

Available Kits

- Domestic Electrical Installations:

- | | |
|--------|---|
| KD1A. | Robbery alarm station kit. |
| KD3A. | Fire alarm station kit. |
| KD5. | Temporization of stairs kit. |
| KD6A. | Luminosity control station kit. |
| KD8. | Blinds activator kit. |
| KD9A. | Heating control station kit. |
| KD11A. | Network analyzer kit. |
| KD13. | Audio door entry system kit. |
| KD14. | Audio and video door entry system kit. |
| KD15A. | Position control station kit. |
| KD17A. | Photoelectric control position station kit. |
| KD24. | Position switch kit. |

- KD19A. Sound station kit.
- KD22. Flooding control station kit.
- KD23. Wireless basic control station (RF) kit.
- KD25A. Kit of control station for domestic electric services through the telephone.
- KD28A. Kit of integral control station of domestic electric systems.
- KD30. Gas control station kit.
- KD31. Movement and sound detection and control kit.
- KD32. 24 Vac / 12 Vdc circuits analyzer kit.
- KD33. Installations faults simulator kit.

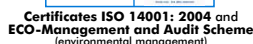
- Industrial Electrical Installations:

- K11. Star-delta starter kit.
- K12. Starter through auto-transformer kit.
- K13. Speed commutator for Dahlander motor kit.
- K14. Starter-inverter kit.
- K15. AC wound rotor motor starter kit.
- K16. DC motor starter kit.
- K17. Kit of automatic change of speed of a Dahlander motor with change of direction.
- K18. Kit of reactive power compensation (Power factor correction).
- K19. Kit of people safety against indirect Electrical contacts in TT neutral regimen.

- K10. Kit of people safety against indirect electrical contacts in TN neutral regimen.
K11. Kit of People safety against indirect electrical contacts in IT neutral regimen.

Energy Installations:

- KE1. Aerial line model kit.
- KE2. Kit of reactive energy control and compensation.
- KE3. Kit of test unit for magneto-thermal automatic switches.
- KE4. Kit of test unit for differential automatic switches.
- KE5. Relay control station kit.
- KE6. Energy counters control station kit.
- KE7. Multi-functional electrical protection station kit.
- KE8. Kit of power & torque measurements of electrical motors.
- KE9. Kit of directional relay: Earth fault detection. Directional power flow detection. Reactive power flow detection.



① Installation Cubicle (BAS-K):

All sides panel with rear and side walls and roof.

Standard dimensions: 1200 x 1000 x 2000 mm. Other dimensions available on request.

② KITS:

Available Kits:

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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. K.../SOF. Computer Aided Instruction Software Packages. Each Kit 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 kit**. (8 manuals normally supplied).

With the kit will be wires kit for doing all the practices the necessary accessories for normal operation.

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

Minimum supply: ① Installation Cubicle + ② one KIT + ⑤ Manuals.

- See **Working possibilities** in page 20.

Domestic Electrical Installations

KD1A. ROBBERY ALARM STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

DET27-K. 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 Elements:

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

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

SEL03-K. 3 Pilot-Lights

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

SEL21-K. Indoor Siren

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

VAR07-K. 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: KD1B. BASIC ROBBERY ALARM STATION KIT. (Includes only the following elements: ALI02-K + ALI03-K + DET27-K + INT32-K (2 units) + SEL03-K + SEL21-K)

KD3A. FIRE ALARM STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

ALA02-K. Fire Alarm Station (with battery)

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

Included Elements:

DET06-K. 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-K. Fire Detector through Ionization for Central

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

SEL21-K. Indoor Siren

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

DET10-K. Water Electro-valve

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

DET22-K. Fire Thermal Detector

- Thermal fire detection.
- NC contacts.

SEL17-K. 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: KD3B. BASIC FIRE ALARM STATION KIT. (Includes only the following elements: ALI02-K + ALI03-K + ALA02-K + DET06-K + DET21-K + SEL21-K)

KD5. TEMPORIZAZION OF STAIRS KIT



ALI02-K. Domestic Main Power Supply

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

CTI10-K. Automatic of Stairs

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

Included Elements:

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

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

LAM13-K. 2 Low Consumption Fluorescent Lamps (2 units)

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

LAM08-K. 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.

KD6A. LUMINOSITY CONTROL STATION KIT



ALI02-K. Domestic Main Power Supply

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

COM14-K. 2 Commutators

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

LAM08-K. 2 Lamp-holders + Incandescent Lamps 40W

- 2 lampholders.
- Two 40 W incandescent lamps.

Included Elements:

REG06-K. Voltage Electronic Regulator (Switch) 40 to 300W /230Vac

- Incandescent, halogen loads.
- Protection fuse 1.6 A.
- 230 Vac.
- 300 W/VA.
- Switch.

