, 40 A, Curve C.
 - IAM18 3-pole Magneto-thermal Automatic Switch, 0.5 A, Curve C.
 - IAM19 3-pole Magneto-thermal Automatic Switch, 1 A, Curve C.
 - IAM20 3-pole Magneto-thermal Automatic Switch, 4 A, Curve C.
 - IAM21 3-pole Magneto-thermal Automatic Switch, 10 A, Curve C.
 - IAM22 3-pole Magneto-thermal Automatic Switch, 25 A, Curve C.
 - IAM23 3-pole Magneto-thermal Automatic Switch, 40 A, Curve C.
 - IAM24 3-pole + neutral Magneto-thermal Automatic Switch, 6 A, Curve C.
 - IAM25 3-pole + neutral Magneto-thermal Automatic Switch, 10 A, Curve C.
 - IAM26 3-pole + neutral Magneto-thermal Automatic Switch, 16 A, Curve C.
 - IAM27 3-pole + neutral Magneto-thermal Automatic Switch, 25 A, Curve C.
 - IAM28 3-pole + neutral Magneto-thermal Automatic Switch, 40 A, Curve C.
 - IAM29 4-pole Magneto-thermal Automatic Switch, 0.5 A, Curve C.
 - IAM30 4-pole Magneto-thermal Automatic Switch, 1 A, Curve C.
 - IAM31 4-pole Magneto-thermal Automatic Switch, 4 A, Curve C.
 - IAM32 4-pole Magneto-thermal Automatic Switch, 10 A, Curve C.
 - IAM33 4-pole Magneto-thermal Automatic Switch, 16 A, Curve C.
 - IAM34 4-pole Magneto-thermal Automatic Switch, 25 A, Curve C.
 - IAM35 4-pole Magneto-thermal Automatic Switch, 40 A, Curve C.

Continue...

●(INT) **General Switches:**

- INT01 1-pole Load Switch.
- INT02 2-pole Load Switch.
- INT03 3-pole Load Switch.
- INT04 4-pole Load Switch.
- INT05 1-pole Rotary Switch.
- INT06 3-pole Section Switch, 12 A.
- INT07 3-pole Section Switch, 20 A.
- INT08 3-pole Section Switch + Safety Stop, 12 A.
- INT09 3-pole Section Switch + Safety Stop, 20 A.
- INT10 Twilight Switch.
- INT11 Twilight Switch with programmer clock.
- INT12 Analogical Hour Switch.
- INT13 Digital Hour Switch.
- INT14 1-pole 2 Switches.
- INT15 2 Switches with Light.
- INT16 2-pole Switch (16 A).
- INT17 2-pole Switch (16 A) with Light.
- INT18 1-pole Switch + 1-pole Switch with Light.
- INT19 1-pole Switch + 2-pole Switch.
- INT20 1-pole Switch with Light + 2-pole Switch with Light.
- INT21 Switch + Commutator Group + Bell Push-Button.
- INT22 2 Switches for Blinds.
- INT23 Group of 2 Switches.
- INT24 Switch /Commutator for Card.
- INT25 Wireless Switch/ Commutator (Emitter).
- INT26 Pastille Receptor (Receptor).
- INT27 Touch Type Electronic Switch/ Commutator by TRIAC.
- INT28 Touch Type Electronic Switch/ Commutator by Relay.
- INT29 Infrared Switch/ Commutator by TRIAC.
- INT30 Infrared Switch/ Commutator by Relay.
- INT31 Intrusion Switch/Detector from 40 to 300W.
- INT32 Intrusion Switch/ Detector with Relay 1000W.
- INT33 1-pole Fuse Switch, 16 A.
- INT34 1-pole Fuse Switch with neutral, 16 A.
- INT35 2-pole Fuse Switch, 16 A.
- INT36 3-pole Fuse Switch, 16 A.
- INT37 3-pole Fuse Switch with neutral, 16 A.
- INT38 1-pole Lighting Switch, 16 A.
- INT39 2-pole Lighting Switch, 16 A.
- INT40 3-pole Lighting Switch, 16 A.
- INT41 3-pole Lighting Switch with neutral, 25 A.
- INT42 Lighting Switch with Control Lamp.
- INT43 1-pole Telecontrol Switch.
- INT44 2-pole Telecontrol Switch.
- INT45 3-pole Telecontrol Switch.
- INT46 Remote Control Switch (heating, refrigeration...).
- INT47 Switch with Luminous Screen (bell, bulb, wc, alarm...).
- INT48 1-pole Switch + 1-pole Push-button.
- INT51 2 Switches, push-button type.