INT18-K. 1-pole Switch + 1-pole Switch with Light

- 1 One pole switch.
- 1 One pole switch with light.
- 10 A.
- 250 Vac.
- Domestic use.

LAM10-K. 2 Halogen Lamps

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

LAM09-K. Fluorescent Lamp

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

SEN26-K. 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: KD6B. BASIC LUMINOSITY CONTROL STATION KIT. (Includes only the following elements: ALI02-K + COM14-K + LAM08-K + REG06-K + INT18-K + LAM10-K)

KD8. BLINDS ACTIVATOR KIT



ALI02-K. Domestic Main Power Supply

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

INT22-K. 2 Switches for Blinds

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

DET19-K. 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 Elements:

DET20-K. Light Detector

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

VAR01-K. Motor for Blinds/Curtains

- Connectable to domestic control elements.
- Domotic applications.

PUL29-K. 2 Push-Buttons Group for Blinds (without Interlock)

- 2 push buttons.
- Use for blinds.
- No interlocking between push buttons.
- 10 A.
- 250 Vac.

PUL30-K. 2 Push-Buttons Group for Blinds (with Interlock)

- 2 push buttons.
- Use for blinds.
- With 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.

KD9A. HEATING CONTROL STATION KIT



ALI02-K. Domestic Main Power Supply

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

MED76-K. Thermostat for Heating

- 10 A, 230 Vac.
- 5° to 30° regulation.
- Accuracy 0.25°C.

Included Elements:

MED77-K. Thermostat for Heating and Refrigeration

- 10 A, 230 Vac.
- 5° to 30° regulation.
- Accuracy 0.5°C.
- ON/OFF switch.

SEL09-K. 2 Double Luminous Signalling red-green 230Vac (2 units)

- Red and green light advisers.
- 230 Vac, 3 W.
- Led indicator.

TIM01-K. 2 Bell 70dB,230V (2 units)

- 230 Vac bell.
- 70 dB.

Practical Possibilities:

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

*Option: KD9B. BASIC HEATING CONTROL STATION KIT (Includes only the following elements: ALI02-K+MED76-K+TIM01-K+SEL09-K)

KD11A. NETWORK ANALYZER KIT



ALI01-K. Industrial Main Power Supply

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

MED11-K. AC Ammeter (0-10A)

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

MED25-K. Pointer Frequency Meter (45-65Hz)

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

MED32-K. 1-Phase Wattmeter 230V

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

MED21-K. AC Voltmeter (0-250V)

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

Included Elements:

MED30-K. 1-Phase Phasemeter 230V

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

MED38-K. 1-Phase Varmeter 230V

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

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

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

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

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

MED31-K. 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.

MED39-K. 3-Phase Balanced Varmeter 440V

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

MED33-K. 3-Phase Balanced Wattmeter 440V

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

MED63-K. Synchroscope

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

MED64-K. Phase Sequence Indicator

- Phase sequence indicator.
- 400 Vac.

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: KD11B. BASIC NETWORK ANALYZER KIT. (Includes only the following elements: ALI01-K + MED11-K + MED25-K + MED32-K + MED21-K + MED30-K + MED38-K)

KD13. AUDIO DOOR ENTRY SYSTEM KIT



ALI02-K. Domestic Main Power Supply

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

POR01-K. Phones Power Supply

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

POR02-K. Phone

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

Included Elements:

POR03-K. Interphone

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

POR06-K. Lock

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

Practical Possibilities:

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

KD14. AUDIO AND VIDEO DOOR ENTRY SYSTEM KIT



ALI02-K. Domestic Main Power Supply

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

POR06-K. Lock

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

Included Elements:

POR05-K. Phone/Monitor

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

POR04-K. Video Camera

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

POR07-K. Digital Station

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

POR08. Video-Interphone Power Supply

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

Practical Possibilities:

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

KD15A. POSITION CONTROL STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

INT14-K. 1-pole 2 Switches

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

Included Elements:

SEL01-K. Light Signalling Beacons

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

SEN04-K. Cylindrical Inductive Proximity Sensor type PNP

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

SEN14-K. AC Cylindrical Capacitive Proximity Sensor

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

SEN29-K. AC Cylindrical Inductive Proximity Sensor

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

SEN01-K. Instantaneous Micro-Switch

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

SEN26-K. Presence and Movement Sensor (Wall)

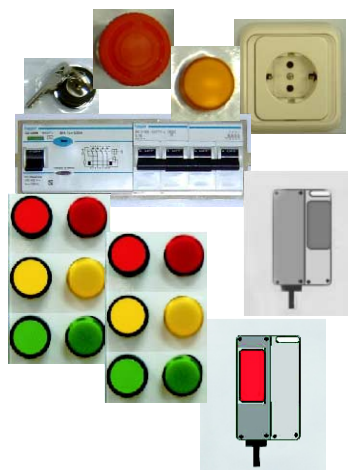
- 0 to 180° detection.
- 12m.
- Timing 5 sec.-12min.
- Glow regulation 2-1000 lux.
- Ip44.

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: KD15B. BASIC POSITION CONTROL STATION KIT. (Includes only the following elements: ALI02-K + ALI03-K + INT14-K + SEL01-K + SEN04-K + SEN14-K+ SEN29-K)

KD17A. PHOTOELECTRIC CONTROL POSITION STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

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

SEN18-K. Cylindrical Photoelectric Sensor

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

Included Elements:

SEN19-K. Miniature Photoelectric Sensor

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

SEN20-K. Compact Photoelectric Sensor

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

SEN21-K. Barrier Photoelectric Sensor (Emitter)

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

SEN22-K. Barrier Photoelectric Sensor (Receptor)

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

SEN23-K. Reflecting Photoelectric Sensor (Emitter)

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

SEN24-K. 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: KD17B. BASIC PHOTOELECTRIC CONTROL STATION KIT. (Includes only the following elements: ALI02-K+ALI03-K+LAM04-K+SEN18-K+SEN19-K+SEN20-K)

KD24. POSITION SWITCH KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

Included Elements:

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

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

SEN01-K. Instantaneous Micro-switch

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

Practical Possibilities:

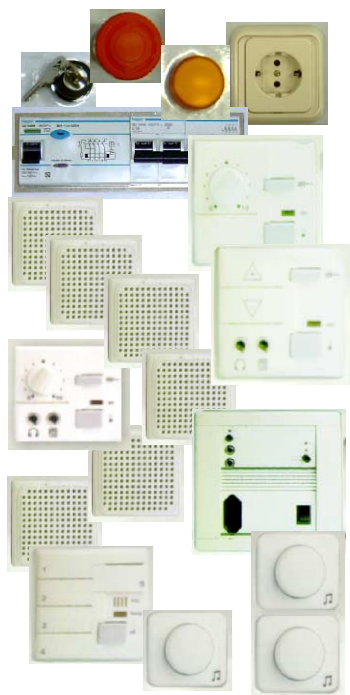
SEN02-K. MBB Micro-switch

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

SEN03-K. BBM Micro-switch

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

KD19A. SOUND STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

AUD01-K. Analog Sound Regulator

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

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

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

- 1.- Mono-stereo system installation.
- 2.- Mono system with warnings reception.
- 3.- Mono-stereo system installation with warnings reception.

Included Elements:

AUD06-K. Basic Audio Central

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

AUD20-K. 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-K. Digital Sound Regulator

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

Practical Possibilities:

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

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

AUD03-K. Warnings Emitter Module

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

AUD08-K. Background Music Regulator 3W

- 3 W.
- 27 ohms.

AUD10-K. Double Background Music Regulator

- 5 + 5 W.
- 47 ohms.

- 4.- Stereo system installation with warnings reception.
- 5.- Background Music installation.

*Option: KD19M. INTERMEDIATE SOUND STATION KIT. (Includes only the following elements: ALI02-K + ALI03-K + AUD01-K + AUD04-K (3 units) + AUD06-K + AUD20-K + AUD02-K + AUD05-K (3 units) + AUD03-K)

*Option: KD19B. BASIC SOUND STATION KIT. (Includes only the following elements: ALI02-K + ALI03-K + AUD01-K + AUD04-K (3 units) + AUD06-K + AUD20-K)

KD22. FLOODING CONTROL STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

DET03-K. Fitted Power Supply (gas and flooding detector)

- 12 Vac.
- Service Led.

Included Elements:

DET04-K. 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-K. Water Electro-valve

- NO contact for water supply control.
- Automatic resetting.
- 230 Vac, 50/60 Hz.
- 1p54.

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

- Probe for water electro-valve.

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 electro-valve.

SEL03-K. 3 Pilot-Lights

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

SEL21-K. Indoor Siren

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

KD23. WIRELESS BASIC CONTROL STATION (RF) KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

DET13-K. Wireless Intrusion Detector RF

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

Included Elements:

DET14-K. Wireless Panic Push-button RF

- 32x53 x17 mm.
- Radio frequency communication.
- 12 Vdc alkaline battery.

DET15-K. Wireless 1-channel Receptor RF

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

SEL01-K. Light Signalling Beacons

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

TIM05-K. Bell + Buzzer

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

Practical Possibilities:

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

KD25A. KIT OF CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

CTR01-K. Basic Control Element

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

DET01-K. Flooding Detector

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

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

- 12 Vac.
- Service Led.