●(INX) **Special Switches:**

- INX01 DC 1-pole Special Automatic Switch 1 A, Curve C.
- INX02 DC 1-pole Special Automatic Switch 2 A, Curve C.
- INX03 DC 1-pole Special Automatic Switch 6 A, Curve C.
- INX04 DC 1-pole Special Automatic Switch 10 A, Curve C.
- INX05 DC 2-pole Special Automatic Switch 1 A, Curve C.
- INX06 DC 2-pole Special Automatic Switch 2 A, Curve C.
- INX07 DC 2-pole Special Automatic Switch 6 A, Curve C.
- INX08 DC 2-pole Special Automatic Switch 10 A, Curve C.
- INX09 Remote-controlled Switch.
- INX10 1-pole + neutral Overvoltage Protection.
- INX11 3-pole + neutral Overvoltage Protection.
- INX12 Overvoltage Switchable Protection with Luminous Indicator.
- INX13 RJ-11 Fine Protection-Analog Telephony.
- INX14 RJ-45 Fine Protection -Digital Telephony.

●(IND) **Indicators:**

- IND01 Nurse Panel.
- IND02 Patient Room Panel.
- IND03 Luminous Calling Panel.
- IND05 Phases sequence (rotation) indicator.

●(LAM) **Lamps:**

- LAM01 Lamps.
- LAM02 Auxiliary Lamps.
- LAM03 3 Push-buttons and Lamps (220 Vac).
- LAM04 3 Push-buttons and Lamps (24 Vac).
- LAM05 Lamp-holder.
- LAM06 Signs Indicator.
- LAM07 Emergency Light.
- LAM08 2 Lamp-holders + Incandescent Lamps 40 W.
- LAM09 Fluorescent Lamp.
- LAM10 2 Halogen Lamps.

- LAM11 2 Turning Halogen Lamps.
- LAM12 Halogen Lamp with Transformer.
- LAM13 2 Low Consumption Fluorescent Lamps.
- LAM14 Direction Indicator Lamp (24Vac).
- LAM15 Number Indicator Lamp (24Vac)
- LAM20 Auxiliary lamps (4 lamps).
- LAM26 Lighting Module.
- LAM30 Luminous panel, 24V.

●(MED) **Meters:**

- MED01 DC Micro-ammeter (0-100microA).
- MED02 DC Micro-ammeter (0-600microA).
- MED03 DC Milliammeter (0-100mA).
- MED04 DC Milliammeter (0-600mA).
- MED05 DC Ammeter (0-1.5A).
- MED06 DC Ammeter (custom-made).
- MED07 AC Milliammeter (0-100mA).
- MED08 AC Milliammeter (0-600mA).
- MED09 AC Ammeter (0-2.5A).
- MED10 AC Ammeter (0-5A).
- MED11 AC Ammeter (0-10A).
- MED12 AC Ammeter (custom-made).
- MED13 DC Millivoltmeter (0-100mV).
- MED14 DC Millivoltmeter (0-600mV).
- MED15 DC Voltmeter (0-5V).
- MED16 DC Voltmeter (0-50V).
- MED17 DC Voltmeter (0-200V).
- MED18 DC Voltmeter (custom-made).
- MED19 AC Voltmeter (0-10V).
- MED20 AC Voltmeter (0-60V).
- MED21 AC Voltmeter (0-250V).
- MED22 AC Voltmeter (0-400V).
- MED23 AC Voltmeter (custom-made).
- MED24 AC Double Voltmeter.
- MED25 Pointer Frequency Meter (45-65 Hz).
- MED26 Reed Frequency Meter 50 Hz, 400V.
- MED27 Reed Frequency Meter 60 Hz.
- MED28 Reed Double Frequency Meter 46-64 Hz.
- MED29 Tachymetric Voltmeter (custom made).
- MED30 1-Phase Phasemeter 230 V.
- MED31 3-Phase Phasemeter 400 V.
- MED32 1-Phase Wattmeter 230 V.
- MED33 3-Phase Balanced Wattmeter 440 V.
- MED34 3-Phase Balanced Wattmeter (4wires) 440 V.
- MED35 3-Phase Unbalanced Wattmeter (3wires) 440 V.
- MED36 3-Phase Unbalanced Wattmeter with neutral (4 wires) 440 V.
- MED37 3-Phase Unbalanced Wattmeter (3 systems) 440V.
- MED38 1-Phase Varmeter 230 V.
- MED39 3-Phase Balanced Varmeter 440 V.
- MED40 3-Phase Balanced Varmeter (4wires) 440 V.
- MED41 3-Phase Unbalanced Varmeter (3wires) 440V.
- MED42 3-Phase Unbalanced Varmeter with neutral (4 wires) 440V.
- MED43 3-Phase Unbalanced Varmeter (3 systems) 440V.
- MED44 Phase Sequence Indicator.
- MED45 1-Phase Synchronization Equipment.
- MED46 3-Phase Synchronization Equipment.
- MED47 Pulse Counter.
- MED48 Hour Counter 24 V / 50 Hz.
- MED49 Hour Counter 230 V / 50 Hz.
- MED50 Hour Counter 12 - 36 Vdc.
- MED51 Insulation Indicator 440V.
- MED52 Insulation Indicator 440V with optic and acoustic signalling.
- MED53 Sound Tester of Continuity.
- MED54 1-Phase Maximum Current Meter + Alarm.
- MED55 3-Phase Maximum Current Meter, 4 wires.
- MED56 Maximum Power Meter.
- MED57 3-Phase Active Energy Meter.
- MED58 3-Phase Reactive Energy Meter.
- MED59 Chronometer.
- MED60 Network Analyzer.
- MED60B Network Analyzer with active and reactive energy counters.
- MED61 Network Analyzer with Data Acquisition.
- MED62 Network Analyzer with Data Acquisition + Oscilloscope.
- MED63 Synchroscope.
- MED64 Phase Sequence Indicator.
- MED65 Digital Multimeter.
- MED66 Indicator of Phase Presence/Absence.
- MED67 Thermometer (Room Temperature).
- MED68 Hygrometer.
- MED69 Hygrostat.
- MED70 Quartz Analog Clock.