DET04-K. 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-K. 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-K. 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-K. Water Electro-valve

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

DET12-K. Gas Electro-valve

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

DET13-K. Wireless Intrusion Detector RF

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

DET14-K. Wireless Panic Push-button RF

- 32x53 x17 mm.
- Radio frequency communication.
- 12 Vdc alkaline battery.

DET15-K. Wireless 1-channel Receptor RF

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

VAR05-K. 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: **KD25M. KIT OF MEDIUM CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE** (Includes only the following elements: ALI02-K + ALI03-K + CTR01-K + DET01-K + DET03-K (3 units) + DET04-K + DET05-K + DET06-K + DET10-K + DET12-K + VAR05-K)

*Option: **KD25B. KIT OF BASIC CONTROL STATION FOR DOMESTIC ELECTRIC SERVICES THROUGH THE TELEPHONE** (Includes only the following modules: ALI02-K + ALI03-K + DET03-K (3 units) + DET04-K + DET05-K + DET06-K + DET10-K + DET12-K)

KD28A. KIT OF INTEGRAL CONTROL STATION OF DOMESTIC ELECTRIC SYSTEMS



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

CTR02-K. Advanced Control Element

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

CTR05-K. Power Element 72W

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

CTR07-K. Timers Element

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

CTR08-K. Inputs Element 24V.

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

CTR11-K. Outputs Element 24V.

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

Included Elements:

CTR17-K. Infrared Remote Control for Control Elements

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

CTR18-K. Infrared Receptor

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

DET04-K. 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-K. 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-K. 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-K. Intrusion Detector for domestic control

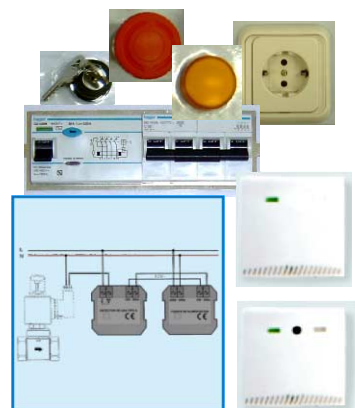
- Intrusion detection.
- Led alarm.
- Power supply through control element.

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: KD28B. KIT OF BASIC INTEGRAL CONTROL STATION OF DOMESTIC ELECTRIC SYSTEMS. (Includes only the following modules: ALI02-K + ALI03-K + CTR02-K + CTR05-K + CTR07-K + CTR08-K + CTR11-K + DET04-K + DET05-K + DET06-K + VAR08-K)

KD30. GAS CONTROL STATION KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

DET12-K. Gas Electro-valve

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

Included Elements:

DET03-K. Fitted Power Supply (gas and flooding detector)

- 12 Vac.
- Service Led.

DET02-K. 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.

KD31. MOVEMENT AND SOUND DETECTION AND CONTROL KIT



ALI02-K. Domestic Main Power Supply

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

INT15-K. 2 Switches with Light

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

Included Elements:

LAM08-K. 2 Lamp-holders + Incandescent Lamps 40W

- 2 lampholders.
- Two 40 W incandescent lamps.

INT31-K. Intrusion Switch/Detector from 40 to 300W

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

LAM10-K. 2 Halogen Lamps

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

PUL22-K. 2 Light Push-Buttons

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

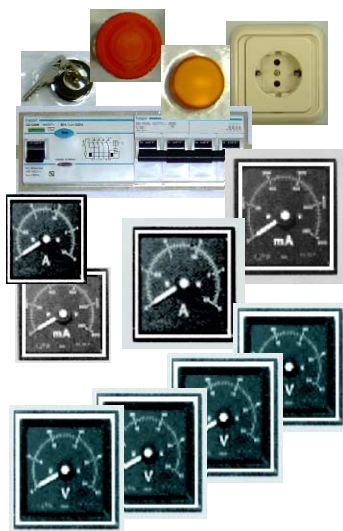
TIM05-K. Bell + Buzzer

- 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.

KD32. 24Vac/12Vdc CIRCUITS ANALYZER KIT



ALI02-K. Domestic Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

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

Included Elements:

MED04-K. DC Milliammeter (0-600 mA)

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

MED05-K. DC Ammeter (0-1.5A)

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

MED08-K. AC Milliammeter (0-600mA)

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

MED09-K. AC Ammeter (0-2.5A)

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

MED15-K. DC Voltmeter (0-5V)

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

MED16-K. DC Voltmeter (0-50V)

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

MED19-K. AC Voltmeter (0-10V)

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

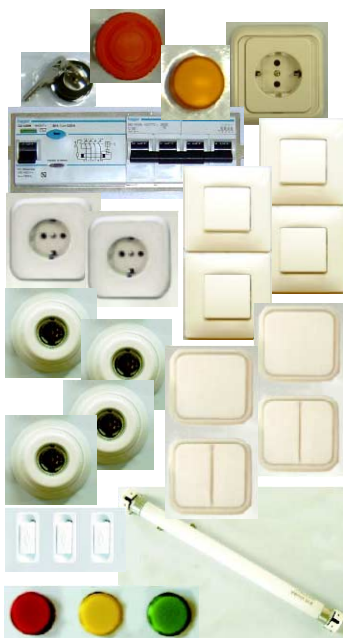
MED20-K. AC Voltmeter (0-60V)

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

Practical Possibilities:

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

KD33. INSTALLATIONS FAULTS SIMULATOR KIT



ALI02-K. Domestic Main Power Supply

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

COM14-K. 2 Commutators (2 units)

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

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

- 2 pole socket.
- Security.

Included Elements:

COM21-K. 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-K. Lamps

- 3 Lamps.
- 230 Vac.

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

- 2 lampholders.
- Two 40 W incandescent lamps.

LAM09-K. Fluorescent Lamp

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

MED65-K. Digital Multimeter

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

FUS04-K. 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.

KI1. STAR-DELTA STARTER KIT



ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

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

Included Elements:

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

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

MED60-K. Network Analyzer

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

PUL04-K. Push-Buttons with Light (24Vac)

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

REL02-K. 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-K. Time Relay (0.6-60 sec.)

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

VAR02-K. 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.

KI2. STARTER THROUGH AUTO-TRANSFORMER KIT



ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

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

Included Elements:

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

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

MED60-K. Network Analyzer

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

PUL04-K. Push-Buttons with Light (24Vac)

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

REL02-K. 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-K. Time Relay (0.6-60 sec.)

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

TRA14-K. 3-Phase Auto-transformer

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

VAR02-K. 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.

KI3. SPEED COMMUTATOR FOR DAHLANDER MOTOR KIT



ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

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

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

Included Elements:

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

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

MED60-K. Network Analyzer

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

PUL04-K. Push-Buttons with Light (24Vac)

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

REL02-K. 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-K. Time Relay (0.6-60 sec.)

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

VAR03-K. 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.

KI4. STARTER-INVERTER KIT



ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

CON02-K. 3-pole Contactor (220Vac)

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

Included Elements:

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

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

MED60-K. Network Analyzer

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

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

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

REL05-K. 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-K. 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.

KI5. AC WOUND ROTOR MOTOR STARTER KIT



ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

VAR06-K. Motor (EMT8) (wound rotor)

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

Included Elements:

CAR22-K. AC Starting Rheostat

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

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

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

PUL04-K. Push-Buttons with Light (24Vac)

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

CON01-K. 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.

KI6. DC MOTOR STARTER KIT



ALI01-K. Industrial Main Power Supply

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

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

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

VAR04-K. Motor (EMT5) (DC motor)

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

Included Elements:

CAR23-K. DC Starting Rheostat

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

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

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

PUL04-K. Push-Buttons with Light (24Vac)

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

CAR20-K. Diodes and Thyristors

- Rectifier bridge.
- Control thyristors.

CON03-K. 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.

K17. KIT OF AUTOMATIC CHANGE OF SPEED OF A DAHLANDER MOTOR WITH CHANGE OF DIRECTION

Included Elements:

ALI01-K. Industrial Main Power Supply

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

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

- Classic industrial push button.
- Led indicator.

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

- Classic industrial push button.
- Led indicator.

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

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

VAR03-K. Motor (EMT9) (Dahlander motor)

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

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

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

REL05-K. 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.

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.



K18. KIT OF REACTIVE POWER COMPENSATION (POWER FACTOR CORRECTION)

Included Elements:

ALI02-K. Domestic Main Power Supply

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

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

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

MED60B-K. Network Analyzer with active and reactive energy counters

CAR04-K. Variable Resistive Load, 150 ohm, 500W

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

CAR09-K. 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 Kits

Industrial Electrical Installations (continuation)

KI9. KIT OF PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN TT NEUTRAL REGIMEN

Included Elements:

ALI01-K. Industrial Main Power Supply

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

Resistance 1600 Ω

COM12-K. Commutator/Switch

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

TRA12-K. 3-Phase Current Transformer

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

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

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

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

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

PUL11-K. 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.



KI10. KIT OF PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN TN NEUTRAL REGIMEN

Included Elements:

ALI01-K. Industrial Main Power Supply

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

TRA12-K. 3-Phase Current Transformer

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

Resistance 200 W

COM12-K. Commutator/Switch (2 units)

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

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

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

Resistance 100 Ω , 72W.

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.



KI11. KIT OF PEOPLE SAFETY AGAINST INDIRECT ELECTRICAL CONTACTS IN IT NEUTRAL REGIMEN

Included Modules:

ALI01-K. Industrial Main Power Supply

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

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

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

Resistance 10 Ω

INT01-K. 1-pole Load Switch (2 units).