Continue...

- MED71 Digital Alarm Clock (with Thermometer and 2 Alarms).
- MED72 Energy Counter.
- MED73 1-Phase Light Counter.
- MED74 3-Phase Light Counter.
- MED75 Digital Meteorological Station.
- MED76 Thermostat for Heating.
- MED77 Thermostat for Heating and Refrigeration.
- (POR) **Intercom-Interphone System:**
 - POR01 Phones Power Supply.
 - POR02 Phone.
 - POR03 Interphone.
 - POR04 Video Camera.
 - POR05 Phone/ Monitor.
 - POR06 Lock.
 - POR07 Digital Station.
 - POR08 Video- Interphone Power Supply.
- (PUL) **Push-Buttons:**
 - PUL01 Mushroom Push-Button (220 Vac).
 - PUL02 Mushroom Push-Button (24 Vac).
 - PUL03 Push-Buttons with Light (220 Vac).
 - PUL04 Push-Buttons with Light (24 Vac).
 - PUL05 Power Circuit 3 Push-Buttons.
 - PUL06 Control Circuit 3 Push-Buttons.
 - PUL07 Box of 3 Push-Buttons for Industrial use.
 - PUL08 Box of 3 Auxiliary Push-Buttons.
 - PUL09 Push-Button with Auxiliary Light (230 Vac).
 - PUL10 Push-Button with Auxiliary Light (24 Vac).
 - PUL11 2 Double Push-Buttons (230 Vac).
 - PUL12 2 Double Push-Buttons (24 Vac).
 - PUL13 2 Positions Actuators.
 - PUL14 4 Positions Actuators.
 - PUL15 Hanging Push-Button.
 - PUL16 Push-Button for Industrial use.
 - PUL17 Double Push-Button for Industrial use.
 - PUL18 Waiter Push-Button.
 - PUL19 Bell Push-Button / Open the Door.
 - PUL20 2 Bell Push-Buttons.
 - PUL21 2 Bell Push-Buttons with Light.
 - PUL22 2 Light Push-Buttons.
 - PUL23 2 Push-Buttons with Symbol to be chosen by the Customer.
 - PUL24 2 Light Push-Buttons with pilot-light.
 - PUL25 2 Disconnecting Push-Buttons (NC) with Symbol to be chosen by the Customer.
 - PUL26 2 Push-Buttons with Green/Red pilot-light 24 Vdc.
 - PUL27 Neutral Push-Button.
 - PUL28 Neutral Push-Button with Light.
 - PUL29 2 Push-Buttons Group for Blinds (without Interlock).
 - PUL30 2 Push-Buttons Group for Blinds (with Interlock).
 - PUL31 2 Push Buttons Group (2 inputs + 2 outputs).
 - PUL32 2 Push Buttons Group (1 input + 2 outputs).
 - PUL33 Push-Button with Label-holder with Light.
 - PUL34 Pull Push-Button.
 - PUL35 Push-Button with Label-holder / Commutator with Label-holder.
 - PUL36 Push-Button/Key Commutator.
 - PUL37 Push-Buttons with/without Interlocking, 1NO + 1NC.
 - PUL38 Push-Buttons with/without Interlocking, 2NO.
 - PUL39 Lighting Push-Button with Light, NO + NC.
 - PUL40 Lighting Push-Button with Light, NC.
 - PUL41 Lighting Push-Button without Light, NC.
 - PUL42 Push-Button with Luminous Screen (bell, bulb, wc, alarm...).
 - PUL43 Touch-Type Push-Button with Time Delay.
 - PUL44 Numbered Light Push-Buttons (24Vac).
 - PUL45 2 Double Chamber Push-Buttons.
 - PUL48 3 Double Chamber Push-Buttons.
 - PUL50 3 Luminous push-buttons for stairs lighting.
 - PUL51 Switch push-button type and buzzer of 24V.
- (REG) **Regulators:**
 - REG01 Continuous Voltage Regulator 5-12-24 Vdc.
 - REG02 Voltage Electronic Regulator until 300 W.
 - REG03 Voltage Electronic Regulator 1000W.
 - REG04 Voltage Electronic Regulator 500VA.
 - REG05 Reactive Energy Regulator.
 - REG06 Voltage Electronic Regulator (Switch) 40 to 300W/230Vac.
 - REG07 Voltage Electronic Regulator (Switch/ Commutator) 40 to 500W/230Vac.
 - REG08 Electronic Regulator for Fluorescent Lamps (Switch /Commutator).
 - REG09 Electronic Regulator for Halogen Lamps with Transformer.