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

Resistance 100 Ω

CPA-K. Isolation Permanent Controller

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.



KE1. AERIAL LINE MODEL KIT



Included Elements:

ALI01-K. Industrial Main Power Supply

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

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

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

CAR11-K. 3-phase Capacitive Load

- 3 x 4.7microF.

CAR14-K. 3-phase Inductive Load

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

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

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

CAR18-K. Aerial Line Model

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

TRA18-K. Petersen Coil

- Connectable to star transformes.
- Earth protection.

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.

KE2. KIT OF REACTIVE ENERGY CONTROL AND COMPENSATION



Included Elements:

ALI01-K. Industrial Main Power Supply

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

CAR14-K. 3-phase Inductive Load

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

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

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

CAR11-K. 3-phase Capacitive Load

- 3 x 4.7microF.

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.

KE3. KIT OF TEST UNIT FOR MAGNETO-THERMAL AUTOMATIC SWITCHES



Included Elements:

ALI01-K. Industrial Main Power Supply

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

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

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

CAR04-K. Variable Resistive Load, 150 ohm, 500W

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

TRA19-K. 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.

KE4. KIT OF TEST UNIT FOR DIFFERENTIAL AUTOMATIC SWITCHES



Included Elements:

ALI01-K. Industrial Main Power Supply

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

CAR04-K. Variable Resistive Load, 150 ohm, 500W

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

IAD01-K. 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.

KE5. RELAY CONTROL STATION KIT



Included Elements:

ALI01-K. Industrial Main Power Supply

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

TRA10-K. Current Transformer 25/5A

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

REL23-K. Overcurrent Relay and Fault to Earth

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

CAR18-K. Aerial Line Model

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

CON01-K. 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.

KE6. ENERGY COUNTERS CONTROL STATION KIT



Included Elements:

ALI01-K. Industrial Main Power Supply

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

TRA10-K. Current Transformer 25/5A

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

CAR01-K. Fixed Resistive Load, 150 ohm, 500 W

- 150 ohms.
- 500 W.

MED72-K. Energy Counter

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

TRA04-K. 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.

KE7. MULTI-FUNCTIONAL ELECTRICAL PROTECTION STATION KIT



Included Elements:

ALI01-K. Industrial Main Power Supply

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

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

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

CAR11-K. 3-phase Capacitive Load

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

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

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

REL22-K. Multi-function Protection Relay (software included)

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

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

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

CAR14-K. 3-phase Inductive Load

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

TRA10-K. 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.

KE8. KIT OF POWER & TORQUE MEASUREMENTS OF ELECTRICAL MOTORS



Included Elements:

ALI01-K. Industrial Main Power Supply

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

ALI03-K. AC Auxiliary Power Supply (24Vac)

- 230 / 24 Vac transformer.

CON02-K. 3-pole Contactor (220Vac)

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

PUL11-K. 2 Double Push-Buttons (230Vac)

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

REL08-K. 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 NO/NC contact.
- Temporization.

MED60-K. Network Analyzer

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

VAR02-K. 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.

KE9. KIT OF DIRECTIONAL RELAY: EARTH FAULT DETECTION. DIRECTIONAL POWER FLOW DETECTION. REACTIVE POWER FLOW DETECTION



Included Elements:

ALI01-K. Industrial Main Power Supply

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

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

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

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

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

CAR11-K. 3-Phase Capacitive Load

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

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

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

CAR14-K. 3-phase Inductive Load

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

TRA10-K. Current Transformer 25/5A

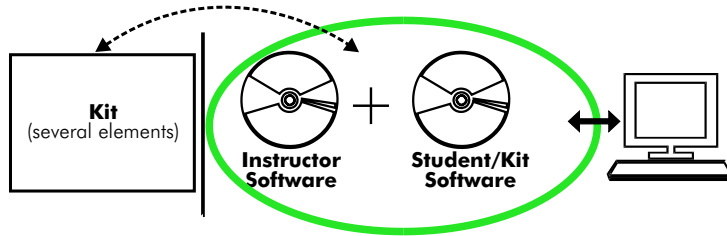
- Single-phase current transformer.
- 2.5 VA.
- 25/5 A transformation.
- 3% precision.

REL20-K. 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.



With no physical connection between kit and computer, this complete package consists on an Instructor Software (INS/SOF) totally integrated with the Student/Kit Software (K.../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 kits, and working in network configuration, allows controlling all the students in the classroom.

K.../SOF Computer Aided Instruction Software Packages (Student/Kit Software).

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

Each Kit has its own Student Software package.

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

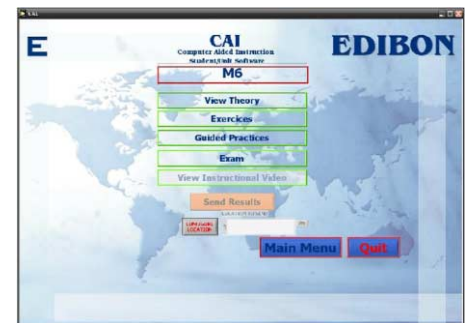
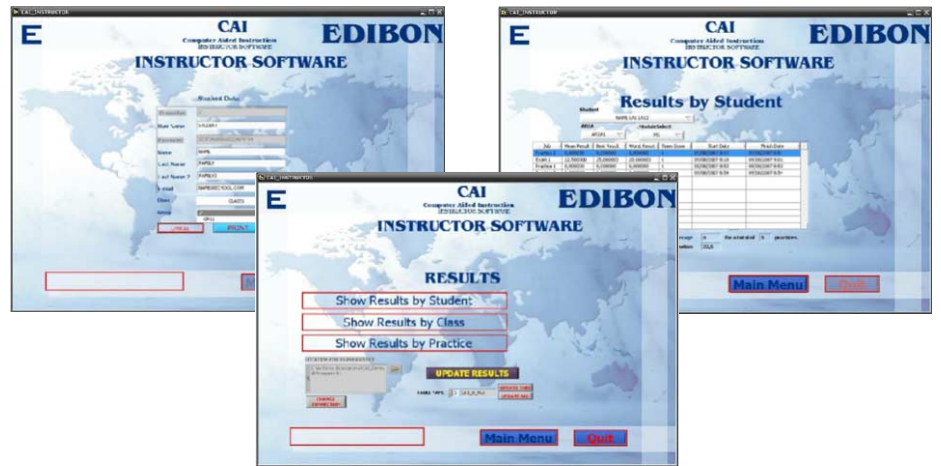
Theory: that gives the student the theoretical background for a total understanding of the studied subject.

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.

Examples of some software screens



Available Student/Kits Software Packages:

•Domestic Electrical Installations:

- KD1A/SOF. Robbery alarm station.
- KD3A/SOF. Fire alarm station.
- KD5/SOF. Temporization of stairs.
- KD6A/SOF. Luminosity control station.
- KD8/SOF. Blinds activator.
- KD9A/SOF. Heating control station.
- KD11A/SOF. Network analyzer.
- KD13/SOF. Audio door entry system.
- KD14/SOF. Audio and video door entry system.
- KD15A/SOF. Position control station.
- KD17A/SOF. Photoelectric control position station.
- KD24/SOF. Position Switch.

KD19A/SOF. Sound station.

- KD22/SOF. Flooding control station.
- KD23/SOF. Wireless basic control station (RF).
- KD25A/SOF. Control station for domestic electric services through the telephone.
- KD28A/SOF. Integral control station of domestic electric systems.
- KD30/SOF. Gas control station.
- KD31/SOF. Movement and sound detection and control.
- KD32/SOF. 24 Vac / 12 Vdc circuits analyzer.
- KD33/SOF. Installations faults simulator.

•Industrial Electrical Installations:

- KI1/SOF. Star-delta starter.
- KI2/SOF. Starter through auto-transformer.
- KI3/SOF. Speed commutator for Dahlander motor.
- KI4/SOF. Starter-inverter.
- KI5/SOF. AC wound rotor motor starter.
- KI6/SOF. DC motor starter.
- KI7/SOF. Automatic change of speed of a Dahlander motor with change of direction.
- KI8/SOF. Reactive power compensation (Power factor correction).
- KI9/SOF. People safety against indirect electrical contacts in TT neutral regimen.

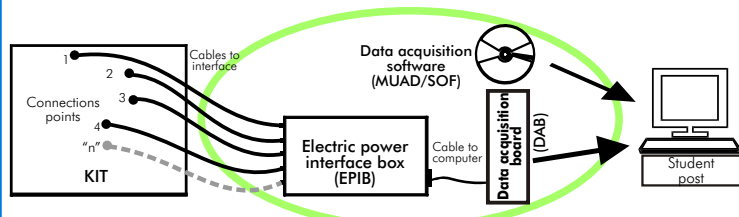
KI10/SOF. People safety against indirect electrical contacts in TN neutral regimen.

KI11/SOF. People safety against indirect electrical contacts in IT neutral regimen.

Energy Installations:

- KE1/SOF. Aerial line model.
- KE2/SOF. Reactive energy control and compensation.
- KE3/SOF. Test unit for magneto-thermal automatic switches.
- KE4/SOF. Test unit for differential automatic switches.
- KE5/SOF. Relay control station.
- KE6/SOF. Energy counters control station.
- KE7/SOF. Multi-functional electrical protection station.
- KE8/SOF. Power & torque measurements of electrical motors.
- KE9/SOF. Directional Relay: Earth fault detection. Directional power flow detection. Reactive power flow detection.