 - REG10 Universal Electronic Regulator (Switch/Commutator) 40 to 420W/230Vac.
- REG11 Touch Type Voltage Electronic Regulator.
- REG12 Infrared Voltage Regulator.
- REG13 Infrared Remote Control.
- REG14 Light Intensity Regulator (1000W/230Vac).
- (REL) **Relays:**
 - REL01 Thermal Relay (1 - 1.6A).
 - REL02 Thermal Relay (1.6 - 2.5A).
 - REL03 Thermal Relay (2.5 - 4 A).
 - REL04 Thermal Relay (4 - 6 A).
 - REL05 Thermal Relay / 3-pole Phase fault (0.8 - 1.2 A).
 - REL06 Thermal Relay / 3-pole Phase fault (1.8 - 2.6 A).
 - REL07 Thermal Relay / 3-pole Phase fault (2.6 - 3.7 A).
 - REL08 Time Electronic Relay against Overcurrents (0.3 - 1.5 A).
 - REL09 Time Electronic Relay against Overcurrents (1.2 - 7 A).
 - REL10 Instantaneous Relay.
 - REL11 Time Relay (0.6-60 sec.).
 - REL12 Time Relay (3 - 300 sec.).
 - REL13 Monostable Relay.
 - REL14 Bistable Relay.
 - REL15 Astable Relay.
 - REL16 Solid-state Relay, 10 A, 230 V.
 - REL17 Solid-state Relay, 25 A, 230 V.
 - REL18 Solid-state Relay, 12 A, 400 V.
 - REL19 2 Solid-state Relays, 10 A, 230 V.
 - REL20 1-Phase Directional Relay.
 - REL21 Overvoltage Relay with Time.
 - REL21B Subvoltage Relay with Time.
 - REL22 Multi-function Protection Relay (software included).
 - REL23 Overcurrent Relay and Fault to Earth.
 - REL24 Auxiliary Relay.
 - REL25 Detection Relay of Insufficient Voltage.
 - REL26 Reactive Energy Regulator Relay.
 - REL27 Current Control Relay.
 - REL28 Voltage Control Relay.
 - REL29 Harmonics Detector Relay.
 - REL30 Synchronization Relay.
 - REL31 Domestic Control Relay 16 A, 230 Vac, 1NO + 1NC.
 - REL32 Domestic Control Relay 16 A, 230 Vac, 2NO.
 - REL33 Switch Relay 230 Vac.
 - REL34 Commutator Relay 230 Vac.
 - REL35 Switch Relay 24 Vdc.
 - REL36 Commutator Relay 24 Vdc.
 - REL37 Relay with Buzzer.
 - REL38 Current Relay (custom made).
 - REL39 Programmable Relay with Display and Software for PC computer.
 - REL41 Auxiliary relay with disconnection button.
 - REL45 Module with disjuncter.
 - REL47 Module with thermal relay (GV protector).
 - REL50 Relays Module.
- (SAV) **Faults Simulation:**
 - SAV01 Simulation of 2 Earth Electrodes with Variable Resistance.
 - SAV02 Simulation Equipment of 3 different strange masses.
 - SAV03 Equipotential Collector with 2 strange masses.
 - SAV04 3-Phase + neutral System and AC/DC load, with earth fault simulation.
- (SEL) **Signalling:**
 - SEL01 Light Signalling Beacons.
 - SEL02 Blinking Signalling Beacons.
 - SEL03 3 Pilot-Lights.
 - SEL04 Sound Element.
 - SEL05 Rotatory Light Halogen Lamp 70 W.
 - SEL06 Rotatory Light Incandescent Lamp 25 W.
 - SEL07 Industrial Siren.
 - SEL08 Autonomous Emergency Beaconing.
 - SEL09 Double Luminous Signalling red-green 230 Vac.
 - SEL10 Double Luminous Signalling red-green 24 Vac.
 - SEL11 Stop/ Go Signalling.
 - SEL12 Digital Indicator Voltmeter/ Ammeter.
 - SEL13 Luminous Indicator, 1-Phase Voltage 230 Vac.
 - SEL14 Luminous Indicator of 3-Phase Voltage Fault.
 - SEL15 Lighting Luminous Indicator 230 Vac.
 - SEL16 Siren with Blinking Beacon 24 Vdc.
 - SEL17 Fire Indicators, Bell type.
 - SEL18 Emergency Fluorescent Lamp.
 - SEL19 2 Blinking Beacons.
 - SEL20 Water Proof Hublot + Water Proof Switch/Commutator.
 - SEL21 Indoor Siren.
 - SEL22 Beacon with Flasher Filament and Pyramidal Len.
 - SEL24 3 Blinking lamps, 24V.

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Available Individual Modules

•(SEN) Sensors:

- SEN01 Instantaneous Micro-switch.
- SEN02 MBB Micro-switch.
- SEN03 BBM Micro-switch.
- SEN04 Cylindrical Inductive Proximity Sensor type PNP.
- SEN05 Cylindrical Inductive Proximity Sensor type NPN.
- SEN06 Flat Inductive Proximity Sensor Type PNP.
- SEN07 Flat Inductive Proximity Sensor Type NPN.
- SEN08 Cylindrical Inductive Rotation Control Sensor.
- SEN09 Flat Inductive Rotation Control Sensor.
- SEN10 Cylindrical Inductive Proximity Sensor (4 - 20 mA).
- SEN11 Flat Inductive Proximity Sensor (4 - 20 mA).
- SEN12 Flat Inductive Proximity Sensor (0 - 10 V).
- SEN13 DC Cylindrical Capacitive Proximity Sensor.
- SEN14 AC Cylindrical Capacitive Proximity Sensor.
- SEN15 DC Rectangular Capacitive Proximity Sensor.
- SEN16 AC Rectangular Capacitive Proximity Sensor.
- SEN17 Ultrasonic Proximity Sensor.
- SEN18 Cylindrical Photoelectric Sensor.
- SEN19 Miniature Photoelectric Sensor.
- SEN20 Compact Photoelectric Sensor.
- SEN21 Barrier Photoelectric Sensor (Emitter).
- SEN22 Barrier Photoelectric Sensor (Receptor).
- SEN23 Reflecting Photoelectric Sensor (Emitter).
- SEN24 Reflecting Photoelectric Sensor (Receptor).
- SEN25 Level Magnetic Sensor.
- SEN26 Presence and Movement Sensor (Wall).
- SEN27 Presence and Movement Sensor (Ceiling).
- SEN28 Cylindrical Inductive Proximity Sensor (2 wires).
- SEN29 AC Cylindrical Inductive Proximity Sensor.

•(SOB) Overvoltage:

- SOB01 1-Pole Transient Overvoltage Limiter.
- SOB02 1-Pole + neutral Transient Overvoltage Limiter.
- SOB03 3-Pole Transient Overvoltage Limiter.
- SOB04 3-Pole + neutral Transient Overvoltage Limiter.
- SOB05 2-Pole Transient Overvoltage Limiter (Analog Telephonic Lines).
- SOB06 2-Pole Transient Overvoltage Limiter (Digital Telephonic Lines).
- SOB07 2-Pole Permanent Overvoltage Limiter.
- SOB08 Transient Overvoltage Double Limiter.

•(TIM) Bells:

- TIM01 Bell 70dB,230 V.
- TIM02 Buzzer 80 dB, 230 V.
- TIM03 2 Bells.
- TIM04 2 Buzzers .
- TIM05 Bell +Buzzer.
- TIM06 2 Buzzers 125/230V.
- TIM07 2 Buzzers with Tone Regulator.
- TIM08 2 Piezoelectric Buzzers.
- TIM09 2 Tones domestic Bell (230Vac).
- TIM10 2 Buzzers 24 Vac.
- TIM11 Bell 24 Vac.
- TIM12 Bell 230 Vac.

•(TRA) Transformers:

- TRA01 1-Phase Power Transformer 220-400 / 12-24 Vac, 100VA.
- TRA02 1-Phase Power Transformer 220-400 / 115-230 Vac, 1000VA.
- TRA03 1-Phase Power Transformer (custom made).
- TRA04 3-Phase Power Transformer 380 / 220 V, 630VA.
- TRA05 3-Phase Power Transformer 220 / 127 V, 1000 VA.
- TRA06 3-Phase Power Transformer (custom made).
- TRA07 Isolating Transformer 230 / 24-12 Vac, 16 A.

- TRA08 Isolating Transformer 230 / 24-12 Vac,40 A.
- TRA09 3-Phase Isolating Transformer 230 - 380/230-380,500VA.
- TRA10 Current Transformer 25 / 5 A.
- TRA11 Current Transformer 40 / 5 A.
- TRA12 3-Phase Current Transformer.
- TRA13 1-Phase Auto-transformer.
- TRA14 3-Phase Auto-transformer.
- TRA15 Current Adding Transformer, 2 inputs, 15 VA.
- TRA16 Current Adding Transformer, 3 inputs, 15 VA.
- TRA17 Current Adding Transformer, 4 inputs, 15 VA.
- TRA18 Petersen Coil.
- TRA19 Transformer for Experiments (custom made).
- TRA20 1-Phase Variable Voltage Transformer 220 / 350 VA.
- TRA21 Electronic Transformer 60 W.
- TRA22 Electronic Transformer 105 W.
- TRA23 Transformer with Switch 230/12V,16 A.
- TRA26 Module with 110-220 V. input transformer and 24 V, 3 A output.
- TRA28 Three-phase transformer.

•(TSE) Signal Plugs:

- TSE01 Telephony 4 Plugs.
- TSE02 Telephony 6 Plugs.
- TSE03 Radio-TV Plug (inductive) Unique.
- TSE04 Radio-TV Plug (inductive) Intermediate.
- TSE05 Radio-TV Plug (inductive) Final.
- TSE06 Radio-TV Plug (inductive) Series.
- TSE07 Radio-TV + Satellite Plug Unique.
- TSE08 Radio-TV + Satellite Plug Intermediate.
- TSE09 Radio-TV + Satellite Plug Final.
- TSE10 Computer Connection RJ-45.
- TSE11 Computer Connection RJ-11/12.
- TSE12 Shaver Plug 115/230V.

•(UND) Test Units:

- UND01 Brake Control Unit.
- UND02 Differential Switches Test Unit.
- UND03 Automatic Switches Test Unit.

•(VAR) Others:

- VAR01 Motor for Blinds /Curtains.
- VAR02 Motor (EMT7) (squirrel cage).
- VAR03 Motor (EMT9) (Dahlander motor).
- VAR04 Motor (EMT5) (DC motor).
- VAR05 Tones Dialling Telephone.
- VAR06 Motor (EMT8) (wound motor).
- VAR07 Kit: Burglar Alarm Central + infrared ele. + battery.
- VAR08 Monitor.
- VAR09 Frequency variator.
- VAR15 Single-phase motor of capacitor.
- VAR16 Electromagnetism Kit, with group of motor/generator.
- VAR17 Dismantled transformer Kit.
- VAR18 Electrostatic Kit.
- VAR25 Open Universal motor.

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

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