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



MUAD is the perfect link between the kit 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 kit 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.):

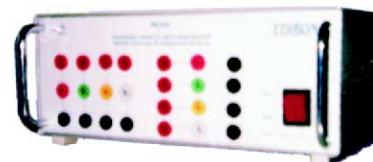
Interface that carries out the conditioning of the diverse signals that can be acquired in a process, for their later treatment and visualisation.

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.

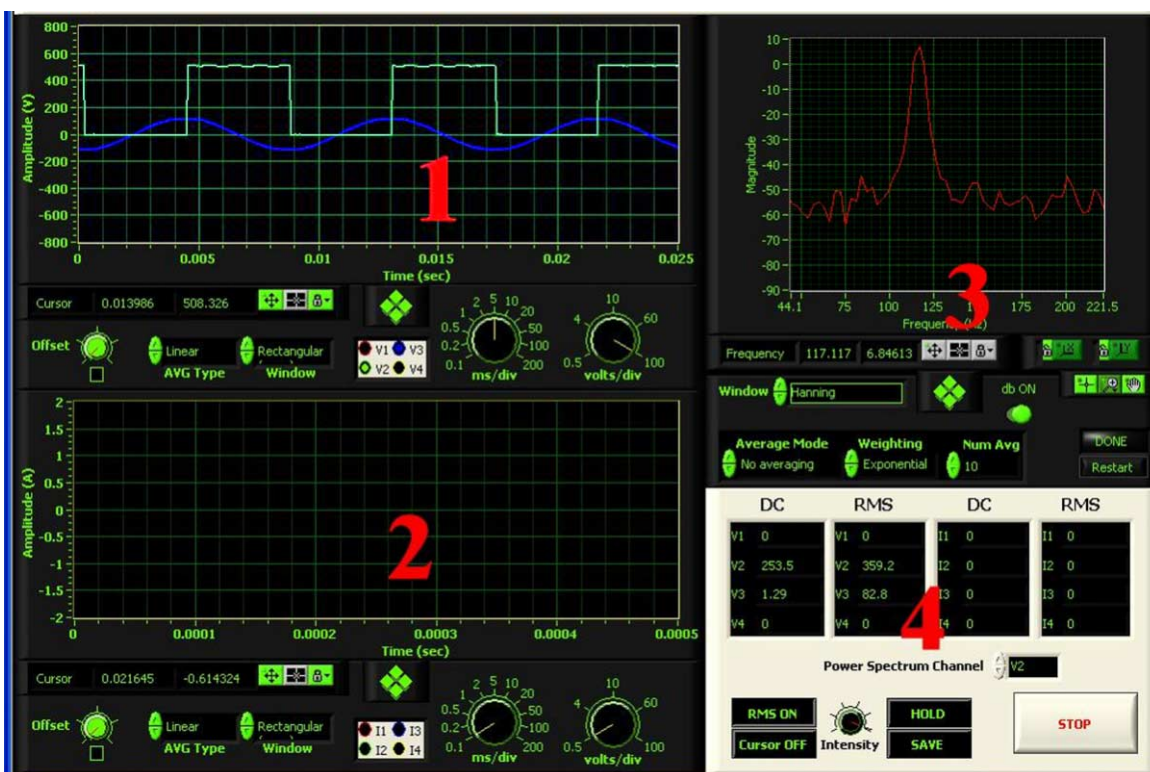
Sampling velocity up to 250 ks/s. (Kilo samples per second) guaranteed.

* 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 kit.

5.2) Accessories:

With the each kit will be supplied a wires kit for doing all practices and the necessary accessories for normal operation.

Working possibilities:

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



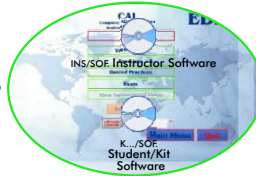
Installation Cubicle

+



Kit

+



CAI.Computer Aided
Instruction Software System

+

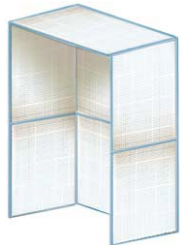


MUAD
Power Data Acquisition System

+

Manuals

2) Working possibility MUAD



Installation Cubicle

+



Kit

+



MUAD
Power Data Acquisition System

+

Manuals

3) Working possibility CAI



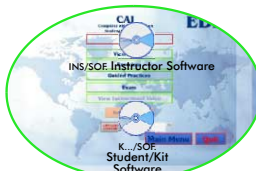
Installation Cubicle

+



Kit

+



CAI.Computer Aided
Instruction Software System

+

Manuals

4) Simplest Working possibility



Installation Cubicle

+



Kit

+

Manuals

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



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REPRESENTATIVE: