LANGLOIS

EDUCATIONAL SOLUTIONS

2025

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KNX TECHNOLOGY
STUDY OF WIRING AND PROGRAMMING

Technical datasheets on our website

Specially designed for study and training in the KNX automation technology present in residential and tertiary premises as part of RT2012, these instructional solutions enable the acquisition and validation of the skills in a realistic eco-responsible environment.

EDUCATIONAL OBJECTIVES

- Discover the domestic automation environment of an electrical installation
- Discover and study the functionalities of a multi-brand KNX installation
- Understand the specifications of an electrical installation
- Drawing electrical diagrams
- Produce a component bill of materials
- Analyze the manufacturer's technical sheets
- Install electrical equipment
- Passing conductor cables and electrical ducts...
- Wiring and physically connecting various electrical components
- Carry out the parameterization of KNX components
- Carry out the commissioning of the installation
- Carry out electrical repairs

TEACHING FILE SUPPLIED

Teaching instructions in English on DVD-rom format Teacher / Students, including:

- Technical instructions, manufacturer resources for KNX components
- Extracts of electrical standards
- Layout diagram of the components
- Electric wiring diagram
- Different KNX installation programs
- Educational activities (6 dor DP1 / 12 for DP3) to create scenarios in order to optimize the operation of the installation while preserving the comfort of the occupant.
- Questionnaires for skills assessments of the question / answer type (under Excel® software). An administrator password allows the teacher to correct the student's assessment and modify the questions / answers if necessary

5-PANEL SYSTEM - 5 SCREEN PRINTED FACES

ref. DP5-KNX

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | COMPOSANTS ÉLECTRIQUES SIMULÉS

3-PANEL SYSTEM - 3 SCREEN PRINTED FACES

ref. DP3-KNX-C

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

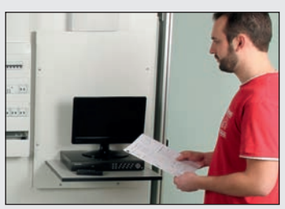
ref. DP3-KNX **Unwired version with components supplied in kit form**

AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

OPTIONAL KITS INTEGRABLE ON THE DP5-KNX

ANALOGUE VIDEOSURVEILLANCE

- 1 Lan 500GB video recorder with mouse and remote control. 4 Video inputs. Integrated web server(PC / MAC compatible).
  - Recording on detection, Live viewing, Recording on time slot, Multi-user profiles
- 1 17-inch color LCD monitor.
- 2 swiveling color cameras
  - 3.6mm fixed lens - Resolution 700 lines
  - Day / night function - Integrated infrared lighting (20m)



ref. KX-3D5

WIRE ANTI-INTRUSION ALARM

- 1 central alarm 2 zones self-powered on battery and 230V mains
- 4 infrared presence detectors
- 1 siren with flashing light
- 1 code keypad

ref. KX-3D2

AUDIO DOOR

Wired audio door entry unit composed of:

- 1 IP54 surface mounted door station
- 1 interior intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D3

VIDEO DOOR

Wired video door entry unit composed of:

- 1 IP54 surface mounted door station
- 1 indoor video intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D4

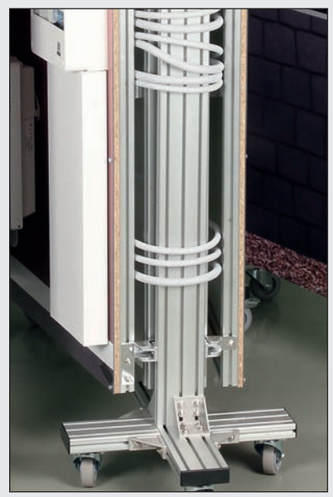
1 PANEL SYSTEM – 2 SCREEN PRINTED FACES

ref. DP1-KNX

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

Foldable and mobile structure

Disassembly of plates



Easy ICTA sheaths passing

INTRODUCTORY CASE AND MODEL FOR THE KNX BUS

EDUCATIONAL OBJECTIVES

- Discover the HOME AUTOMATION environment of an electrical installation
- Discover and study the functionalities of a KNX home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component nomenclature
- Analyze manufacturer technical sheets
- Configure KNX components
- Create the wiring and connection of electrical components using flying wires
- Commission the installation
- -C versions only:
  Configure a WIFI network for control on a tablet or smartphone

SUPPLIED FULLY WIRED AND CONFIGURED | AUTONOMOUS WIFI NETWORK | PARTNER KNX
TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

ref. VALDOM-KNX2-C — **Communicating version**

ref. VALDOM-KNX2 — **version without Wifi**

ref. MAQ-KNX-C — **Communicating version**

ref. MAQ-KNX — **version without Wifi**

Dims : H780 x 210 x 280mm

Pushbuttons are easily removable without a tool to facilitate access to the programming buttons.

Technical datasheets on our website

KNX / DALI TECHNOLOGY - SMART OFFICE BUILDING

EDUCATIONAL OBJECTIVES

- Discover the building automation environment of a simulated tertiary electrical installation.
- Discover, study the functionalities of a KNX installation
- Discover DALI lighting technology
- Understand the specifications of an electrical installation
- Make electrical diagrams
- Create a bill of components
- Analyze manufacturers' data sheets
- Configure the KNX components
- Carry out the wiring and connection of electrical components on industrial terminals (depending on version).
- Carry out the commissioning of the installation
- Configure the variable lighting of different technologies including DALI

SUPPLIED FULLY WIRED AND CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

ref. ITC-KNX

PARTNER KNX | DALI

KNX CONNECTED HOUSES

Technical datasheets on our website

SUPPLIED FULLY WIRED AND CONFIGURED | AUTONOMOUS WIFI NETWORK | PARTNER KNX
TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

A chassis with wheels in aluminum profile
- Dimensions: (W)1200 x (D)700 x (H)1700mm - Weight: 92kg

ref. MCP-KNX-R — **Version with wheels**

EDUCATIONAL OBJECTIVES

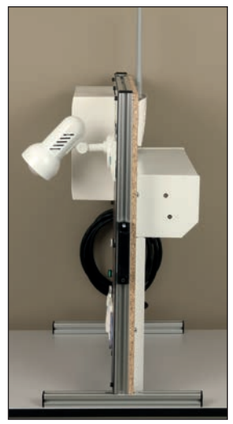
- To learn about the HOME AUTOMATION environment of a simulated electrical installation
- To learn about and study the features of a KNX multi-brand home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams
- To create a parts list of components
- To analyze manufacturer technical datasheets
- To configure the KNX components
- To perform wiring and connection of electrical components in jumper wires on industrial terminals to avoid wear of component terminals
- To put installation into service
- To configure the WiFi network for control via tablet or Smartphone

Delivered configured with ETS software + 20-participant dongle enabling configuration of KNX components

A chassis in aluminium profile to put on table
- Dimensions: (W)1200 x (D)410 x (H)845mm - Weight: 68kg

ref. MCP-KNX — **Version on table**

ref. MC-KNX-2



The set of switches of habitat type and KNX are integrated on the front panel. A translucent plate on the universal adapter, covers the connectors and protects electrical contacts, only the programming buttons remain accessible.

STUDY SYSTEM FOR THE KNX BUS - COMPLETE SOLUTION

With "KNX PARTNER" certified manufacture, the QUICK-KNX model enables the study and putting into service of multibrand KNX products. The KNX devices are prepared in plastic housings with the front engraved and equipped with Ø4mm terminals.

EDUCATIONAL OBJECTIVES

- Studying KNX communication media
- Studying the principle of a home control installation with KNX devices
- Configuration of KNX devices
- Creating the wiring of KNX devices
- Creating home control scenarios

Sockets on the back of the console for connecting the modules

Réf. QUICK-KNXPLUS

SUPPLIED CONFIGURED | TEACHING RESSOURCES STUDENT / TEACHER | ELECTRICAL COMPONENTS SIMULATED

Study of the KNX bus - Autonomous subassemblies

Study of lighting control by pushbutton

ref. QUICK-AK1 with frame

Study of variation lighting control by pushbutton

ref. QUICK-AK2 with frame

Study of lighting control by presence detector

ref. QUICK-AK3 with frame

Study of roller blind control by pushbutton

ref. QUICK-AK4 with frame

Study of opening control of gate and garage door

ref. QUICK-AK5 with frame

Frame : Height 610mm - Width 590mm
Each reference is supplied with a lot of safety leads for wiring the modules. General power supply via 230VAC mains lead of 1.5m provided.

Technical datasheets on our website

ENOCEAN TECHNOLOGY

STUDY OF WIRING AND PROGRAMMING 3-PANEL SYSTEM - 3 SCREEN-PRINTED FACES

Technical datasheets on our website

EDUCATIONAL OBJECTIVES

- Discover the HOME AUTOMATION environment of an electrical installation
- Study the functionalities of an ENOCEAN® radio home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component nomenclature
- Analyze manufacturer technical sheets
- Install electrical equipment, run conductive cables, electrical conduits, etc.
- Create the wiring and connect different electrical components
- Configure ENOCEAN® components
- Commission the installation
- Take electrical consumption measurements
- Perform electrical troubleshooting
- Configure a WIFI network for control on a tablet or Smartphone

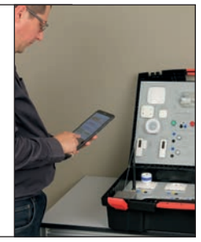
ref. DP3-ENO — **Available in 1 or 5 panels. Contact us**

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

ENOCEAN TECHNOLOGY INTRODUCTORY CASE & MODEL

EDUCATIONAL OBJECTIVES

- To learn about the HOME AUTOMATION environment of an electrical installation
- To study the features of an ENOCEAN home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams and create a parts list of components
- To analyse manufacturer technical data sheets
- To configure the ENOCEAN components
- To put the MyHome installation into service
- To configure a Wifi network for control via a tablet or smartphone.



ref. VALDOM-ENO

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | ELECTRICAL COMPONENTS SIMULATED

Case with ergonomic handle. Dimensions 534 x 374 x 190mm. Supply by power cord 230V-2P + E.

ref. MAQ-ENO

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | ELECTRICAL COMPONENTS SIMULATED

Pushbuttons are easily removable without a tool to facilitate access to the programming buttons.

Technical datasheets on our website

MYHOME TECHNOLOGY
STUDY OF WIRING AND PROGRAMMING

MY HOME legrand

EDUCATIONAL OBJECTIVES

- Discover the HOME AUTOMATION environment of an electrical installation
- Study the functionalities of a MyHome BUS / SCS Legrand® home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component parts list and analyze manufacturer technical sheets
- Install electrical equipment, run conductive cables, electrical conduits, etc.
- Create the wiring and physically connect different electrical components
- Configure the MyHome Legrand® components
- Commission the installation
- Take electrical consumption measurements (DP3 and DP5 versions only)
- Perform electrical troubleshooting

Specially designed for study and training in the MYHOME automation technology present in residential and tertiary premises as part of RT2012, these instructional solutions enable the acquisition and validation of the skills in a realistic eco-responsible environment.

PDF Technical datasheets on our website

TEACHING FILE SUPPLIED

Teaching instructions in English on USB key format Teacher / Students, including:

- Technical manuals, manufacturer resources for MyHome components
- Extracts from electrical standards
- Component layout diagram
- Electrical wiring diagram
- Educational activities to create scenarios in order to optimize the operation of the installation while preserving the comfort of the occupant.
- Questionnaires for skills assessments of the question / answer type (under Excel® software). An administrator password allows the teacher to correct the student's assessment and modify the questions / answers if necessary

5-PANEL SYSTEM - 5 SCREEN PRINTED FACES

ref. DP5-MH

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | ELECTRICAL COMPONENTS SIMULATED

3-PANEL SYSTEM - 3 SCREEN PRINTED FACES

ref. DP3-MH-C

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

ref. DP3-MH — **Version non câblée avec composants en kit**

AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

1 PANEL SYSTEM – 2 SCREEN PRINTED FACES

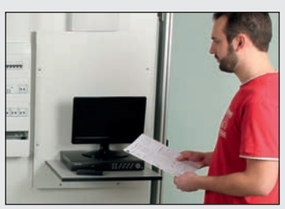
ref. DP1-MH

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

OPTIONAL KITS INTEGRABLE ON THE DP5-MH

ANALOGUE VIDEOSURVEILLANCE

- 1 Lan 500GB video recorder with mouse and remote control. 4 Video inputs. Integrated web server(PC / MAC compatible).
  - Recording on detection, Live viewing, Recording on time slot, Multi-user profiles
- 1 17-inch color LCD monitor.
- 2 swiveling color cameras
  - 3.6mm fixed lens - Resolution 700 lines
  - Day / night function - Integrated infrared lighting (20m)



ref. KX-3D5

WIRE ANTI-INTRUSION ALARM

- 1 central alarm 2 zones self-powered on battery and 230V mains
- 4 infrared presence detectors
- 1 siren with flashing light
- 1 code keypad

ref. KX-3D2

AUDIO DOOR

Wired audio door entry unit composed of:

- 1 IP54 surface mounted door station
- 1 interior intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D3

VIDEO DOOR

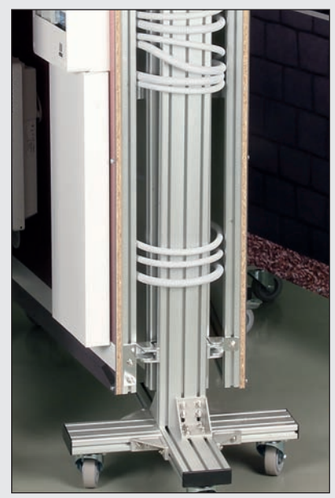
Wired video door entry unit composed of:

- 1 IP54 surface mounted door station
- 1 indoor video intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D4

Foldable and mobile structure

Disassembly of plates



ICTA sheaths passing

Technical datasheets on our website

MY HOME legrand

MYHOME TECHNOLOGY
INTRODUCTORY CASE & MODEL

EDUCATIONAL OBJECTIVES

- To learn about the HOME AUTOMATION environment of an electrical installation
- To learn about and study the features of a MyHome home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams
- To create a parts list of components
- To analyse manufacturer technical data sheets
- To configure the MyHome components
- To put the MyHome installation into service
- To configure a Wifi network for control via a tablet or smartphone.

Learn about MyHome building automation technology quickly and easily.
A WiFi switch + IP interface unit lets the student measure consumption and control the installation from a tablet or smartphone. The WiFi network created locally is specific to the model,so it is isolated from your institution's WiFi network.

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

ref. VALDOM-MH

Case with ergonomic handle.
Dimensions 534 x 374 x 190mm.
Supply by power cord 230V-2P + E.

Dim : H780 x 210 x 280mm

ref. MAQ-MH

Pushbuttons are easily removable without a tool to facilitate access to the programming buttons.

MYHOME COMPLETE CONNECTED HOUSE

EDUCATIONAL OBJECTIVES

- Discover the Home Automation environment of a simulated electrical installation.
- Discover and study the features of a SCS Bus MyHome LEGRAND home automation system
- Understand the specifications of an electrical installation
- Make electrical diagrams
- Produce a components nomenclature
- Analyze the manufacturer datasheets
- Perform parameter setting of MyHome components
- Carry out the wiring and the connection of the electrical components to flying wires on industrial terminals to prevent wear of component terminals.
- Perform the commissioning of the installation
- Perform a WIFI network setting for control on tablet or Smartphone

All of the configurable standard and MyHome switches are integrated on the front panel.
A translucent plate on the universal adapter covers the connectors and protects against electrical contacts.
The programming of MyHome components does not require any disassembly on said components, thus improving their lifespan.

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | COMPOSANTS ÉLECTRIQUES SIMULÉS

A chassis in aluminum profile to put on a table
• Dimensions : (W)1200 x (D)410 x (H)845mm - Weight: 70 kg

ref. MCP-MH — **Version to put on a table**

A chassis with wheels in aluminum profile
• Dims : (W)1200 x (D)700 x (H)1700mm - Weight: 94 kg

ref. MCP-MH-R — **Version with wheels**

INTRODUCTORY CASE NETATMO

ref. VALDOM-NET

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

EDUCATIONAL OBJECTIVES

- To learn about the HOME AUTOMATION environment of an electrical installation
- Learn and study the features of a NETATMO home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams
- To create a parts list of components and analyse manufacturer technical data sheets
- Configure NETATMO Céliane™ components
- Put the VALDOM-NET installation into service
- Configure a network through a 4G router for control via a tablet or smartphone. Requires a SIM card, not provided with the case.

RADIO TECHNOLOGY
STUDY OF WIRING AND PROGRAMMING

DELTA DORE
Smart is the new power

Specially designed for study and training in the radio automation technology present in residential and tertiary premises as part of RT2012, these instructional solutions enable the acquisition and validation of the skills in a realistic eco-responsible environment.

Technical datasheets on our website

5-PANEL SYSTEM - 5 SCREEN PRINTED FACES

ref. DP5-DD

SUPPLIED CONFIGURED | RÉSEAU WIFI AUTONOME | TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

EDUCATIONAL OBJECTIVES

- Discover the HOME AUTOMATION environment of an electrical installation
- Discover and study the functionalities of a Radio home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component nomenclature
- Analyze manufacturer technical sheets
- Install electrical equipment, run conductive cables, sheaths, etc.
- Create wiring and connect electrical components (DP-3 and DP-5)
- Configure Radio components
- Commission and troubleshoot the installation
- Take electrical consumption measurements



Foldable and mobile structure. Disassembly of plates. Easy ICTA sheaths passing

3-PANEL SYSTEM - 3 SCREEN PRINTED FACES

ref. DP3-DD2

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

1 PANEL SYSTEM - 2 SCREEN PRINTED FACES

ref. DP1-3D

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | SIMULATED ELECTRICAL COMPONENTS

RADIO TECHNOLOGY
SPECIAL MAINTENANCE AT HOME

Folded dimensions: L 1500mm x D 1800mm x H 1800mm

ref. DP3-DD-MD

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

EDUCATIONAL OBJECTIVES

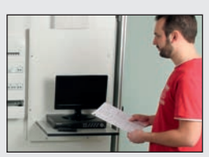
- Discover the HOME AUTOMATION environment of an electrical installation
- Discover and study the functionalities of a Radio home automation installation dedicated to assistance for autonomy
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component nomenclature and analyze the manufacturer's technical sheets
- Install electrical equipment, run conductive cables, sheaths
- Create the wiring and physically connect electrical components
- Configure the Radio components
- Commission the installation
- Configure a WIFI network
- Remotely control the components from a tablet or Smartphone
- Perform electrical troubleshooting
- Configure the voice assistant to control the house from a Smartphone / tablet. (Internet required)

OPTIONAL KITS INTEGRABLE ON THE DP5-DD

ANALOGUE VIDEOSURVEILLANCE

- 1 Lan 500GB video recorder with mouse and remote control. 4 Video inputs. Integrated web server(PC / MAC compatible).
  - Recording on detection, Live viewing, Recording on time slot, Multi-user profiles
- 1 17-inch color LCD monitor.
- 2 swiveling color cameras
  - 3.6mm fixed lens - Resolution 700 lines
  - Day / night function - Integrated infrared lighting (20m)

ref. KX-3D5



WIRE ANTI-INTRUSION ALARM

- 1 central alarm 2 zones self-powered on battery and 230V mains
- 4 infrared presence detectors
- 1 siren with flashing light
- 1 code keypad

ref. KX-3D2

AUDIO DOOR

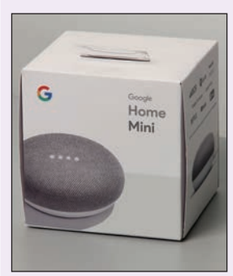
Wired audio door entry unit composed of:
- 1 IP54 surface mounted door station
- 1 interior intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D3

VIDEO DOOR

Wired video door entry unit composed of:
- 1 IP54 surface mounted door station
- 1 indoor video intercom
- 1 modular power transformer
- 1 electric strike

ref. KX-3D4



Supplied with a speaker Google Home Mini

Controllable from tablet and smartphone

Technical datasheets on our website

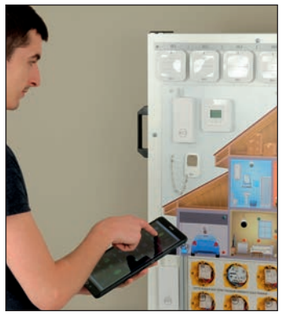
DELTA DORE Smart is the new power

CONNECTED HOUSES RADIO DELTA DORE

A chassis in aluminum profile to put on a table
- Dimensions: (W)1200 x (D)410 x (H)845mm - Weight: 60 kg

ref. MCP-DD — **Version to put on a table**

EDUCATIONAL OBJECTIVES
- Discover the Home Automation environment of a simulated electrical installation.
- Discover and study the features of a Delta Dore home automation system
- Understand the specifications of an electrical installation
- Make electrical diagrams
- Produce a components nomenclature
- Analyze the manufacturer datasheets
- Perform parameter setting of Delta Dore components
- Carry out the wiring and the connection of the electrical components to flying wires
- Perform the commissioning of the installation
- Perform a WIFI network setting for control on tablet or Smartphone



All Delta Dore radio transmitter / receiver modules and home type switches are integrated on the front panel. A translucent, removable plate covers the connectors and protects electrical contacts. Only the programming buttons remain accessible. The radio switches and the remote control are very easily removable thanks to a gripping band.

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS

A chassis with wheels in aluminum profile
- Dims: (W)1200 x (D)700 x (H)1700mm - Weight: 84 kg

ref. MCP-DD-R — **Version with wheels**

3 ROOMS CONNECTED RADIO DELTA DORE

ref. MC-DD-1

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS

EDUCATIONAL OBJECTIVES
- Discovery of the Delta Dore radio protocol
- Getting started with the installation
- Installation of equipment
- Setup and maintenance of equipment
- Installation of a home automation box and a wifi router (networking, programming of the box, taken in hand via an Android application).

INTRODUCTORY CASE FOR RADIO INSTALLATION

ref. VALDOM-DD

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS

EDUCATIONAL OBJECTIVES
- To learn about the HOME AUTOMATION environment of an electrical installation
- To learn about and study the features of a radio home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams
- To create a parts list of components
- To analyse manufacturer technical data sheets
- To configure the radio components
- Carry out wiring and connection of electrical components in flying wires
- To put the radio installation into service
- To configure a Wifi network for control via a tablet or smartphone.

INTRODUCTORY CASE FOR RADIO ALARM

ref. VALDOM-ALR

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES
- To create a parts list of components
- To understand and set up a radio intrusion alarm management
- To understand and learn programming of radio components
- To program the various components of an intrusion alarm such as the central unit, the detectors, the informative code keypad, the remote controls, the siren.
- To understand the setting and use of a radio fire detector

INTRODUCTORY MODEL RADIO DELTA DORE

EDUCATIONAL OBJECTIVES
- To learn about the HOME AUTOMATION environment of an electrical installation
- To learn about and study the features of a radio home automation installation
- To understand the specifications of an electrical installation
- To produce electrical diagrams
- To create a parts list of components
- To analyse manufacturer technical data sheets
- To configure the Delta Dore® components
- To put installation into service
- To configure the WiFi network for control via tablet or smartphone

ref. MAQ-DD

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS

Dims : H780 x 210 x 280mm

Technical datasheets on our website

DELTA DORE
Smart is the new power

CREATING A COMPLETE RADIO INSTALLATION

EDUCATIONAL OBJECTIVES

- To learn about home automation.
- To study the compatibility of conventional lighting controls with radio controls.
- To study the configuration of communicating components by creating several home automation scenarios.
- To study the programming of and the DELTA DORE radio solution

ref. DOMORADIO-C

SUPPLIED WIRED & SET | AUTONOMOUS WIFI NETWORK | TOUCH TABLET SUPPLIED | TEACHING RESOURCES STUDENT / TEACHER | COMPOSANTS ÉLECTRIQUES SIMULÉS

STUDY OF AN ANTI-INTRUSION ALARM

EDUCATIONAL OBJECTIVES

- Understand and configure anti-intrusion alarm management
- Understand and learn Radio component programming
- Program the various components of an anti-intrusion alarm such as the control unit, the detectors, the informative code keypad, the remote controls, the siren.
- Configure Delta Dore® components and the gateway dedicated to its operation
- Carry out the commissioning of the installation
- Set up a WIFI network for ordering on a tablet or smartphone

ref. TAG-3-C

SUPPLIED WIRED AND CONFIGURED | TEACHING RESOURCES STUDENT / TEACHER | AUTONOMOUS WIFI NETWORK

RENOVATION OF A CLASSIC RADIO INSTALLATION

EDUCATIONAL OBJECTIVES

- Understanding of the housing automation made for the housing renovation
- Understanding of a real and complete solution for a flat
- Studying the wiring and settings of communicating components
- Studying the programming and the DELTA DORE solution

ref. DOMOPLUS-C

SUPPLIED WIRED CONFIGURED | AUTONOMOUS WIFI NETWORK | TOUCH TABLET SUPPLIED | TEACHING RESOURCES STUDENT / TEACHER | REAL ELECTRICAL COMPONENTS

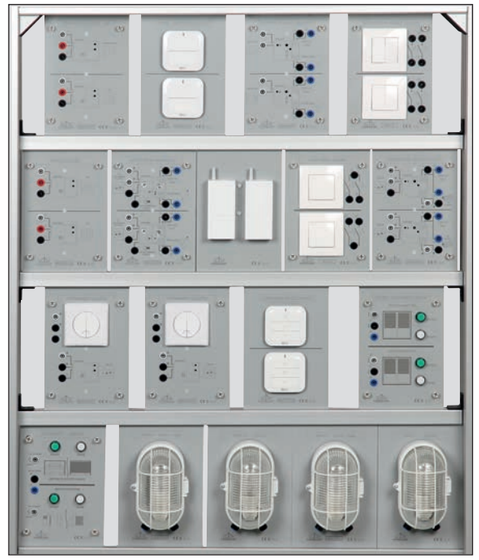
STUDY OF ELECTRICAL RADIO INSTALLATION

EDUCATIONAL OBJECTIVES

- To learn about home automation.
- To study the compatibility of conventional lighting controls with radio controls.
- To study the wiring and configuration of communicating components.
- To study the programming of and the DELTA DORE radio solution

Réf. QUICK-PPLUS

SUPPLIED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS



Autonomous subassemblies

ref. QUICK-AK6 with frame

Study of radio lighting control

ref. QUICK-AK7 with frame

Study of radio lighting variation control

ref. QUICK-AK8 with frame

Study of radio roller blind control

INTRODUCTORY CASE FOR RADIO INSTALLATION - ZIGBEE TECHNOLOGY

EDUCATIONAL OBJECTIVES

- Discover the home automation environment of an electrical installation
- Discover and study the features of a ZIGBEE radio home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component parts list
- Analyze manufacturer technical data sheets
- Configure ZIGBEE radio components
- Connect and wire electrical components with flying leads
- Commission the installation
- Configure a Wi-Fi network for control via a tablet or smartphone

ref. VALDOM-ZB

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK

TEACHING RESSOURCES STUDENTS / TEACHER

NEW

Some features of the study case require an internet connection. The router can be connected to the internet directly via an Ethernet cable, or by inserting a SIM card (not included) to connect to the national 4G LTE network.

INTRODUCTORY CASE FOR RADIO INSTALLATION - SOMFY TECHNOLOGY

EDUCATIONAL OBJECTIVES

- Discover the home automation environment of an electrical installation
- Discover and study the features of a SOMFY radio home automation installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component parts list
- Analyze manufacturer technical data sheets
- Configure SOMFY radio components
- Connect and wire electrical components with flying leads
- Commission the installation
- Configure a Wi-Fi network for control via a tablet or smartphone

ref. VALDOM-SF

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK

TEACHING RESSOURCES STUDENTS / TEACHER

NEW

Some features of the study case require an internet connection. The router can be connected to the internet directly via an Ethernet cable, or by inserting a SIM card (not included) to connect to the national 4G LTE network.

Technical datasheets on our website

TRADITIONAL HOUSING TYPE WIRING PANELS (1 OR 3 PANELS)

3-PANEL VERSION - 3 SCREEN-PRINTED SIDES

ref. DP3-CT

DELIVERED WIRED AND SET | TEACHING RESSOURCES STUDENTS / TEACHER | REAL ELECTRICAL COMPONENTS

TRADITIONAL ELECTRICAL INSTALLATION

Electrical equipment without home automation without configuration

Frame delivered fully assembled.
Modular panel, roller shutter, convector, lighting, and flush-mounting boxes are always integrated into the frame before shipment.

EDUCATIONAL OBJECTIVES

- Discover the environment of an electrical installation
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Create a component parts list
- Analyze manufacturer's technical data sheets
- Install electrical equipment, run conductive cables, electrical conduits, etc.
- Carry out wiring and physically connect various electrical components
- Commission the installation
- Perform electrical troubleshooting

Common Practicals works

- Creating a parts list based on the specifications for an electrical installation
- Creating electrical diagrams
- Creating a lighting system with simple control
- Creating a lighting system with two-way control
- Creating a lighting system with a timer
- Creating a lighting system triggered by motion and/or light detection
- Creating an electrical outlet circuit
- Creating a heating circuit with a pilot wire
- Creating a roller shutter circuit

Practicals works for DP3-CT only

- Creating a lighting system with variable control
- Creating Ethernet network cabling
- Creating a circuit for a charging socket for a type 1 electric vehicle

1-PANEL VERSION - 2 SCREEN-PRINTED SIDES

Front

Back

ref. DP1-CT

DELIVERED WIRED AND SET | TEACHING RESSOURCES STUDENTS / TEACHER | REAL ELECTRICAL COMPONENTS

Technical datasheets on our website

TEACHING RESOURCES STUDENT / TEACHER

JUMPER LEADS WIRING BOARDS

Common practical works
- Simple introduction to circuit protection
- Wiring of single lighting and phase and neutral tapping
- Wiring of energy sensor
- Wiring of two-way lighting
- Wiring of lighting with timer switch, dusk switch, remote switch
- Wiring of lighting with presence selector
- Wiring of lighting variation
- Creation of circuits controlled by the timer switch (clock)
- Creation of sockets circuit
- Power supply of radiator with built-in thermostat
- Up/Down control of roller blind

Additional practical works for TAG-2-MAX
- Wiring a circuit with jettison
- Control a two-speed VMC. (VMC with simulation on terminals and lights)
- Control a hot water electric circuit with a HC/HP relay. (VMC with simulation on terminals and lights)
- Cabling an outside lighting projector


ref. TAG-2-P


ref. TAG-2


ref. TAG-2-MAX


ref. VAL-2

STUDY OF DIFFERENT LIGHTS WIRING


ref. QUICK-APLUS

EDUCATIONAL OBJECTIVES
- Study of house wiring diagrams.
- Study and operation of a single lighting circuit.
- Study and operation of a double lighting circuit.
- Study and operation of a two-way circuit.
- Study and operation of a remote control switch circuit
- Study and operation of a timer circuit.
- Study and operation of a dusk switch circuit.
- Study and operation of an energy meter.


Sockets on the back of the console for connecting the modules

SINGLE LIGHTING CIRCUIT LEARNING PANEL

EDUCATIONAL OBJECTIVES
- Study wiring schemes for a simple lighting circuit.
- Study wiring schemes for a double ignition circuit.
- Study wiring schemes for a back-and-forth circuit.
- Study wiring schemes for a contactor circuit
- Study wiring schemes for a 230V 2P+T plug

ref. TAE-2-M

LIGHTINGS AND DOORBELL LEARNING PANEL

EDUCATIONAL OBJECTIVES
- Study of single lighting circuit wiring diagrams
- Study of double lighting circuit wiring diagrams
- Study of two-way circuit wiring diagrams
- Study of remote control switch circuit wiring diagrams
- Study of timer circuit wiring diagrams
- Study of doorbell circuit wiring diagrams

ref. TAE-1-M

SINGLE LIGHTING CIRCUIT CONTROL LEARNING PANEL

EDUCATIONAL OBJECTIVES
- Study wiring schemes for a dusk-to-dawn switch
- Study wiring schemes for a timer
- Study wiring schemes for a rheostat
- Study wiring schemes for a contactor circuit
- Study wiring schemes for a presence detector

ref. TAE-3-M


Study a double lighting circuit with switches

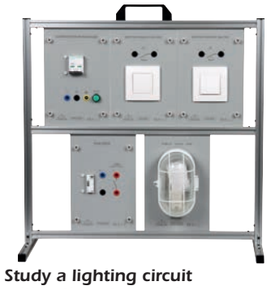
ref. QUICK-AK11


Study a lighting circuit with a push-button and contactor

ref. QUICK-AK12


Study a lighting circuit with back-and-forth switches

ref. QUICK-AK13


Study a lighting circuit with a timer-type staircase

ref. QUICK-AK14


Study a lighting circuit with a dusk-to-dawn switch

ref. QUICK-AK15


Study a two-roller shutter

ref. QUICK-AK16

Technical datasheets on our website

HYBRID VIDEO SURVEILLANCE MANAGEMENT PANEL

EDUCATIONAL OBJECTIVES

- Understand and configure a set of video surveillance components.
- Wire a Hybrid analog and IP type network
- Make electrical diagrams
- Understand configuration, programming from an integrated Web server.
- Configure an Ethernet computer network.
- Carry out the commissioning of the installation
- Perform recording settings
- Perform dome camera settings (TAG-13D only)

ref. TAG-13 | **ref. TAG-13D with dome camera**

SUPPLIED WIRED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER

Dome camera only (TAG-13D only)

STUDY AN IP CAMERA

EDUCATIONAL OBJECTIVES

- Understand and configure a set of video surveillance components.
- Wire a hybrid analog and IP easy network
- Make electrical diagrams
- Create the wiring and physically connect various electrical components
- Produce a parts list and analyze manufacturer sheets
- Understand configuration, programming from an integrated Web server.
- Configure an Ethernet computer network.
- Carry out the commissioning of the installation
- Perform recording settings

ref. QUICK-CIPPLUS

SUPPLIED WIRED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER

Provides study of hybrid analog and IP Easy video surveillance.
The student can set interconnections to BNC and Ethernet wires.
He will be able to configure addressing, settings for different cameras, and visualization of different camera images.
Recording on detection or by time range. Electrical energy-independent system.
Images of different cameras can be directly visualized on a tablet or smartphone using an integrated WiFi network.

ACCESS CONTROL MANAGEMENT PANEL

EDUCATIONAL OBJECTIVES

- Explore an access control system.
- Create a wiring diagram for the system.
- Install the wiring and commission the system.
- Understand and configure an access control management system and its peripherals.
- Create a user database and assign an access profile.

ref. TAG-20

SUPPLIED WIRED CONFIGURED | TEACHING RESOURCES STUDENT / TEACHER

Configuration is performed via the interface embedded in the control panel, or via the free software included with the model.

STUDY OF CONTACTLESS ACCESS CONTROLS

EDUCATIONAL OBJECTIVES

- Understand and configure the different access controllers
- Address access control issues for Person with Reduced Mobility
- Address the different RFID badge technologies
- Address the value of contactless access control
- Draw up the wiring diagram for the various elements

ref. TAG-14

SUPPLIED WIRED CONFIGURED | TEACHING RESOURCES STUDENT / TEACHER | AUTONOMOUS WIFI NETWORK

ETHERNET VIDEO / INTERCOM MANAGEMENT PANEL

EDUCATIONAL OBJECTIVES

- Understand and configure a set of audio and video intercom components.
- Understand the configuration and programming from an integrated Web server.
- Configure an Ethernet computer network.
- Configure a WiFi router.
- Carry out the wiring diagram for the various intercom components.
- Carry out the wiring for the control unit, the audio and video intercoms, the electric strike.

ref. TAG-11

SUPPLIED WIRED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER

Web server integrated into the management unit

Technical datasheets
on our website

COMMUNICATING COMMISSIONING PLAN MODEL

EDUCATIONAL OBJECTIVES

- Understand and configure an alarm center
- Understand and configure a PPMS device
- Understand the use and interest of a PPMS device
- Carry out the wiring of components relating to a PPMS device in TBT
- Configure a radio extension and its transmitter
- Set up manual trigger devices
- Perform local or remote maintenance of the device

ref. TAG-18

SUPPLIED WIRED CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / TEACHER

EMERGENCY LIGHTING ADRESSABLE BY COMMUNICATING MANAGER

EDUCATIONAL OBJECTIVES

- Understand and configure emergency lighting management with SATI report.
- Understand and configure addressable emergency lighting management.
- Understand the difference between an ambient and evacuation BAES.
- Carry out the wiring of BAES components and a manager in SATI report configuration and in addressable configuration.
- Configure remote management from a tablet or smartphone

ref. TAG-19

SUPPLIED WIRED CONFIGURED | Bluetooth | TEACHING RESOURCES STUDENT / TEACHER

Schneider Electric

TRAINING SUITCASE OF EMERGENCY LIGHTING MANAGEMENT

EDUCATIONAL OBJECTIVES

- Understand and configure emergency lighting management with SATI report.
- Understand and configure addressable emergency lighting management.
- Understand the difference between an ambient and evacuation BAES.
- Carry out the wiring of BAES components and a manager in SATI report configuration and in addressable configuration.
- Configure remote management from a tablet or smartphone

ref. VAL-19

SUPPLIED WIRED CONFIGURED | Bluetooth | TEACHING RESOURCES STUDENT / TEACHER

Schneider Electric

Case with ergonomic handle.
Dimensions 534 x 374 x 190mm.
Power supply via 230V-2P+E mains cord.

CONTROL PANEL FOR FIRE ALARM TYPE 4

Version	WIRED		RADIO
Educational objectives	**TAG-15**	**TAG-15-COM**	**TAG-15-R**
Understand and configure type 4 fire alarm management.	✔	✔	✔
Understand how an optical smoke detector works.	✔	✔	✔
Understand how a manual call point works.	✔	✔	✔
Communicate with stand-alone smoke detectors	✔	✔	✔
Wiring the components of a type 4 fire alarm	✔	✔	
Pair the various fire alarm components via radio			✔
Set up a fire alarm panel.	✔	✔	✔
Understand parameterization and programming by PLC		✔	
Become familiar with PC and HMI supervision		✔	
Configure a Wifi network and control the components from a tablet		✔	
Understanding an IP Ethernet Network		✔	

WIRED VERSIONS

ref. TAG-15

ref. TAG-15-COM **communicating via Wifi**

RADIO VERSION

ref. TAG-15-R

SUPPLIED CONFIGURED | TEACHING RESOURCES STUDENT / TEACHER | AUTONOMOUS WIFI NETWORK

COMMUNICATING FIRE DOOR CONTROL PANEL

EDUCATIONAL OBJECTIVES

- Understanding and settings of a fire door control system.
- Understand how an optical smoke detector works.
- Understand how a manual call point works.
- Communicate with stand-alone smoke detectors
- Realize the wiring of components of a fire door control system.
- Configure a fire door control system.
- Understand parameter setting and programming by PLC (-COM version)
- Become familiar with PC supervision (-COM version)
- Understanding of an IP network (for the COM version)

ref. TAG-16 **without PLC**

FULLY WIRED AND SET | TEACHING RESSOURCES STUDENT / TEACHER

ref. TAG-16-COM **communicating version with PLC**

FULLY WIRED AND SET | TEACHING RESSOURCES STUDENT / TEACHER

Schneider Electric

SoMove

Technical datasheets on our website

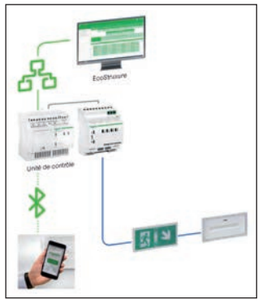
FIRE ALARM MANAGEMENT TYPE 4 AND BAES

OBJECTIFS PÉDAGOGIQUES

- Understand and configure a type 4 fire alarm management system.
- Understand how an optical smoke detector works.
- Understand how a manual trigger works.
- Communicate with stand-alone smoke detectors
- Wire the components of a type 4 fire alarm
- Pair the different fire alarm components by radio
- Configure a fire alarm control panel.
- Understand and configure an emergency lighting management system with SATI report.
- Understand and configure an addressable emergency lighting management system.
- Understand the difference between an ambient and evacuation BAES.
- Wire BAES components and a manager in SATI report configuration and in addressable configuration.
- Configure an emergency lighting manager from a tablet or smartphone.

ref. TAG-1519

FULLY WIRED AND SET | TEACHING RESSOURCES STUDENT / TEACHER



TRAINING SUITCASE OF FIRE ALARM MANAGEMENT OF TYPE 4

EDUCATIONAL OBJECTIVES

- Theoretical study of component wiring .
- Understand the type 4 fire alarm management.
- Understand how a manual call point works.
- Communicate with stand-alone smoke detectors

Case with ergonomic handle.
Dimensions 534 x 374 x 190mm.
Supply by power cord 230V-2P + E.

ref. VAL-15

FULLY WIRED AND SET | TEACHING RESSOURCES STUDENT / TEACHER

STUDY OF A WALLBOX FOR ELECTRIC VEHICLE

This educational solution, available in 2 references, allows you to discover and study the operation of an electric car charging station for domestic use. The learner will become familiar with the installation, configuration and testing of a charging station. The 1-M version also allows wiring of the control, removal and installation of IRO / IRL tubes. Put yourself in the shoes of an authorized installer by applying the NFC15100 verifications and by discovering the compulsory E.V.Ready self-checking sheets during an installation.

EDUCATIONAL OBJECTIVES

- Study an electric vehicle charging station.
- Wire a charging station for a domestic electric vehicle (1-M version only)
- Commission an electric vehicle charging station.
- Test and diagnose an electric vehicle charging station.
- Study an access command by code keypad and RFID badge
- Study a communication by Wifi or Bluetooth
- Study the different types of electric vehicle charging sockets

Educational support

- Instructions and installation
- Technical notices
- Theoretical reminder on mode 3 type 2 sockets
- Teaching scenarios (TEACHER / STUDENT type practical work)
- Cable schematics

PRACTICAL WORKS	REFERENCES	
	BORNELEC1-M	BORNELEC2-M
Wiring a switch	✔	
Wiring a programmable keyboard	✔	
Wiring a clock	✔	
Wiring of a control circuit of a charging station	✔	
Cutting IRO / IRL tubes	✔	
Removal and installation of IRO / IRL tubes	✔	
Clock setting	✔	
Configuration of the RFID keyboard (daily use, user management, choice of operation by code, bage, key-board, keyboard + RFID badges)	✔	✔
Creation of the maintenance book for a charging station	✔	✔
Performing checks of standard NFC 15100	✔	✔
Discovery of E.V ready self-checking sheets	✔	✔
Analysis of the signals received by the charging station (presence of voltage, charge with and without fan, error) using the simulator provided and an oscillocope.	✔	✔
Wifi switch configuration	✔	✔
Configuration of the charging station in wifi thanks to the Webserver integrated in the terminal (visualization of operating status, configuration of the kit communication, choice of charging mode, time pro-gramming, history, intensity setting, locking, charging stop, etc.)	✔	✔
Operation of the free EVCharge application in Bluetooth (history, cost of consumption, display of the state of the charging station)	✔	✔

FULL VERSION FOR WIRING AND PROGRAMMING

ref. BORNELEC1-M

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

Chassis on wheels. Weight: 65 kg
Dimensions: 1200 x 650 x 1860mm.
2 12mm melamine panels with an area of 1200 x 1600mm.
Power supply by 3 m 2P + E 230VAC 50Hz power cord.
The model is delivered wired and ready to operate.

Technical datasheets on our website

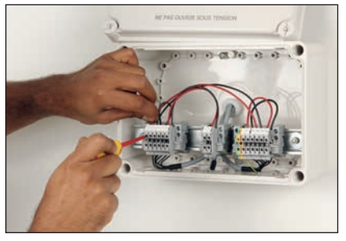
Charging station tester delivered with the model.

COMPACT VERSION FOR PROGRAMMING

ref. BORNELEC2-M

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

Chassis on wheels. Weight: 80 kg
Dimensions: 750 x 730 x 1840mm.
2 19mm melamine panels with an area of 1400 x 670mm.
Power supply by 3 m 2P + E 230VAC 50Hz power cord.
The model is delivered wired and ready to operate.



Control and components wiring for BORNELEC1-M (back panel)

The charging station communicates via Wifi or Bluetooth. The locally created wifi network is specific to the model. It is isolated from the WiFi network of your establishment.

TRAINNING SUITCASE OF AN ELECTRIC VEHICLE CHARGING STATION

Safe wiring on 4mm terminals. Safety leads and power supply cable are provided. Component marking informations and other technical charac-teristics are screen-printed on the faces.

ref. VAL-EV

DELIVERED WIRED & SET | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

Technical datasheets on our website

EDUCATIONAL OBJECTIVES

- Study an installation of an electric vehicle charging station.
- Commission an electric vehicle charging station.
- Configure an access control via keypad with code and RFID badge
- Set up a clock control
- Study the different types of charging sockets for electric vehicles

Suitcase with ergonomic handle. Dimensions 534 x 374 x 190mm. Powered via 230Vac-2P+E AC cord.

Charging station tester delivered with the model.

FIBER DEPLOYMENT IN COLLECTIVE HOUSING

EDUCATIONAL OBJECTIVES

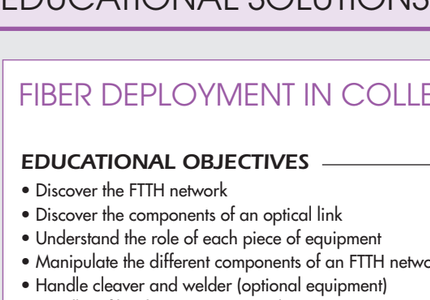
- Discover the FTTH network
- Discover the components of an optical link
- Understand the role of each piece of equipment
- Manipulate the different components of an FTTH network
- Handle cleaver and welder (optional equipment)
- Handle a fiber laser pen (optional equipment)
- Perform measurements with a photometer (optional equipment)

ref. DP1-FIB

STUDENT/TEACHER EDUCATIONAL FILE CARRIED OUT BY A FIBER TRAINER

DELIVERED WIRED READY TO USE

OPTION: MICRO WELDER + CLEAVER



- Micro Welder with 3-Axis Alignment
- Welder neck strap
- Optimization of G.657A2 1.00 fiber welder.
- BA-20 Li-on battery for welder.
- 3-hole wire stripper
- Manual Fiber Optic Splitter
- 200ml pump alcohol dispenser
- Cleaning wipe

ref. FIB-SOUD

SINGLE MODE REFLECTOMETER

- Pulse width 3 ns to 20 us
- Photometer port -70 to +10 dBm
- Red laser 650 nm < 10mW
- Battery life: 10 h, USB 2.0 interface, 8Gb SD Card
- Weight: 1 Kg. SC/APC connector.

ref. FIB-REFLEC

OPTION PHOTOMETER ET CONTINUITY

ref. FIB-MESURE

- 1 Optometer Source
- 1 Photometer
- 1 Laser pen
- 2 Patch cords
- 1 x SC-APC Female/Female Connector

Technical datasheets on our website

Technical datasheets on our website

FIBER DEPLOYMENT IN INDIVIDUAL HOUSING AND/OR COLLECTIVE HOUSING

Facing housing with 2 apartments.

Facing technical

ref. DP2-FIB

STUDENT/TEACHER EDUCATIONAL FILE CARRIED OUT BY A FIBER TRAINER

DELIVERED WIRED READY TO USE

EDUCATIONAL OBJECTIVES

- Discover the FTTH network
- Discover the components of an optical link
- Understand the role of each piece of equipment
- Understand the differences inherent in collective and individual housing
- Manipulate the different components of an FTTH network
- Perform a standard fiber optic installation in a housing technical duct
- Handle splitter and welder (optional equipment)
- Handle a fiber laser pen (optional equipment)
- Perform measurements with a photometer (optional equipment)

Practical work provided

- MCQs on the courses (theoretical courses written by a specialized trainer)
- Identification of the different components
- Wiring and connection of different equipment (with and without soldering)
- Installation of a standard fiber optic setup
- Carrying out qualitative tests on the installation
- Measurement on the fiber optic network using a power meter and a light source on optical fiber (optional equipment)

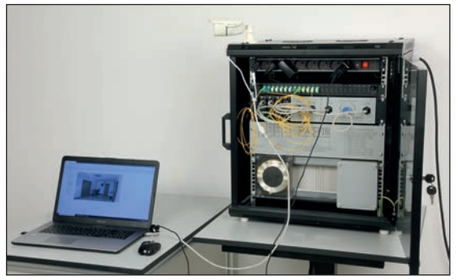
The operator can easily access the street BPEO located under a hatch in a technical box simulating a telecom manhole.

OPTICAL FIBER STUDY

EDUCATIONAL OBJECTIVES

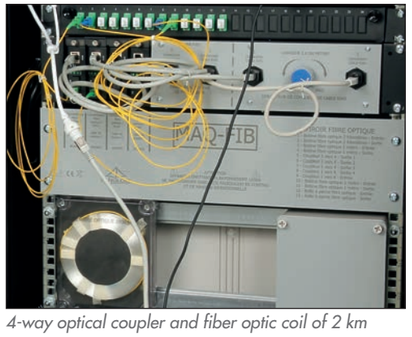
- Presenting the components of an optical link
- Mastering the principles of optoelectronic data transfer
- Understanding the role of an optical coupler
- Compare transmissions on optical media and RJ45
- Address the limits of copper compared to fiber (distances, flow rates, ...)
- Highlighting the main failures of an optical link
- Highlighting the main failures of an RJ45 link
- Manipulations and practical work on the model

VDI type box with handles (H760mm x W680mm x D450mm) to be placed on table + camera. Weight: 40kg. Power supply by 230Vac power cord of 3 meters (2P + E). Delivered wired and functional.



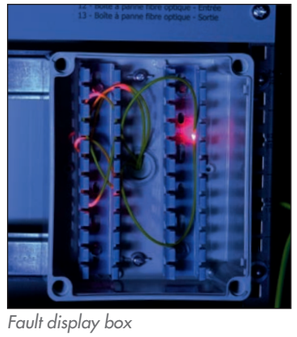
Back side. Teacher interface for fault creation.

ref. MAQ-FIB | TEACHING RESOURCES PRODUCED BY A FIBER TRAINER



4-way optical coupler and fiber optic coil of 2 km

RJ45 cable length simulation potentiometer



Fault display box

NETWORK ADMINISTRATION - CYBERSECURITY

EDUCATIONAL OBJECTIVES

- Discover the architecture of a computer network
- Apply cybersecurity concepts
- Understand the role of each piece of equipment
- Explore configuration and monitoring tools

ref. MAQ-ARES

System delivered wired, connected, ready to operate, with STUDENT + TEACHER educational file presenting many examples of practical work.

STUDY OF A FIBER OPTIC NETWORK

EDUCATIONAL OBJECTIVES

- Discover the FTTH network, with triple play services
- Discover the components of a GPON optical link
- Understand the role of each piece of equipment
- Observe the limitations of copper compared to fiber (distances, speeds,...)
- Learn the main failures of an optical link
- Perform diagnostics and repair protocols

Practical work provided

- MCQs on the courses (theoretical courses written by a specialized trainer)
- Telephony commissioning, configuration of an IPBX server and IP phones
- IPTV commissioning, configuration of an IP streamer
- Diagnosis and highlighting of common optical fiber failures (fiber cut and fiber constraint)
- Measurement on the network using a power meter and a light source (equipment provided)
- Analysis of upload and download speeds and internet latency via the RJ45 network and via fiber optics (this lab requires internet access)

ref. MAQ-FIB2S

TEACHING RESOURCES PRODUCED BY A FIBER TRAINER | DELIVERED WIRED & SET

Technical datasheets on our website

FIBER OPTIC NETWORK STUDY SUITCASE

ref. VAL-FIB

TEACHING RESOURCES PRODUCED BY A FIBER TRAINER | DELIVERED WIRED & SET

EDUCATIONAL OBJECTIVES

- Discover the FTTH network
- Discover the components of an optical link
- Understand the role of each piece of equipment
- Handle the different components of an FTTH network
- Handle a cleaver and welder (optional equipment)
- Handle a fiber optic laser pen (optional equipment)
- Take measurements with a photometer (optional equipment)

Fiches techniques
détaillées sur notre site

V.D.I. NETWORK ADMINISTRATION - IP TELEPHONY - VIDEO SURVEILLANCE - CYBERSECURITY

Cybersecurity compatible product

ref. MAQ-VDI | NOTICE + COURS + TP

System delivered wired, connected, ready to operate, with a STUDENT + TRAINER training kit presenting numerous examples of practical work.

EDUCATIONAL OBJECTIVES

- Discover the architecture of a corporate IT network
- Discover and configure a "voice, data, images" VDI rack
- Understand and cable a patch panel
- Understand how an IP PABX works
- Discover IP telephony
- Discover IP video surveillance
- Configure an Ethernet video camera
- Apply cybersecurity concepts
- Understand the role of each piece of equipment
- Discover configuration and monitoring tools

LAN NETWORK CONTROLLER OPTION

ref. LA-1011

NETWORK STORAGE SERVER - NAS OPTION

ref. IP-NAS

IP TELEPHONE NETWORK

EDUCATIONAL OBJECTIVES

- Discover the architecture of a corporate IP telephony network
- Understand the role of each piece of equipment
- Cabling a patch panel
- Understanding the principle of a rippled network
- Configuring an Ethernet IP network
- Installing a trunking system equipped with 230V, RJ11, and RJ45 sockets
- Understanding how an IP telephony server works
- Comparing analog and digital IP telephony

ref. MAQ-TEL | INSTRUCTIONS + THEORETICAL COURSES

X2

X2

LVGS CABINETS

ref. ARM-TGBT-COM

ref. ECO-TGBT

DISTRIBUTION BOX WITH SUPERVISION

ref. ILO-TRI triphasé

ref. ILO-MONO monophasé

SECTOR DOUBLER

ref. DBL-TGBT

LOADS FOR LVGS

ref. THERM-T triphasé

ref. THERM-M monophasé

SOURCE SWITCHING CABINET

EDUCATIONAL OBJECTIVES

- Study an industrial-type 400Vac three-phase source inversion system
- Understand the specifications of an electrical installation
- Create electrical diagrams
- Analyze manufacturer's technical data sheets
- Perform component wiring and configuration
- Commission the installation
- Take electrical measurements
- Record voltage, current, and power curves
- Use PPE
- Use maintenance documents

ref. ARM-COMS2

DELIVERED WIRED & SET | STUDENT/TEACHER EDUCATIONAL FILE

DISCOVERY OF COLLABORATIVE ROBOTICS (COBOT)

4-axis, multifunctional tabletop robotic arm. This set allows you to learn collaborative robotics with an economical solution. It comes with various end effectors and accessories, such as a 3D printing, writing and drawing module. It is programmed with the scratch language. The control electronics, power supply and communication ports are centralized at its base. Configuration and programming are carried out via included software (Windows) and a USB connection.

Technical datasheets on our website

ref. KI-COBO3

Chassis characteristics
- Overall dimensions: 330mm x 325mm x 410mm
- Cobot weight: 3.4Kg

OPTION
MINI BELT CONVEYOR AND SENSORS

ref. VISION-COBO3

KIT VISION OPTION

ref. CONV-COBO3

LEARNING COLLABORATIVE ROBOTICS (COBOT)

This kit allows you to understand collaborative robotics with a simple and economical solution. Quick to set up, this cobot does not require an additional electrical box. All the control electronics, its power supply and its communication ports are centralized at its base. Configuration and programming are carried out via the free Robot Control software (Windows only) via an Ethernet connection.
It comes with an electromagnet gripper, allowing you to perform "Pick and Place" operations on metal boxes (provided), as well as a photoelectric sensor and an inductive sensor.

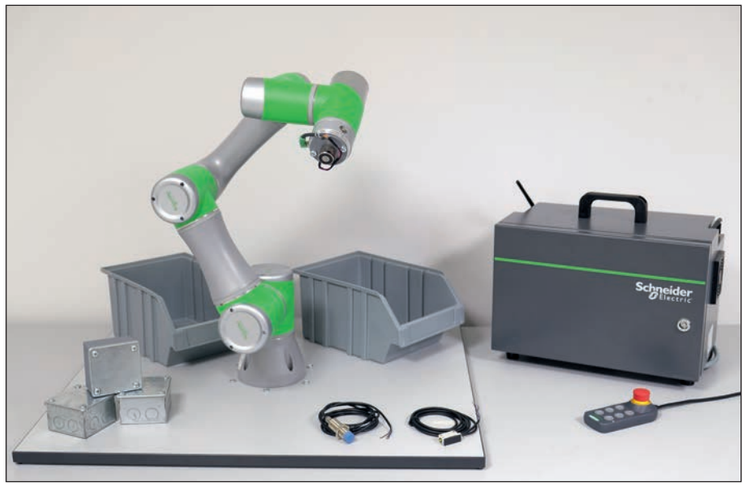
ref. KI-COBO1 | EDUCATIONAL FILE STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES
- Understand the different aspects of collaborative robotics.
- Discover the programming of an industrial robot.
- Course reminder on analytical programming.
- Course reminder on the different types of sensors.

Characteristics
- Overall dimensions of the robot: L180 x W180 x H900 (arm unfolded). 8.2kg
- 19mm grey melamine base: 600 x 600mm.
- Power supply via 3-metre 2P + T mains cord.

Electronics, power supply and com ports centralized in the robot foot

ADVANCED STUDY OF SCHNEIDER® COLLABORATIVE ROBOTICS (COBOT)



KI-COBO2 allows you to understand collaborative robotics with a simple and fast solution.
All the control electronics, its power supply and its communication ports are centralized in its control box (included). Configuration and programming are carried out via the free Schneider® EcoStructure Cobot Expert software (Windows and Android only) via an Ethernet connection or its own Wifi connection.
It is programmed with the scratch language, particularly recognized for its accessibility and ease of assimilation.
The Cobot has the free training learning function. The user manipulates the robot by hand, allowing it to record
positions or trajectories. It is delivered with an electromagnet gripper, allowing "Pick and Place" operations to be carried out on metal boxes (provided), as well as a photoelectric sensor and an inductive sensor.

ref. KI-COBO2 | STUDENT/TEACHER EDUCATIONAL FILE

EDUCATIONAL OBJECTIVES
- Understand the different aspects of collaborative robotics.
- Discover the programming of an industrial robot.
- Discover the Scratch programming environment.
- Understand the learning of positions and trajectories by free training.
- Review of courses on analytical programming.
- Review of courses on the different types of sensors.

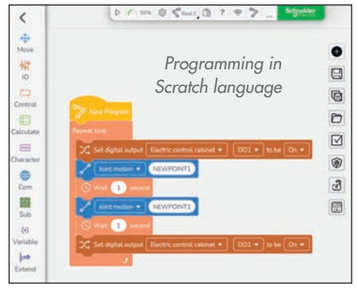
Practical works
- Carrying out analytical programming using GRAFCET and LADDER, from an operating cycle.
- Carrying out a wiring diagram from the technical documentation.
- Wiring and configuring the system
- Learning positions and trajectories with the free training function.
- Programming the cobot in Scratch language, from the documentation provided.

Composition
- 1 Schneider® Lexium Robot with the following characteristics:
  - 6 degrees of freedom
  - Cobot payload up to 3kg
  - 16 PLC inputs and 16 outputs (TOR 24Vdc)
  - MODBUS TCP - TCP/IP - PROFINET - ETHERNET/IP communication
  - Power supply on P+N+T 230Vac socket.
- 1 gray melamine base.
- 1 24Vdc electromagnet gripper.
- 1 photoelectric sensor.
- 1 inductive sensor.
- 1 emergency stop button
- 3 metal boxes, one of which has a plastic bottom to avoid being detected by the inductive sensor.
- 2 storage bins that can hold metal boxes for “Pick and Place” operations.

Characteristics
- Overall dimensions of the robot: L x W x H: 180 x 180 x 750mm (arm unfolded). 12Kg
- Overall dimensions of the case: L x W x H: 410 x 235 x 307mm. 18Kg
- Grey melamine base 19mm: 600 x 600mm.
- Power supply by 3-meter 2P + T power cord.

Learning positions and trajectories by free training

Configuration and programming via Schneider® EcoStruxure Cobot Expert software



Technical datasheets
on our website

IO-LINK SMART SENSOR STUDY CASE

NEW

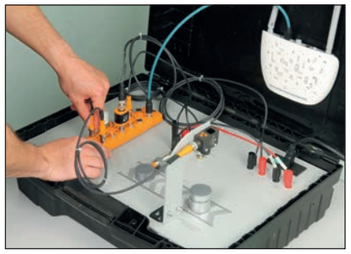
EDUCATIONAL OBJECTIVES

- Discover IO-LINK technology
- Cabling IO-LINK equipment
- Configuring and viewing IO-LINK equipment with Moneo Configure software
- Configuring and viewing IO-LINK equipment with Moneo Blue software
- Familiarizing yourself with monitoring

ref. VAL-IOL

IO-Link

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

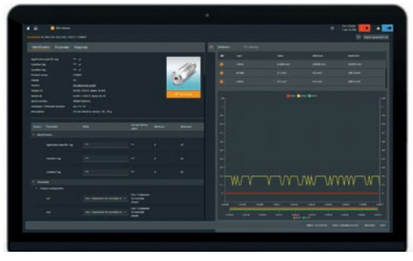


Practical works

- Component identification
- Review of sensor types
- Study and implementation of IO-LINK equipment connections
- Configuration of IO-LINK equipment
- Viewing measurements and detections on Moneo Configure and Moneo Blue

NEW

STUDY CASE OF A CONVEYOR WITH AUTOMATION AND INTELLIGENT IO-LING SENSORS



EDUCATIONAL OBJECTIVES

- Discover IO-LINK technology
- Wire IO-LINK devices
- Configure and view IO-LINK devices with Moneo configure
- Configure and view IO-LINK devices with Moneo blue
- Become familiar with monitoring
- Analyze an operating cycle
- Translate an operation into GRAFCET and LADDER diagrams
- Configure and program a PLC for communication with the IO-LINK master
- Program and test operating cycles on the PLC

ref. VAL-AUTOIOL

IO-Link

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

Practical works

- Component identification
- Review of sensor types
- Study and implementation of IO-LINK equipment connections
- Configuration of IO-LINK equipment
- Visualization of measurements and detections on Moneo Configure and Moneo Blue
- Creation of GRAFCET and LADDER diagrams for an operating cycle
- Study and wiring of a PLC
- Configuration of the PLC for communication with an IO-LINK master
- Programming of the PLC in contact language via USB or Ethernet

ARDUINO® MICROCONTROLLER STUDY CASE

EDUCATIONAL OBJECTIVES

- Discover the Arduino® programming environment and the C language.
- Create electrical schematics
- Understand the interconnections between electronic modules.
- Analyze manufacturer datasheets.
- Create automation programs.
- Configure Wi-Fi components.
- Wire and connect electrical components using flying leads.
- Commission the installation.
- Configure Wi-Fi network settings for control from a web browser.

ref. VAL-MC1

DELIVERED WIRED AND SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER | SIMULATED ELECTRICAL COMPONENTS

NEW

Practical works supplied

- Programming and wiring a temperature probe and a light sensor.
- Displaying data on an LCD screen via an I2C bus.
- Launching an automation system from a radio remote control.
- Programming and wiring relay outputs.
- Configuring the microcontroller for access from a web browser.

NEW

SENSORS STUDY CASE

EDUCATIONAL OBJECTIVES

- Discover different sensor technologies
- Discover signal types
- Understand how sensors interact with an installation
- Create wiring
- Test sensors under different conditions

Practical works supplied

- Component identification
- Wiring diagram creation
- Component wiring
- Sensor testing
- Displaying a discrete signal
- Displaying a 0-10V signal
- Converting a 4-20mA signal

ref. VAL-CAPT

DELIVERED WIRED AND SET | TEACHING RESSOURCES STUDENTS / TEACHER

Technical datasheets
on our website

AUTOMATED INDUSTRIAL BELT CONVEYORS

EDUCATIONAL OBJECTIVES

- To observe and understand the operation of an industrial belt conveyor.
- To take industrial measurements of electrical values.
- To study the operation of inductive and photo-electric sensors.
- To study the reversal of the rotation direction of an asynchronous motor.
- To study the speed control of an asynchronous motor.
- To learn how to wire the different components available on a belt conveyor (detector and light column).
- To study the programming of a controller (PLC) with analogue output signal 4-20mA/0-10V.
- To study the programming of an HMI screen with supervision software.
- To study Ethernet / IP addressing
- To perform industrial maintenance operations.

ref. CONV-1S-C	Three-phase version 3P+N+E
ref. CONV-1S-230-C	Single-phase version 2P+E 230VAC
ref. CONV-1	Operating part alone

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

ref. CONV-2S-C	Three-phase version 3P+N+E
ref. CONV-2S-230-C	Single-phase version 2P+E 230VAC
ref. CONV-2	Operating part alone

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

ref. CONV-VISION	vision sensor option

TRAINNING SUITCASE ON THE OPERATIVE PART OF A BELT CONVEYOR

EDUCATIONAL OBJECTIVES

- Discover and simulate an industrial-type control process
- Observe and understand the operation of a belt conveyor.
- Study the operation of inductive, photoelectric and mechanical sensors.
- Operate the wiring of the various components.

Possible Practical work

- Study and realization of an electrical wiring diagram
- Realization of GRAFCET, LADDER and Chronogram diagrams
- Study and wiring of the belt conveyor
- Connection and adjustment of the various sensors
- Digital meter configuration
- Connection of different components to launch functionalities

ref. VAL-TAP

DELIVERED WIRED AND SET | TEACHING RESSOURCES STUDENTS / TEACHER

Case with ergonomic handle.
Dimensions 534 x 374 x 190mm.
Power supply by 230V-2P+E cord.

WIRING OF AN AUTOMATED INDUSTRIAL BELT CONVEYOR

This operational section, equipped with a containment cabinet, allows for the study and wiring of the various operating modes of an industrial belt conveyor. The student wires the grid (optional) before installing it in the cabinet for testing.
Student safety is ensured by a cabinet door opening sensor.
This cuts off the power supply. If necessary, a key switch can be used to deactivate this safety feature.

ref. ADC-CONV

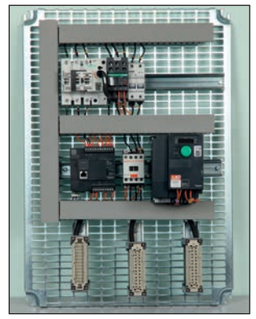
TEACHING RESSOURCES STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES (requires the GCONV1-ADC option)

- Observe and understand the operation of an industrial belt conveyor.
- Wire the different operating modes of a belt conveyor.
- Test the wiring by inserting the grid and connecting it to the conveyor.
- Create various wiring diagrams.
- Record electrical measurements (measuring devices not provided).
- Understand the role of each component.
- Study the operation of inductive and photoelectric sensors.
- Study the programming of a programmable logic controller with an analog signal.
- Perform industrial maintenance operations.

Grid option with dimmer and M221 automaton

- 1 wiring diagram measuring 670x450mm
- 1 padlockable fuse holder disconnector
- 1 set of protective circuit breakers
- 1 three-pole fuse holder
- 1 230VAC/10VDC power supply
- 1 thermal relay
- 1 four-pole contactor - 24V coil and 1 auxiliary contact block
- 1 three-phase 400VAC – 370W input/output drive
- 1 Schneider® M221 PLC with analog output card
- 1 set of industrial multi-pin connectors Male / Female
- 1 PLC programming software
- 1 SoMove drive programming software



ref. GCONV1-ADC

SUPERMARKET CHECKOUT SIMULATOR

EDUCATIONAL OBJECTIVES

- Understanding, putting into service, getting started and setting of the system
- Making different wirings and functioning tests
- Illustration and visualization of the result of a PLC program

ref. TAPIX-ARM-GD	with not wired grid
ref. TAPIX-CAB	with wired grid

All systems with monitoring are delivered assembled and fully wired. Detailed instructions with full specifications for each component and practical exercises are provided. The monitoring system is fully developed and operational.

ref. TAPIX-S	Version with monitoring on computer
ref. TAPIX-CAB	Version with monitoring on touchscreen

DELIVERED WIRED AND SET | TEACHING RESSOURCES STUDENTS / TEACHER

Fiches techniques
détaillées sur notre site

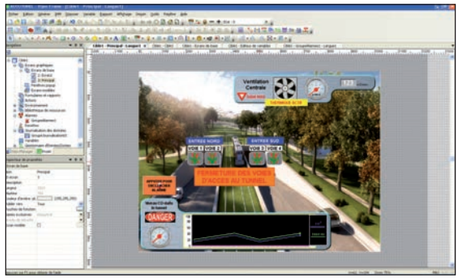
VENTILATION CONTROL AND TUNNEL ACCESS

EDUCATIONAL OBJECTIVES

- Putting into service, getting started, setting of the system
- Understand the setting and the programming by PLC
- Understanding and use of a supervision
- Practical approach of analog inputs
- Studying the Ethernet / IP addressing
- Studying a communication by Wifi

ref. TA12

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

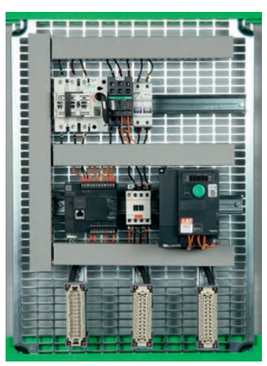


WIRING OF A TUNNEL ACCESS AND VENTILATION SYSTEM

NEW

EDUCATIONAL OBJECTIVES (WITH GTUN1-ADC OPTION)

- Observe and understand the operation of a ventilation control system.
- Wire the various operating modes.
- Test the wiring by inserting the grille and connecting it to the ventilation system.
- Create various wiring diagrams.
- Understand the role of each component.
- Study the programming of a programmable logic controller with an analog signal.
- Perform industrial maintenance operations.



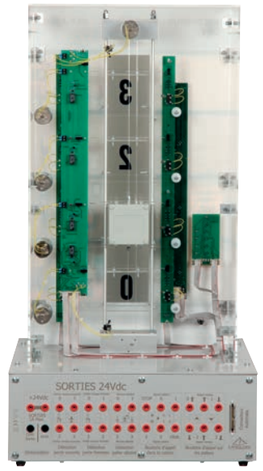
ref. GTUN1-ADC

Grid Option with Drive and M221 PLC

- 1 wiring grid measuring 670x450mm
- 1 padlockable fuse holder disconnector
- 1 set of protective circuit breakers
- 1 three-pole fuse holder
- 1 230VAC/10VDC power supply
- 1 thermal relay
- 1 four-pole contactor - 24V coiland 1 auxiliary contact block
- 1 three-phase 400VAC – 370W input/output drive
- 1 Schneider® M221 PLC with analog output card
- 1 set of industrial multi-pin male/female connectors
- 1 PLC programming software
- 1 SoMove drive programming software

ref. ADC-TUNNEL

TEACHING RESSOURCES STUDENTS / TEACHER



DIDACTIC LIFT

The ASC19 lift is a model which may be connected to a PLC or any microprocessor system. It comprises 24 outputs and 21 inputs. You can only use a part of input/outputs if you want to do easy programmes

EDUCATIONAL OBJECTIVES

- Handling and commissioning of the lift
- Configure and program a PLC step by step
- Study the Ethernet / IP addressing
- Wire the inputs / outputs of a PLC

ref. ASC19

LIVRÉ CABLÉ ET PARAMÉTRÉ | DOSSIER PÉDAGOGIQUE ÉLÈVES / ENSEIGNANT

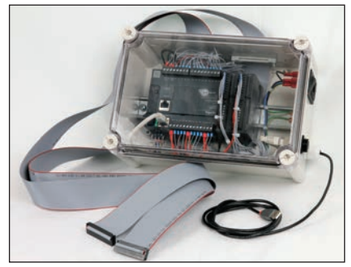
PLC FOR ASC19 DIDACTIC LIFT

PLC OPTION WITH PRE-WIRED CLAMP CONNECTORS

ref. AUTOMASC	SCHNEIDER interface only
ref. AUTOMASC-SI	SIEMENS interface only
ref. AUTOMASC-H	SCHNEIDER interface + HMI
ref. AUTOMASC-H-SI	SIEMENS interface + HMI

PLC TO CONNECT WITH SAFETY LEADS

ref. AUTO-ASC	SCHNEIDER PLC only
ref. AUTO-ASC-SI	SIEMENS PLC only
ref. AUTO-ASC-H	SCHNEIDER PLC + HMI
ref. AUTO-ASC-H-SI	SIEMENS PLC + HMI



STEPPER MOTOR WIRING AND PROGRAMMING BOARD

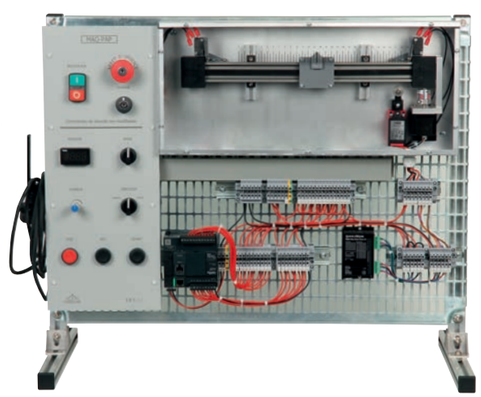
EDUCATIONAL OBJECTIVES

- Discover motorized linear axes.
- Discover stepper motor technology and associated components.
- Discover the different applications of an installation comprising linear axes.
- Study and commission a linear axis.
- Study the programming of a programmable logic controller.

ref. MAQ-PAP

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER

NEW



Technical datasheets
on our website

DOUBLE-LEAF ELECTRIC GATES

POA-11 - face côté rue

ref. POA-11 wiring with safety leads

ref. POA-111 wiring on industrial terminals

DOSSIER PÉDAGOGIQUE ÉLÈVES / ENSEIGNANT

ELECTRIC SLIDING GATES

POA-22 - face côté maison

ref. POA-22 wiring with safety leads

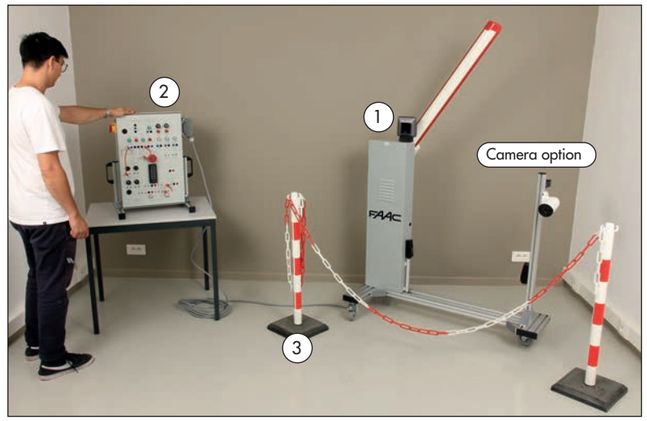
ref. POA-222 wiring on industrial terminals

DOSSIER PÉDAGOGIQUE ÉLÈVES / ENSEIGNANT

EDUCATIONAL OBJECTIVES

- Observe and understand the operation of an electric gate automation system.
- Learn how to program a gate automation system based on several operating criteria.
- Take measurements of electrical quantities
- Study the operation of photoelectric cells.
- Carry out industrial maintenance operations.

AUTOMATIC PARKING BARRIER



EDUCATIONAL OBJECTIVES

- Discover the operation of an automatic electric barrier.
- Study the control and safety devices
- Carry out measurements of electrical quantities
- Learn how to configure the system based on several operating criteria.
- Carry out maintenance operations.

ref. B2A-1 included 1 + 2 + 3

DELIVERED WIRED AND SET

TEACHING RESSOURCES STUDENTS / TEACHER

TRAINNING SUITCASE FOR INDUSTRIAL PLC PROGRAMMING

EDUCATIONAL OBJECTIVES

- Discover industrial automation
- Set up and program a PLC
- Set up and program an HMI
- Become familiar with supervision
- Study Ethernet / IP addressing
- Study a communication by Wifi

ref. VAL-AUTO-C

DELIVERED WIRED & SET

AUTONOMOUS WIFI NETWORK

TEACHING RESSOURCES STUDENTS / TEACHER

TRAFFIC LIGHTS WITH PLC

ref. TRICAUTO

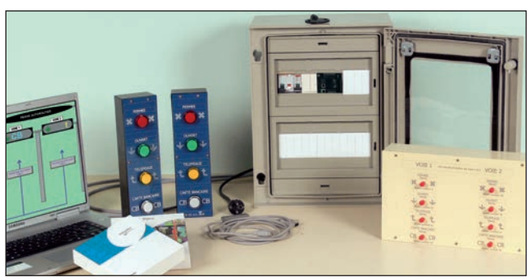
This model simulates a crossroad equipped with 4 traffic lights. Using a TCP/IP PLC and monitoring software, it is possible to control the model and view its operation on a computer.

LIGHTING CONTROL SYSTEM WITH PLC

ref. COFEC

This model is a room lighting unit comprising an electrical cabinet and a console fitted with low-voltage spotlights.
Using a TCP/IP PLC and monitoring software, it is possible to control the model and view its operation on a computer.

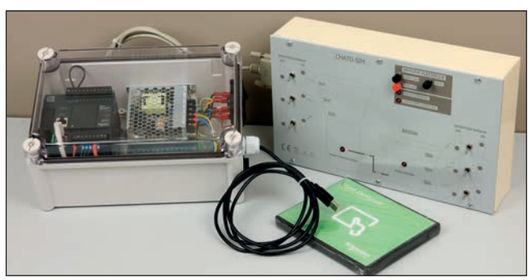
LIGHT SIGNS SYSTEM FOR A MOTORWAY TOLL



ref. AUTO-PEAG

Simulates a motorway toll. Comprises 1 electrical cabinet and 2 toll lane indication signs. Using a TCP/IP PLC and monitoring software, it is possible to control the model and view its operation on a computer.

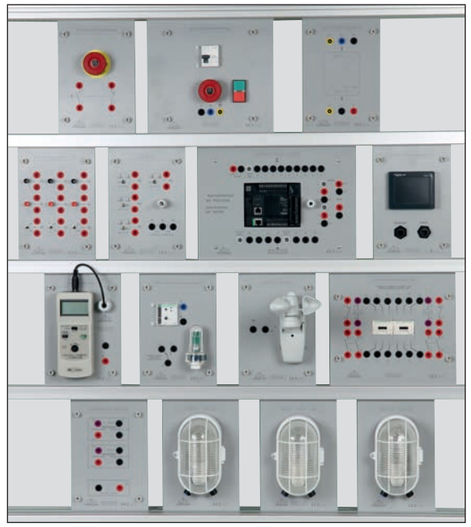
PUMPING STATION



ref. CHATO-SIM

This model simulates a drinking water pumping station.
Using a TCP/IP PLC and monitoring software, it is possible to control the model and view its operation on a computer.

STUDY OF THE PROGRAMMING OF PLC AND HMI (HUMAN MACHINE INTERFACE)



EDUCATIONAL OBJECTIVES

- Study of a complete diagram with automation sensors and components for connecting to the inputs/outputs of a PLC.
- Study the configuration of an Ethernet for computers.
- Study the programming of a PLC in contact language.
- Study the programming of an HMI (Human Machine Interface).
- Study an analogue signal by current and voltage.
- Configure a Wifi network and control the components from a tablet (QUICK-ECPLUS only)

ref. QUICK-DPLUS (Siemens)

TEACHING RESSOURCES STUDENTS / TEACHER

ref. QUICK-ECPLUS (Schneider)

AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

Sockets on the back of the console for connecting the modules

SIMPLIFIED STUDY OF M221 CONTROLLER

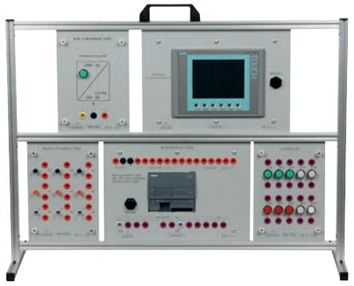
EDUCATIONAL OBJECTIVES

- To study the connection diagram of the inputs and outputs of a PLC.
- To study the configuration of a computer Ethernet.
- To study the programming of a PLC in contact language.
- To study the programming of an HMI (Human Machine Interface).
- Carry out a WiFi network configuration for ordering on a tablet or smartphone (QUICK-AK9-C only).

ref. QUICK-AK9 | **ref. QUICK-AK9-C version communicante**

TEACHING RESSOURCES STUDENTS / TEACHER | AUTONOMOUS WIFI NETWORK

SIMPLIFIED STUDY OF SIEMENS CONTROLLER



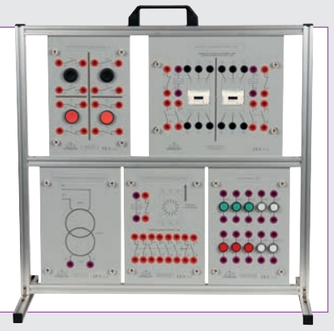
EDUCATIONAL OBJECTIVES

- To study the connection diagram of the inputs and outputs of a PLC.
- To study the configuration of a computer network type Profinet.
- To study the programming of an automaton in ladder language.
- To study the programming of an HMI (Human Machine Interface).

ref. QUICK-AK91

TEACHING RESSOURCES STUDENTS / TEACHER

STUDY OF CONTACTOR + TIMING



EDUCATIONAL OBJECTIVES

- To study the connection diagram of 2 contactors and 1 timer
- To study the configuration of a timer.

ref. QUICK-AK10

TEACHING RESSOURCES STUDENTS / TEACHER

PDF

Technical datasheets on our website

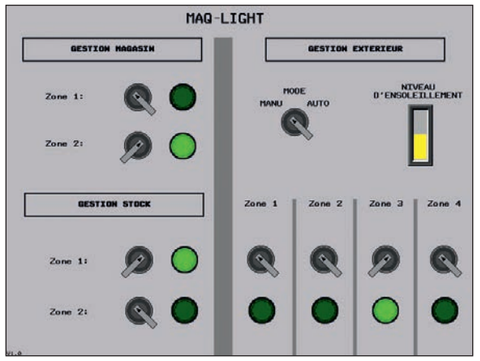
MANAGING OF HYPERMARKET LIGHTING BY SUPERVISION

EDUCATIONAL OBJECTIVES

- Study and putting into service of a lighting management system for hypermarket by supervision
- Studying the configuration of an Ethernet type computer network
- Studying the programming of a PLC in contact language
- Studying the programming of an HMI (Human Machine Interface)
- Studying the coexistence of several PLCs and HMIs

ref. MAQ-LIGHT

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER



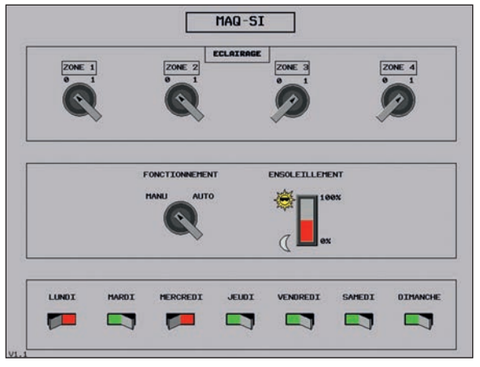
STUDY PLC SIEMENS® WITH SUPERVISION
SIMULATION OF LIGHTING COMMERCIAL SPACES

EDUCATIONAL OBJECTIVES

- Study of a wiring diagram developed in automation.
- Study and operation of a PROFINET® computer network
- Study of the programming of a SIEMENS® PLC.
- Study of the programming of an HMI (Human Machine Interface).

ref. MAQ-SI

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER



FIELDBUS STUDY FOR PROFINET AND PROFIBUS
SIEMENS® COMPONENTS

SIEMENS

Technical datasheets on our website

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES	MAQ-NET	MAQ-NET1	MAQ-NET2
Studying of Fieldbus communication between different automatism components	✔	✔	✔
Profinet® cabling study	✔	✔	✔
Profibus® cabling study	✔		
Configuration of Profibus® components	✔		
Configuration of Profinet® components	✔	✔	✔
Configuration of remote inputs / outputs	✔	✔	
Setting the dimmer in Wifi	✔	option SIE-WI	option SIE-WI
Programming of an HMI, PLC, drive assembly	✔	✔	✔

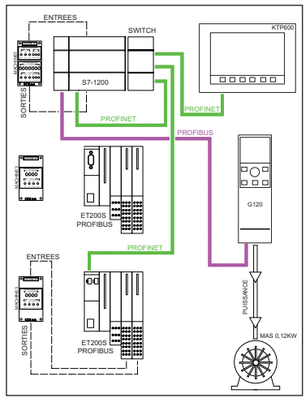
RECOMMANDED SOFTWARE OPTION
LOG-STEP is highly intuitive.
On-line help and the practical assignments let students learn quickly with the different programming screens.
Compatible Windows 7 (64bits) / Windows 10 (64bits) / Windows server (64bits).

ref. LOG-STEP

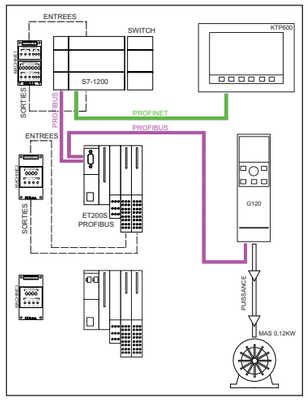
WIFI CONSOLE OPTION (included on MAQ-NET)
Wifi module designed for quick commissioning, parameter setting and maintenance of drives SINAMICS G120. It is easily connected to the front panel of the drive, replacing the rotary button control module.

ref. SIE-WI

PROFINET



PROFIBUS



Wiring and Bus Diagrams of the MAQ-NET version

FIELDBUS STUDY FOR ETHERNET
SCHNEIDER® COMPONENTS

Schneider Electric | SoMove

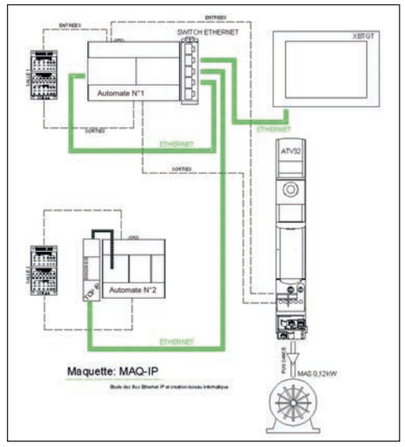
EDUCATIONAL OBJECTIVES
- Study of field bus communication between different automation components
- Study of Ethernet cabling and creation of an IP network
- Configuring Ethernet components
- Set up a Wifi network and control the components from a tablet
- Configure a variable speed drive
- Configure an HMI
- Configure an automaton
- Configure the association of 2 remote PLCs (MAQ-IP / MAQ-IP-N version only)

ref. MAQ-IP — **version with 2 PLC - on wheels**

ref. MAQ-IP-N — **version to put on table**

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

ETHERNET

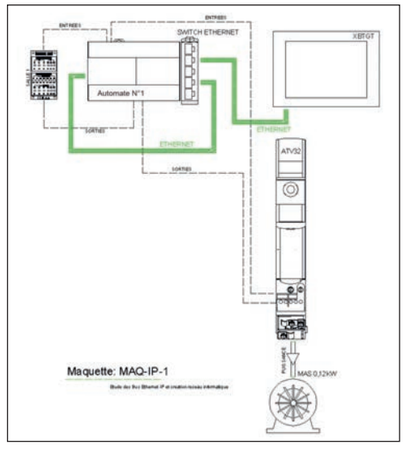


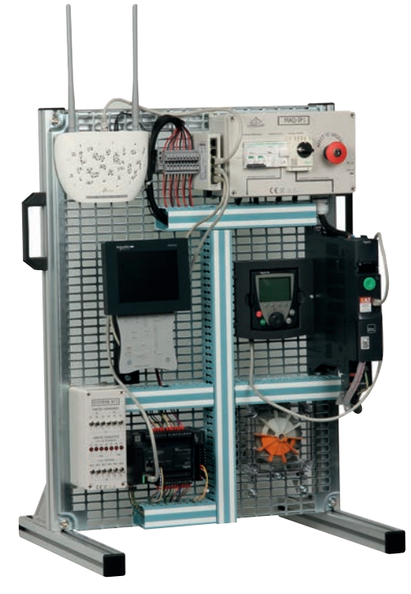
Technical datasheets on our website

ref. MAQ-IP-1 — ***simplified version (1 PLC only)***

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

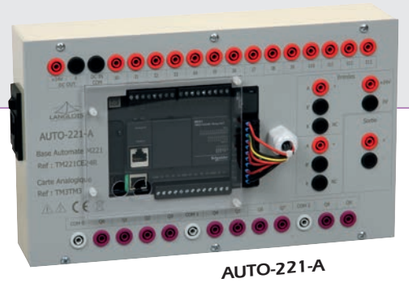
ETHERNET





Technical datasheets on our website

INTEGRATED PLC UNITS

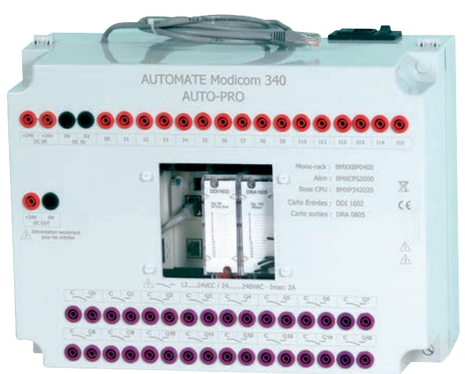


AUTO-221-A

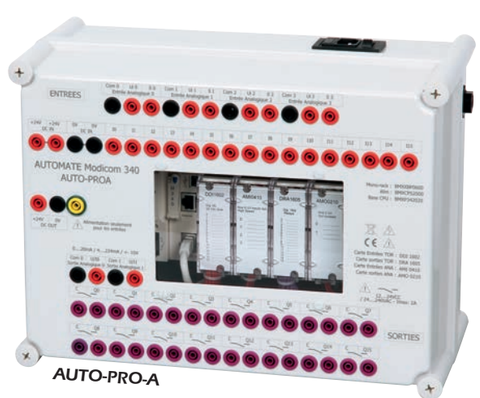
MAT-BOX

221-MAX

Ref.	S7-MAX	MAT-BOX	AUTO-221	AUTO-221-A	221-MAX	AUTO-PRO	AUTO-PROA
Brand	**SIEMENS**		**SCHNEIDER**				
Model	**SIMATIC S7-1200**		**M221**			**MODICOM M340**	
Software	**LOG-STEP (option)**		**EcoStruxure Machine Expert Basic (supplied)**			**CONTROL EXPERT (option)**	
Nb of intputs	30 inputs 24VDC	14 inputs 24VDC	14 inputs 24VDC		30 inputs 24VDC	16 insulated inputs 24Vcc	
Number of outputs	26 All or Nothing outputs 2A max	10 All or Nothing outputs 2A max on resistive load			26 All or Nothing outputs 2A max	16 All or Nothing outputs 2A max	
Analog	no	2 inputs 0-10VDC 1 output 0-10VDC or 4-20mA	no	2 inputs PT100 1 output 0-10VDC or 4-20mA	2 analog inputs 0-10V	no	4 voltage / current inputs ±10V / 0-10V / 0-5V / 1-5V / ±5V 0-20mA / 4-20mA / ±20mA 2 voltage / current outputs ±10V / 0-20mA / 4-20mA
Ethernet	yes + 1 mini switch 4 ports RJ45		yes			Ethernet module TCP/IP on RJ45	
Power supply	230VAC-50/60Hz by means of socket unit + switch					230VAC-50/60Hz by means of socket unit + switch	
Dimensions	330 x 200 x 80mm				380 x 280 x 180mm	360 x 270 x 170mm	
Supplied with	1 Ethernet RJ45 3-m cable. 6 practical works (PLC configuration, use and programming.)		1 Ethernet RJ45 3-m cable. 1 USB cable PC/PLC			1 ethernet RJ45 3-m cable.	

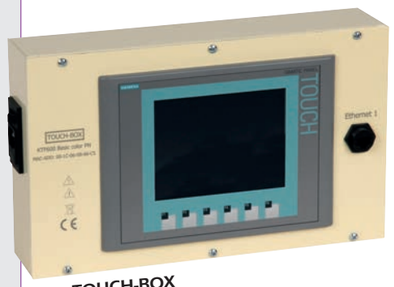


AUTO-PRO



AUTO-PRO-A

INTEGRATED TOUCHSCREEN UNITS



TOUCH-BOX

STU-BOX4

STU-BOX6

Réf.	TOUCH-BOX	STU-BOX4	STU-BOX6
Brand	**SIEMENS**	**SCHNEIDER**	
Model	**Simatic KTP600**	**HIMISTU**	
Software	**LOG-STEP (in option)**	**VijeoDesigner (supplied)**	
Touchscreen	5,7" TFT 256 colours	3,5" 65536 colours	5,7" 65536 colours
Resolution	320 x 240 pixels		
Ethernet	1 RJ45 connector	6 RJ45 connectors (Including 1 5-ports switch)	1 RJ45 connector
USB	no	1 USB connector	
Power supply	230VAC-50/60Hz by means of socket unit + switch		
Dimensions	330 x 200 x 80mm		
Supplied with	1 Ethernet RJ45 3-m cable. User's manual with tutorials.	1 Ethernet RJ45 3-m cable.	

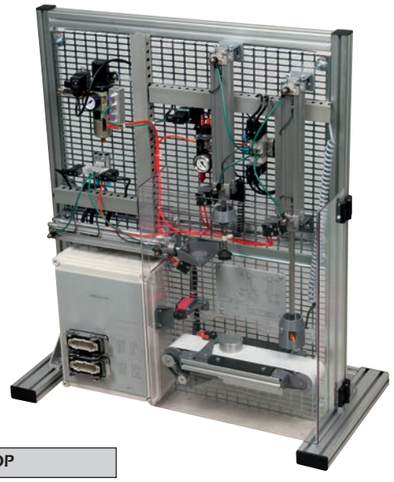
PROGRAMMABLE CONTROLS SYSTEM

This unit is a programmable interface working as a PLC with orders (inputs) and contacts (outputs). Its particularity is to integrate a clock which sets controls. Its programming software is very easy to use. Among its various and user-friendly functions, the function "SIMULATION" which allows to check the program before using it in real condition.
A network communication module which can be used to connect the ZELIO to the Ethernet using the Modbus TCP protocole
Dimensions of the box: 360 x 270 x 170mm

Ethernet module features:
- direct connection to the ZELIO
- female RJ45 reinforced cable
- a communication display LED (LK/ACT 10/100)
- a STATUS display LED (STS)
- 16 inputs 24V DC, 6 can be wired in analog inputs 0-10V
- 10 dry contacts outputs
- a display indicating state and local programming
- 6 keys for local programming

ref. ZELIO-NET

PNEUMATIC HANDLING LINE

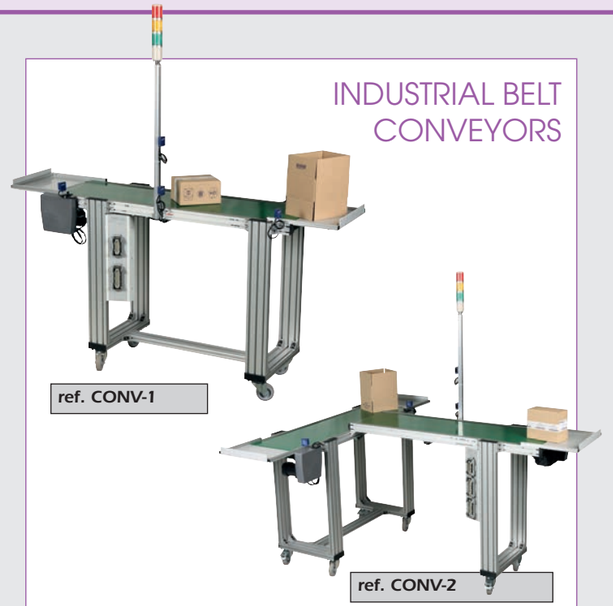


ref. PNEU-23-OP

SMART PNEUMATIC CHAIN WITH MAINTENANCE

ref. PNEU24-OP

INDUSTRIAL BELT CONVEYORS



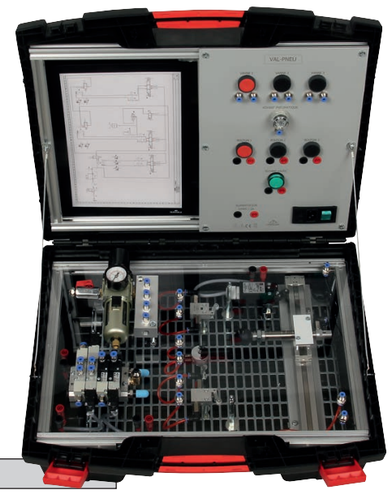
ref. CONV-1

ref. CONV-2

SUPERMARKET CHECKOUT SIMULATOR

ref. TAPIX

SUITCASE ON PNEUMATIC SYSTEMS



ref. VAL-PNEU

DIDACTIC LIFT

ref. ASC19

REGULATION OF LEVEL AND FLOW RATE BY PID

ref. MAQ-ND-OP

BELT CONVEYOR ON SUITCASE

ref. VAL-TAP

Technical datasheets on our website

PUMPING SYSTEM

ref. HYDRO-OP

SIMULATOR FOR CHECKING CONTROLLER (PLC) PROGRAMMING

Checking a PLC program requires the connection of an operative part.
PUP-PLC groups together a set of actuators, power supplies and components required for checking programs.
Its complete composition provides great comfort for this check.

Features
- 3-metre power cord for power supply 230V-50/60Hz single phase.
- Console dimensions: 1000 x 160 x h 300mm. Weight: 14kg.

ref. PUP-PLC

PUMPING SYSTEMS WITH SUPERVISION AND REGULATION

EDUCATIONAL OBJECTIVES

- Study of the supervision of an industrial pumping station
- Study of the regulation of water level by all-or-nothing float sensor
- Study of the regulation of water level by hydrostatic sensor 4-20mA
- Study of the regulation of water flow rate by flowmeter 4-20mA
- To understand the operation of an industrial pumping system
- To take industrial measurements of electrical values
- To produce a PID program with a controller PLC
- To produce a PID program with a 4-20mA regulatotr
- To study Ethernet / IP addressing
- To learn how to use and configure a speed variator
- To perform industrial maintenance operations
- To study the analogue signal 4-20mA

STANDARDS MODELS : 3-PHASE 400V
Available on single-phase 230V

4 communicating models to choose from

ref. HYDRO-1 ref. HYDRO-2 ref. HYDRO-3 ref. HYDRO-4

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

Operative part only

ref. HYDRO-OP

PUMPING SYSTEM WITH REMOTE CABINET AND REMOVABLE GRID

ref. HYDRO-ADE *System presented with HYDRO-PAN option*

EDUCATIONAL OBJECTIVES

- Study of the supervision of an industrial pumping system
- Study of water level regulation by TOR float type sensor
- Study of water level regulation by 4-20mA hydrostatic sensor
- Study of water flow regulation by 4-20mA flow meter
- Understand the operation of an industrial pumping system
- Carry out industrial measurements of electrical quantities
- Carry out a PID program with a PLC
- Carry out a PID program with a 4-20mA regulator
- Study Ethernet / IP addressing
- Learn to use and configure a speed variator
- Carry out industrial maintenance operations
- Study the 4-20mA analog signal
- Wire a PLC with an analog-controlled speed variator.
- Wire a PID regulator with an analog-controlled speed variator.
- Wire and configure the elements of a computer network composed of the PLC, the HMI and the Wifi switch.

OPTIONS FOR HYDRO

Breakdown box

ref. HYDRO-PAN

Hydrostatic pressure sensor

ref. HYDRO-NIV

Flowmeter

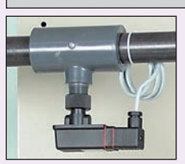
ref. HYDRO-DEB

Float flow indicator

ref. FLO-DEB

All or nothing flow sensor

ref. CO-DEB



Technical datasheets on our website

REGULATION OF LEVEL AND FLOW RATE BY PID

HYDROSTATIC PRESSURE LEVEL SENSOR AND 4-20mA FLOW RATE SENSOR

EDUCATIONAL OBJECTIVES

- Putting an electrical installation into service.
- To learn about and use a PID regulator, a hydrostatic sensor, and a 4-20mA flowmeter.
- To use a regulation system for water level and flow rate by analogue signal 4-20mA.
- To use and configure a speed variator locally and from programming software.
- To measure, analyse and interpret analogue signals.
- To learn industrial maintenance.

PID communicating with software

Réf. MAQ-ND-C | **Réf. MAQ-NIV-C without flow rate regulation**

DELIVERED WIRED & SET

TEACHING RESSOURCES STUDENTS / TEACHER

Operative part only

Réf. MAQ-ND-OP

WIRING OF A PUMPING STATION WITH CONTROL BOX

This operational section, equipped with a containment cabinet, allows for the study and wiring of the various operating modes of a level-controlled pumping station.
The student wires the grid (optional) before installing it in the cabinet for testing.
Student safety is ensured by a cabinet door opening sensor.
This sensor cuts off the power supply.
If necessary, a key switch can be used to deactivate this safety device.

EDUCATIONAL OBJECTIVES (requires optional grids)

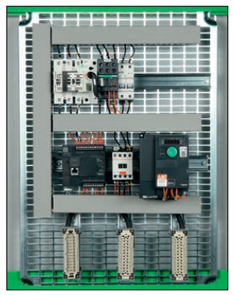
- Understand the operation of a level-controlled pumping station
- Wire the various operating modes
- Test the wiring by inserting the grid into the cabinet and connecting it to the pump
- Create the various wiring diagrams
- Record electrical measurements (measuring devices not provided)
- Study the operation of on-off and analog level sensors.
- Study the programming of a programmable logic controller with an analog output signal.
- Perform industrial maintenance operations.

Réf. ADC-HYDRO

ref. GHYD1-ADC

Contactor Grid Option

- 1 wiring grid measuring 670x450mm
- 1 padlockable fuse holder disconnect switch
- 1 two-pole fuse holder
- 1 three-pole contactor - 24V coil and 1 auxiliary contact block
- 1 thermal relay
- 5 auxiliary contactors - 24V coil
- 1 set of multi-pin industrial connectors (male/female)



ref. GHYD2-ADC

Grid option with dimmer & M221 PLC

- 1 wiring grid measuring 670x450mm
- 1 padlockable fuse holder disconnect switch
- 1 two-pole fuse holder
- 1 thermal relay
- 1 three-pole contactor - 24V coil
- 1 three-phase input/output dimmer 3 x 400VAC – 370W
- 1 Schneider® M221 PLC with analog output card
- 1 set of industrial multi-pin connectors (male/female)
- 1 PLC programming software
- 1 SoMove dimmer programming software

LEVEL CONTROL SYSTEM BY MEANS OF PLC & TOUCHSCREEN

EDUCATIONAL OBJECTIVES

- Studying, putting into service, getting started and setting of the system
- Understanding the setting and the programming by PLC
- Understanding the PID level regulation, probes and sensors
- Study of Ethernet cabling and creation of an IP network
- Set up a Wifi network and control the components from a tablet

ref. REGULEAU-C

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

Practical works

- Drawing of wiring diagrams
- Setting and programming the PLC
- Configuration of the PC Ethernet links / PLC / Touch Screen
- Configuration and setting of the touch screen
- Setting the 4-20mA water level regulation with the PID of the programmable PLC
- Wiring the grid
- Understanding the functioning of the level regulation by PID, probes and sensors

4-20mA hydrostatic pressure sensor

SYSTEM FOR WATER LEVEL AND FLOW REGULATION BY PID

OBJECTIFS PÉDAGOGIQUES

- Studying, putting into service, getting started and setting of the system
- Understanding and setting of the PID level regulation
- Calculating the span & zero offset of a level measurement by hydrostatic pressure of wet column. Adjust the level transmitter
- Wiring, putting into service & adjustment of components: transmitter, regulator…
- Make current measurements as in industry, without opening loops, with the help of a multimeter.
- Taking in hand the setting software of the frequency converter.

ref. DESNIV

TEACHING RESSOURCES STUDENTS / TEACHER

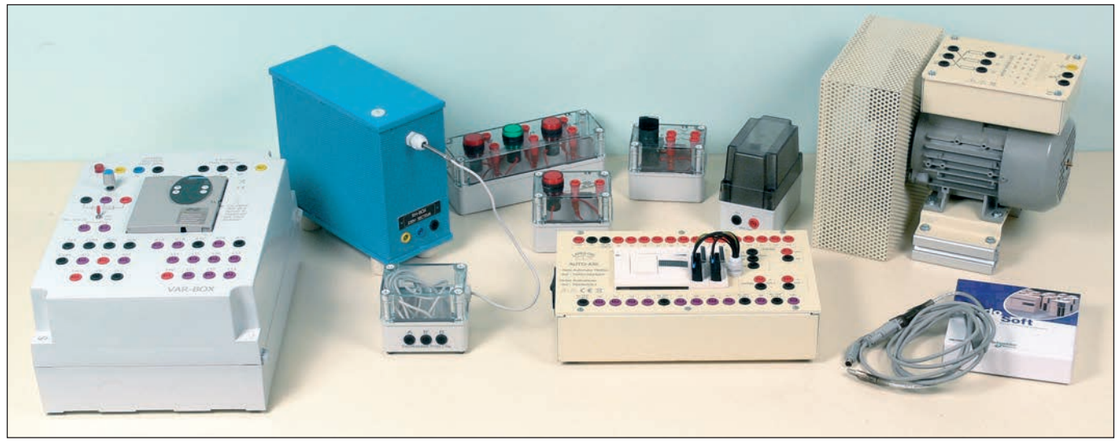
SUPPLIED WITH A 4-20MA LOOP CALIBRATOR

PRINCIPE DE FONCTIONNEMENT

Le but consiste à régler le niveau d'eau dans une colonne en polycarbonate transparent, diamètre 160mm, hauteur 1370mm. Une pompe élève l'eau d'un réservoir de 50 litres placé en partie basse vers la colonne. L'eau s'écoule en permanence de la colonne vers le réservoir par gravité à travers la vanne "réglage débit".
Le régulateur PID reçoit l'information «niveau d'eau» provenant d'un capteur 4-20mA. Il compare ce signal à la consigne de niveau, et pilote le débit de la pompe, via un variateur de fréquence.
Le système fonctionne selon deux modes : asservissement et régulation. Dans ce dernier cas, une vanne manuelle crée la perturbation.

Technical datasheets on our website

TEMPERATURE CONTROL BY PLC



Réf. REGULAIR

USER'S MANUAL WITH PRACTICAL WORKS

EDUCATIONAL OBJECTIVES

- Studying the analogical regulation loop
- Studying the role of the frequency converter in a regulation system
- Understanding the PID configuration by PLC

SUPPLIED READY FOR OPERATION WITH THE TECHNICAL INSTRUCTIONS, THE PROGRAMMING SOFTWARE AND THE PLC PROGRAMS WHICH CORRESPOND TO THE VARIOUS TUTORIALS TO BE UNDERTAKEN.
ALL OF THE COMPONENTS CAN BE SOLD SEPARATELY.

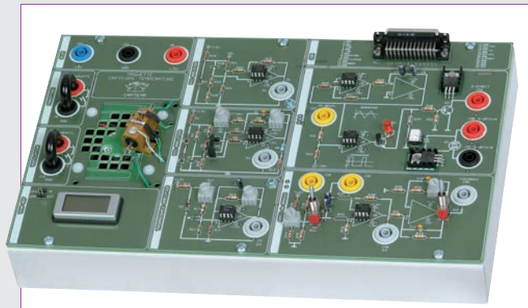
SYSTEM FOR HEAT REGULATION BY PID

EDUCATIONAL OBJECTIVES

- Understanding of the regulation principles by PID, from theory to practice.
- Wiring, calibration, loop measuring, statement of curves.

Réf. DESP

USER'S MANUAL WITH PRACTICAL WORKS



TEMPERATURE SENSORS & HEATING CONTROL

EDUCATIONAL OBJECTIVES

- Studying the regulation of temperature all or nothing
- Studying the regulation of temperature with control loop with variable gain
- Studying of thermal sensors: thermocouple, thermistor NTC and PTC.

Réf. CAPTEMP

USER'S MANUAL WITH PRACTICAL WORKS

ALL OR NOTHING TEMPERATURE REGULATION

EDUCATIONAL OBJECTIVES

- Understanding and wiring of a regulation chain All-Or-Nothing.
- Studying, setting, control of a All-Or-Nothing regulator.
- Retrieving information by computer.
- Understanding of the link resistance / temperature as measuring principle.

ref. REGULOR

USER'S MANUAL WITH PRACTICAL WORKS

PID TEMPERATURE REGULATION

EDUCATIONAL OBJECTIVES

- Understanding and wiring of a regulation chain of temperature by PID
- Studying, setting, control of a PID regulator
- Retrieving information by computer.
- Understanding of the link resistance / temperature as measuring principle.

ref. REGULIDE | **ref. REGUL-G** communicating version

USER'S MANUAL WITH PRACTICAL WORKS

MODULAR VERSIONS

ref. QUICK-REG with frame

ref. QUICK-REG-N without frame

Technical datasheets on our website

PIUD AND ON/OFF REGULATION TRAINING SUITCASE

ref. VAL-REG-C

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES

- Understanding of the temperature control chain wiring.
- Understanding of the operating principle of each of the components
- Understanding of the operating principle of a 4-20mA signal
- Understanding of the advantages and disadvantages of PID regulation compared to ON/OFF action

Câblage en toute sécurité sur bornes 4mm. Les cordons de sécurité et le cordon d'alimentation sont fournis. Les informations de repérage des composants et autres caractéristiques techniques sont sérigraphiées sur les faces.

A regulator is the corrective organ inserted in a control loop, intended to control a process (boiler, compressor, pump, etc.). It receives a 4-20mA signal from a sensor, image of the quantity to be regulated (temperature, pressure, flow rate, etc.), compares it to the setpoint (previously programmed) and controls the process to reduce the "quantity to be regulated / setpoint" gap.

The included software allows the visualization of values in real time and the recovery of data in computer form. The configuration of the controller is also possible via the use of the PC.

CHAIN COMPONENTS OF REGULATION

HEATING UNIT

ref. RH-BOX

ALL OR NOTHING REGULATORS

ref. TOR2002-BOX

PID REGULATORS

ref. AT403-BOX

ref. PID-C communicating version

PT100 TEMPERATURE SENSOR

ref. PT100-BOX

PT100 - 4-20mA TEMPERATURE CONVERTER

ref. TMPT-BOX

SCR POWER CONTROLS

ref. CIA-GRA30T 3-phase

ref. CIA-GRA30M single

ref. GRAD-BOX single

STUDY OF EARTHING CONNECTIONS (NEUTRAL SYSTEM)

Technical datasheets on our website

ref. SLT-1-T8W

Version with HMI and support arm

TEACHING RESSOURCES STUDENTS / TEACHER

ref. SLT-1

Version with PC not supplied

ref. SLT-1-PC

Version supplied with configured PC

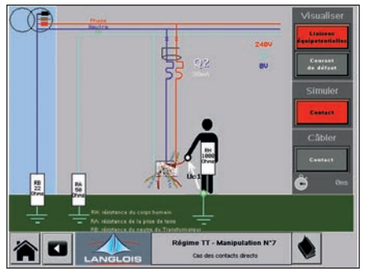
EDUCATIONAL OBJECTIVES

- To learn about the notion of electrical hazard (qualitatively and quantitatively).
- To demonstrate the features of each earthing connection scheme (TT, TN, IT)
- To be able to explain the role of each element of the protective arrangements (earthing connection, thermal magnetic circuit-breaker, residual current device, IMD).
- To show the fault current paths without danger.
- To take into account standard NFC 15-100

Pratical works - 2 types

- Demonstrating the structure of the protective arrangements against indirect and direct risks.
- Defining the selection criteria for the different components (protection sensitivity, etc.)

Study of 7 scenarios for the TT system, 3 for TN and 5 for IT. Supplied with booklet for guiding the student through the course. Contains a note on the 3 NEUTRAL SYSTEMS and some recaps of standard NFC 15-100. For each test, this gives the objectives, the diagram, questions on the calculations to be done, on the measurements to be carried out and on the diagnostics to make.



Example of screen - Test in TT mode: direct contact

Example of screen - Test in TN mode: visualization of equipotential bonds

Example of screen - Test in IT mode: first fault

Example of screen - Test in TT mode: failure of the magnetothermal circuit breaker

Example of screen - Test in TN mode: neutral and PE separated. Case of a long circuit

Example of screen - Test in IT mode: visualization of fault currents.

STUDY OF THE ROLE OF THE EARTH & A DIFFERENTIAL CIRCUIT-BREAKER

EDUCATIONAL OBJECTIVES

- Educating students about the risks of electrocution in the event of direct contact
- Educating students about the risks concerning the quality of the earth
- Showing the role of a 30mA residual current circuit breaker in a house

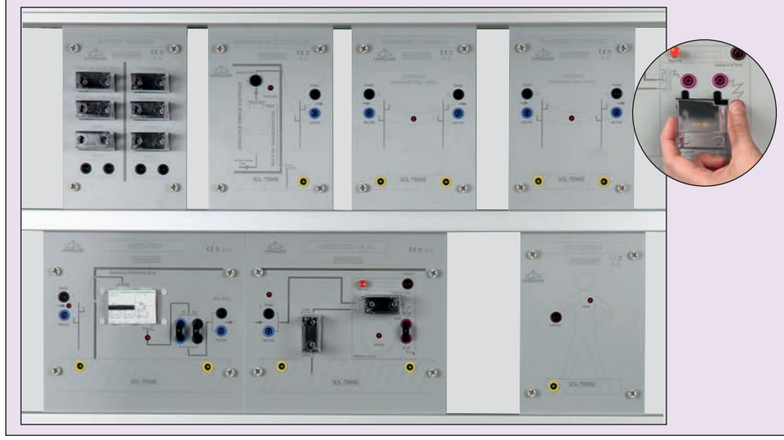
Theoretical recalls provided

- Operation of a thermal magnetic circuit-breaker rating, breaking capacity, tripping curve, symbols
- Operation of a residual current circuit-breaker rating, tripping time, symbols
- Physiological effects of the current hazard zones: current function times, dangerous voltages
- Maximum resistance of the earth

ref. SELDIF

TEACHING RESSOURCES STUDENTS / TEACHER

MODULAR VERSION



ref. QUICK-HPLUS

Fiches techniques
détaillées sur notre site

ELECTRICAL AUTHORIZATION TABLE FOR HOUSING

Mise en application en vue de l'habilitation aux risques électriques (B0 / BE / BS),
dans un environnement de type HABITAT.
Contenu pédagogique basé sur les règles de la norme française.

EDUCATIONAL OBJECTIVES

- Application of knowledge, rules and methods for certification to electrical hazard clearance
- Perform practical work related to electrical qualification B0 / B0V / BE / BS
- Perform electrical equipment logging operations
- Take measurement readings using a multimeter (not supplied)

Practical work provided

- Review of electrical certification
- Circuit breaker lockout
- Completing lockout and certification documents
- Verifying proper use of PPE
- Voltage measurement and continuity testing with a multimeter (not provided)

Examples of interventions

- Power off and logging
- Replacement of a Low Voltage fuse
- Replacement of a lamp
- Removing and installing a socket outlet
- Removing and installing a light switch
- Connecting an item of electrical equipment to a waiting circuit
- Reset on instruction of a protection device
- Replacement of an accessory of a lighting (bulb ...)

ref. HABILIT6

USER'S MANUAL WITH PRACTICAL WORKS

MODEL FOR ELECTRICAL CERTIFICATION PLUMBER - HEATING ENGINEER

Application for electrical hazard certification (B0 / BE / BS)
in a residential environment.
Learning content based on the rules of the French standard.
The 24VAC operating voltage, protected by fuses, makes the model completely safe to use.

EDUCATIONAL OBJECTIVES

- Mise en application des connaissances, des règles et des méthodes en vue de la certification à l'habilitation aux risques électriques
- Réaliser des travaux pratiques en rapport avec l'habilitation électrique B0 / BE / BS
- Réaliser des opérations de consignation de matériels électriques électriques (groupe climatiseur, chaudière électrique, prise)
- Réaliser des relevés de mesures à l'aide d'un multimètre (non fourni)

Practical work provided

- Review of electrical certification
- Locking out a circuit breaker and a fuse
- Completing the lockout and certification documents
- Verifying the proper use of PPE
- Measuring voltage and testing continuity with a multimeter (not provided)

Examples of interventions

- Powering down and locking out
- Replacing a low-voltage fuse
- Connecting the terminal block of an electric boiler
- Removing and replacing a power outlet
- Connecting the terminal block of an indoor air conditioner unit
- Connecting the terminal block of an outdoor air conditioner unit
- Resetting a protective device on instruction

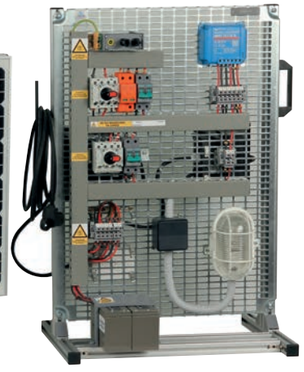
NEW

ref. HABILIT3

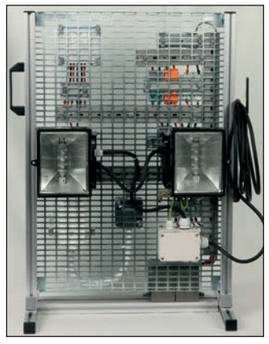
USER'S MANUAL WITH PRACTICAL WORKS

MODEL FOR ELECTRICAL ACCREDITATION IN A SOLAR INSTALLATION

Solar panel frame



Front face solar system frame



Back face solar system frame

Voltage measurement

ref. HABILIT-SOL

DELIVERED WIRED AND SET | Bluetooth | TEACHING RESSOURCES STUDENTS / TEACHER

Application for electrical hazard certification (BC / B1 / B2 / BE / BR / BP)
on a solar installation.
Educational content based on the rules of the French standard.
Compact, to be placed on a table, this model represents a photovoltaic installation.
It is composed of two separate assemblies:
- A frame on which two solar panels are installed.
- A structure containing all the electrical protection and distribution components on one side and two floodlights to simulate sunlight on the other side.

EDUCATIONAL OBJECTIVES

- Study a solar installation for the electrical energy production
- Apply knowledge, rules and methods according to the accreditation of electrical hazards
- Carry out practical work and wiring tasks related to photovoltaic electrical accreditation
- Practice maintenance and servicing operations on a photovoltaic installation
- Practice consignment operations for electrical equipment
- Carry out measurement readings

Practical work provided

- Reminder of the prevention of electrical hazards
- Components Identification from electrical diagrams
- Securing for maintenance
- Consignment of a disconnector
- Drafting of consignment and authorization documents
- Verification of the proper use of I.P.E
- Realization of voltage / current measurements
- Replacement of an accessory
- Performing solar panel maintenance operations
- Study and realization of solar panel couplings
- Study and realization of battery couplings
- Configure Bluetooth communication.
- Configure a photovoltaic installation from a tablet or a smartphone.

Panel installation:
The frame can be tilted to simulate roof installation.

CABINETS FOR INDUSTRIAL ELECTRICAL AUTHORIZATION

The service voltage of 24VDC, protected by circuit-breakers, makes use of the cabinet completely safe.
The integrated load, comprised of six 60W lamps, enables a sufficiently significant current to be generated.
The cabinet is self-contained and requires no connection to the mains 230V when in use.
A mains cable is nevertheless included for recharging the batteries using an integral charger.

EDUCATIONAL OBJECTIVES

- Put into application the knowledge, rules and methods for certification for authorization to electrical hazards
- Carry out practical assignments, wiring tasks relevant to electrical authorization
- Perform maintenance and cleaning operations in an industrial cabinet
- Perform removal from service operations of electrical equipment
- Take measurements using a clamp ammeter

Practical works

TEACHING RESSOURCES
STUDENTS / TEACHER

- Reminder on electrical authorization
- Changing sets of copper busbars
- Removing the cabinet from service
- Complete the removal from service and authorization documents
- Check correct use of PPE (Parsonal Protective Equipment)
- Reading the current in the electrical cabinet using a clamp ammeter

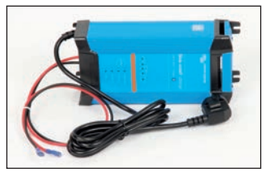
Dimensions : HABILIT24-CA : 800 x 800 x h 1800mm - Weight: 90kg
HABILIT25 : 610 x 780 x h 1800mm - Weight: 115kg
HABILIT12 : 480 x 240 x 1000mm - Weight: 49kg

ref. HABILIT24-CA

Mobile version without walls

ref. HABILIT25

Mobile version with cabinet



ref. HABILIT12

Compact mobile version

ref. EF2

ref. CEF

ref. CA-SGH

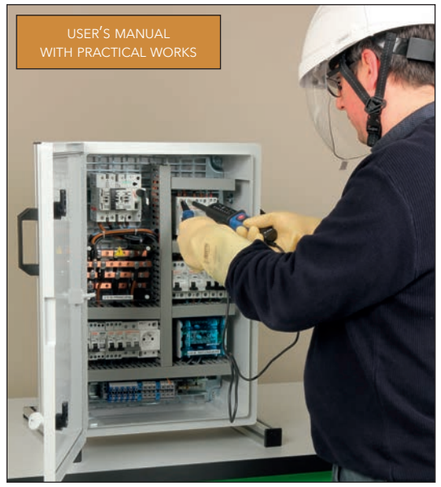
ref. CA-G8

ref. CA-HA12

ref. CA-HA13

Technical datasheets
on our website

INDUSTRIAL CABINET FOR ELECTRICAL ACCREDITATION



Application for electrical hazard certification (BC / B1 / B1V / B2 / B2V / BE / BN) in an industrial environment.

Course content based on the rules set out in the French standard.

La protection générale par disjoncteur et la tension de service en très basse tension (TBT 24V AC ou DC selon version) rendent l'utilisation de la maquette entièrement sécurisée.
Compacte, à poser sur une table, cette maquette représente une armoire de distribution électrique et se décline en deux versions, 24Vac et 24 Vdc.

PEDAGOGICAL OBJECTIVES

- Apply knowledge, rules and methods for certification to electrical risk certification
- Carry out practical work, wiring tasks related to electrical accreditation
- Perform maintenance and servicing operations in an industrial cabinet
- Perform electrical equipment lockout operations
- Study an industrial electrical installation
- Create electrical diagrams and a component parts list

Travaux Pratiques fournis

- Rappel sur l'habilitation électrique
- Identification des composants d'un schéma électrique
- Mise en sécurité en vue d'une maintenance
- Consignation d'un sectionneur d'un composant à changer
- Consignation de sectionneur / porte fusible / disjoncteur
- Rédaction des documents de consignation et d'habilitation
- Vérification de la bonne utilisation des E.P.I.
- Réalisation des mesures de tension / courant
- Remplacement d'un accessoire
- Remplacement d'un fusible

Version with three-phase 24Vac operating voltage

ref. HABILIT-IAC Power supply 3x400Vac + N + T with P17 socket

ref. HABILIT-IAC -230 Power supply 230Vac

Version with 24Vdc continuous operating voltage

ref. HABILIT-IDC Power supply 230Vac

Please note: no potential difference between phases on the 230Vac version

MODEL FOR ELECTRICAL AUTHORIZATION IN AN INDUSTRIAL ENVIRONMENT

Application for electrical hazard certification
(BC / B1 / B1V / B2 / B2V / BE / BN) in an industrial environment.
Course content based on the rules set out in the French standard.

PEDAGOGICAL OBJECTIVES

- Apply knowledge, rules and methods for electrical risk certification
- Carry out practical work, wiring tasks related to electrical certification
- Perform maintenance and upkeep operations in an industrial cabinet
- Carry out consignment operations for electrical equipment
- Carry out measurement readings
- Read a direct start diagram (HABILIT-MOT1)
- Read a star-delta start diagram (HABILIT-MOT2)

ref. HABILIT-MOT1 Direct motor start version

ref. HABILIT-MOT2 Star-delta motor start version

USER'S MANUAL WITH PRACTICAL WORKS

CONVERSION BOX OPTION FOR HABILIT-MOT 1 AND 2 POWER SUPPLIES

Tabletop box that powers the model from a 230V, 2P+E outlet.
- On/Off switch and Emergency Stop
- Protective circuit breakers
- Power supply via a 3m cord with a 2P+E plug.
- Dimensions: 390 x 280 x 185mm.
- Three-phase socket for connecting the model
- Three-phase socket for connecting the model

ref. AL-M2T4

MAQUETTE POUR L'HABILITATION ELECTRIQUE ET LA CONSIGNATION D'ENERGIE PNEUMATIQUE EN MILIEU INDUSTRIEL

OBJECTIFS PÉDAGOGIQUES

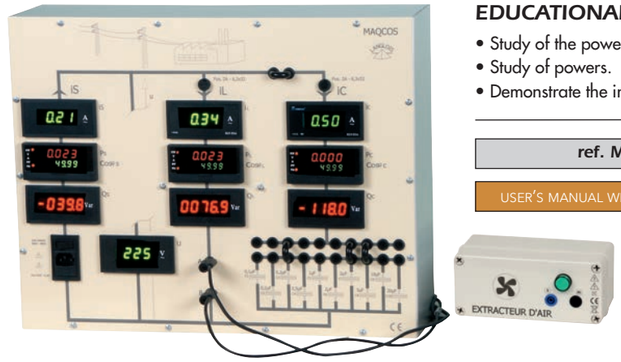
- Mettre en application des connaissances, des règles et des méthodes en vue de la certification à l'habilitation aux risques électriques
- Mettre en application la méthodologie « LOCK-OUT TAG-OUT »
- Réaliser des travaux pratiques, des tâches de câblage en rapport avec l'habilitation électrique
- Réaliser des opérations de maintenance et d'entretien
- Réaliser des opérations de consignation de matériels électriques et pneumatiques
- Réaliser des relevés de mesures
- Lire un schéma électrique et pneumatique

NEW

ref. HABILIT-PN1 NOTICE AVEC TP + CORRIGÉS

Technical datasheets on our website

POWER FACTOR CORRECTION SYSTEM



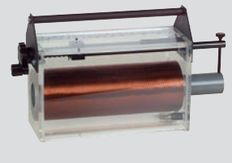
EDUCATIONAL OBJECTIVES

- Study of the power factor.
- Study of powers.
- Demonstrate the interest of a cosine phi adjustment on the cost of kWh.

ref. MAQCOS

USER'S MANUAL WITH PRACTICAL WORKS

OPTION INDUCTANCE VARIABLE



ref. PSYJR

MODULAR VERSION

ref. QUICK-LPLUS

STUDY OF THE 3RD AND 5TH ORDER HARMONICS

EDUCATIONAL OBJECTIVES

- Studying, putting into service, getting started and setting of the system
- Studying of harmonic filtering of orders 3 & 5 and the power factor
- Practical corrections of harmonics generated by a speed variator.

ref. HARMOVAR

SMART BUSINESS POWER MANAGEMENT

EDUCATIONAL OBJECTIVES

- Discover the Home Automation applied to a business installation.
- Study a power consumption measuring system.
- Perform an energy balance.
- Understand the specifications of an electric installation.
- Realize electrical diagrams.
- Produce a components nomenclature.
- Analyze the manufacturers' technical documentation.
- Configure the DELTA DORE® components (radio frequency technology).
- Understand and configure video surveillance system.
- Realize the wiring and connection of network components
- Commission the installation
- Configure the WIFI network

ref. ECP-DD2

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

Back side

PDF Technical datasheets on our website

SPEED CONTROLLER USED FOR ENERGY SAVING

EDUCATIONAL OBJECTIVES

- Energy savings by speed controller demonstrated.
- Creation of the configuration of a speed controller with software.
- Using an energy measuring unit.
- Using a clamp ammeter.

ref. MAQ-WATT

TEACHING RESSOURCES STUDENTS / TEACHER

SMART ENERGY MANAGEMENT

This cabinet allows for the discovery and wiring of the components of an Energy Management Panel (EMP). It incorporates the latest technologies in energy-efficient electrical distribution.

Supplied accessories
- 2 lamps
- 2 1300W rheostats
- 1 set of 4mm safety test leads

EDUCATIONAL OBJECTIVES

- Carry out wiring according to specifications
- Produce electrical diagrams for industrial-type electrical installations
- Conduct functional tests
- Study an energy consumption measurement system
- Carry out an energy assessment
- Produce a component parts list
- Analyze manufacturer technical data sheets
- Configure component settings
- Configure a Wi-Fi network for control via tablet or smartphone
- Commission the installation

COMPACT VERSION
WITH NON-REMOVABLE GRILLE

In this tabletop version, the grill is fixed and cannot be removed.

ref. ADE-TGE2

ref. ADC-TGE

DELIVERED WIRED & SET | AUTONOMOUS WIFI NETWORK | TEACHING RESSOURCES STUDENTS / TEACHER

Very easy wiring and grid change in this very ergonomic cabinet.

AUTOMATIC LEAK ALERT SYSTEM

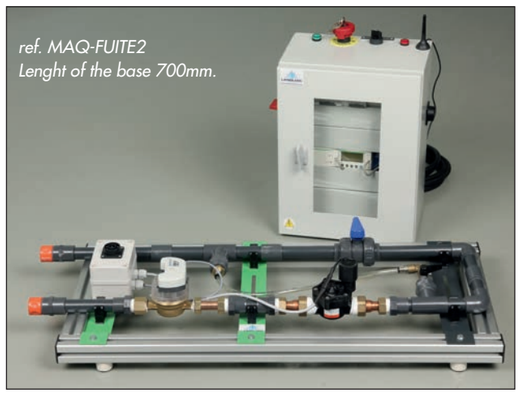
EDUCATIONAL OBJECTIVES

- Learning about water leak detection by sensor.
- Using a GSM phone transmitter
- Using and programming a M221 logic module

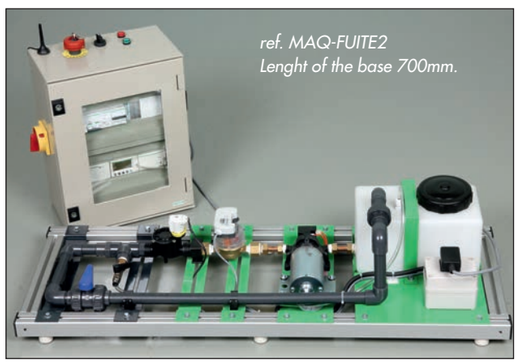
Version with no pump or tank. Requires a pressurized water inlet in the room.

ref. MAQ-FUITE2

TEACHING RESSOURCES STUDENTS / TEACHER



ref. MAQ-FUITE2
Lenght of the base 700mm.



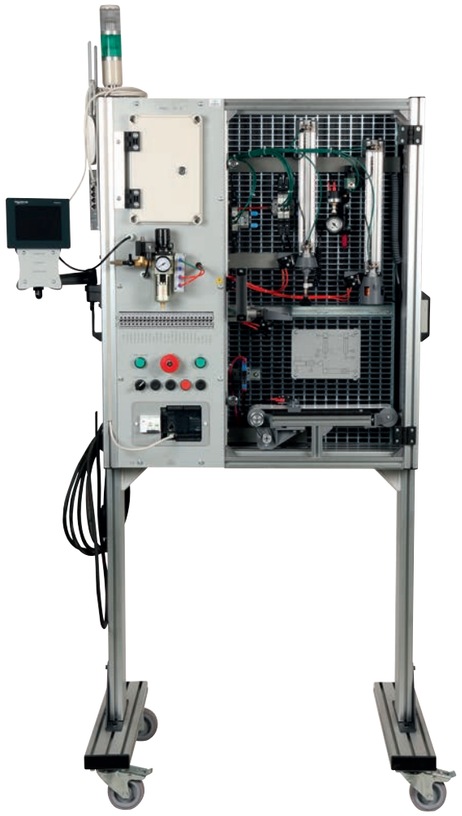
ref. MAQ-FUITE2
Lenght of the base 700mm.

Fully self-contained version thanks to its tank and pump 24V. Requires no water inlet.

ref. MAQ-FUITE-2A

TEACHING RESSOURCES STUDENTS / TEACHER

SMART PNEUMATIC CHAIN: DIAGNOSTICS AND MAINTENANCE

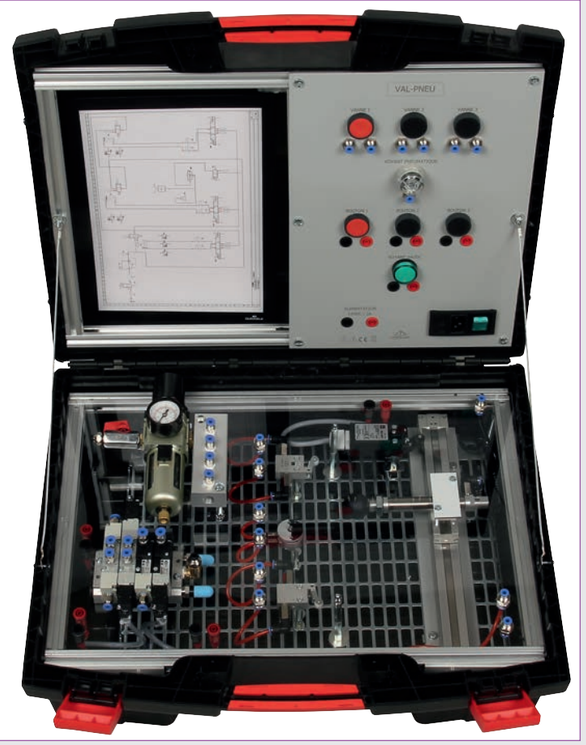


EDUCATIONAL OBJECTIVES *(DEPENDING ON VERSION)*

- Learn about pneumatic components
- Understand an electro-pneumatic circuit
- Study the control and safety devices
- Understand an operating cycle
- Commission and take control of pneumatic equipment
- Find and diagnose faults
- Learn the fundamentals of industrial automation
- Set up and program a PLC
- Program a manual mode using buttons
- Program an automatic mode
- Become familiar with supervision
- Set up and program an HMI
- Program a supervised mode
- Become familiar with the Ethernet network
- Study Ethernet / IP addressing
- Study Wi-Fi communication
- Control the system remotely via Wi-Fi communication

ref. PNEU-24-C	**communicating version**
AUTONOMOUS WIFI NETWORK	TEACHING RESSOURCES STUDENTS / TEACHER
ref. PNEU-24	**no communicating version**
ref. PNEU-24-OP	**operative part onlye**

TRAINING SUITCASE ON PNEUMATIC SYSTEMS



EDUCATIONAL OBJECTIVES

- Discover pneumatic components
- Understanding an electropneumatic circuit
- Commissioning and handling pneumatic equipment
- Handle the wiring of the various components.

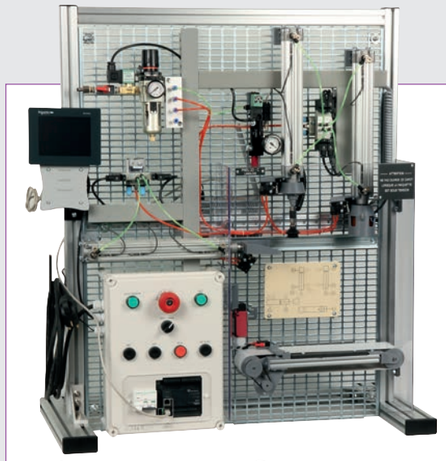
Possible practical work

- Study and realization of electrical and pneumatic diagrams
- Identification of components
- Realization of pneumatic and electrical connections
- Analysis of an operating cycle
- Connection of different components to launch functionalities

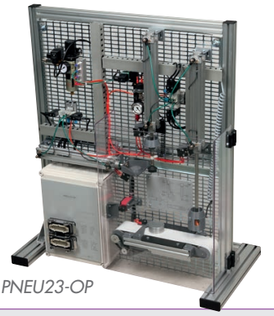
ref. VAL-PNEU

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER

Technical datasheets on our website



Ref. PNEU23-C



Ref. PNEU23-OP

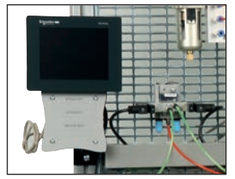
PNEUMATIC HANDLING LINE

EDUCATIONAL OBJECTIVES *(DEPENDING ON VERSION)*

- Introduction to pneumatic components
- Commissioning, handling of pneumatic equipment
- Controlling the system in manual mode
- Controlling the system in sequential mode
- Approach to programming by PLC
- Controlling the system in automatic mode
- Setting up and programming a PLC
- Setting up and programming an HMI
- Familiarising yourself with supervision
- Studying Ethernet/IP addressing
- Studying communication via Wifi

ref. PNEU23-OP	**without PLC**
ref. PNEU23	**with PLC - software**
ref. PNEU23-C	**communicating version**

TEACHING RESSOURCES STUDENTS / TEACHER



The communicating version is equipped with an HMI and a Wifi switch to allow supervision of the entire model.

AUTONOMOUS WIFI NETWORK

STUDY OF PNEUMATIC COMPONENTS

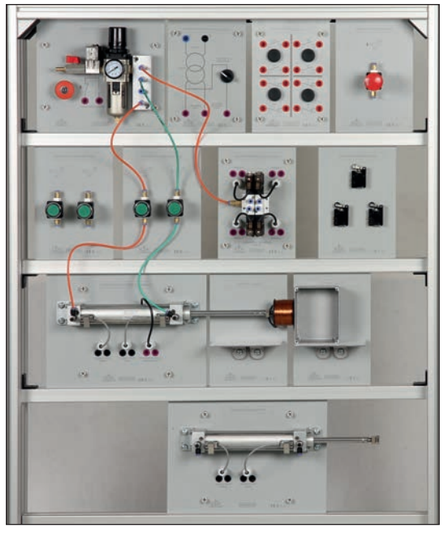
EDUCATIONAL OBJECTIVES

- To study the symbols used to represent pneumatic components
- To study the operation of a double-acting cylinder
- To study the operation of a double-acting cylinder with electromagnet
- To study the wiring of pneumatic and electropneumatic automation

ref. QUICK-PN1PLUS

TEACHING RESSOURCES STUDENTS / TEACHER

Sockets on the back of the console for connecting the modules



COMPRESSOR OPTION

ref. PRESS-35

- Flow rate: 70 l/min
- Connection: 4mm
- Pressure adjustable from 0 to 6 bars
- Tank volume: 4 litres
- Power: 180W
- Sound level: 70dBA (very low sound nuisance)
- Power supply: 230V AC 50Hz
- Dimensions: 385 x 205 x 325mm - Weight: 8.4kg

FAULT FINDING IN MOTOR

EDUCATIONAL OBJECTIVES

- Simulating common failures encountered with a cage induction motor with brake: damage winding, cut, shorted to ground
- Diagnosis by performing measurements and safety tests

Practical works

- Cut Winding
- Winding in short circuit
- Winding to ground
- Damaged winding
- Cut brake control system

The user's manual has been made by teachers, allowing the quick implementation of the product and the creation of practical work in the spirit of fault finding in the industry.

ref. MOTODIAG | USER'S MANUAL WITH PRACTICAL WORKS

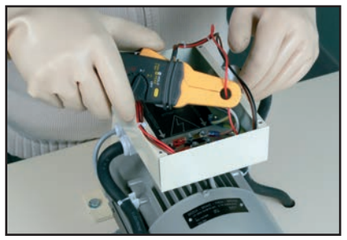
View of the teacher side, door closed and open.

This complete kit on casters, comprising two back-to-back units and an asynchronous squirrel cage motor and a parking brake.

PRINCIPLE

Faults are recreated when the teacher rotates a single switch. Students can take measurements or perform tests in complete safety, regardless of the fault type. Faults can be looked for inside the student unit and in the motor terminal. The unit is isolated from the mains by means of an insulation transformer. In addition, a TT earthing system is recreated on the secondary for safety reasons.
Therefore, even isolation faults are detected by a 30mA differential mechanism. All safety measures are implemented in order to protect individuals and equipment. (See the faults in the description of the teacher unit)

View of the student side, with glass door.



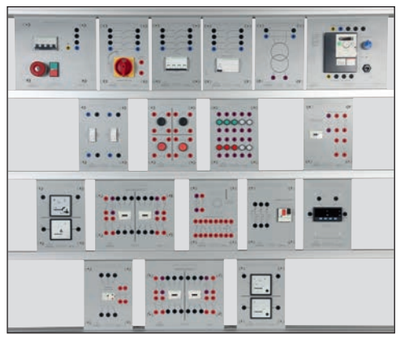
Faults can be looked for inside the student unit and in the motor terminal.

STUDY OF WIRINGS FOR STARTING ASYNCHRONOUS MOTORS

EDUCATIONAL OBJECTIVES

- Study of wiring diagrams for starting asynchronous motors.
- Study and operation of direct start-up.
- Study and operation of direct start-up with reversal of the direction of rotation.
- Study and operation of star/delta start-up.
- Configuration of a speed controller with software.
- Study and operation of start-up with speed controller.
- Using a digital wattmeter, ammeter and voltmeter.

ref. QUICK-CPLUS | TEACHING RESSOURCES STUDENTS / TEACHER



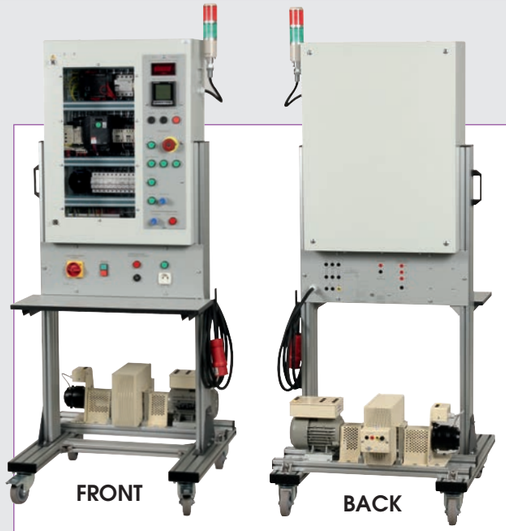
MOTOR-FAN OPTION

QUICKCPLUS can be completed by a fan.

- 300W 400/690V three-phase fan
- Rated speed 1500 rpm
- Power supply through 4mm dual chamber safety terminals

ref. KT-1M

Protection grid removed for photo purposes only



Technical datasheets on our website

MOTOR START-UP STUDIES

EDUCATIONAL OBJECTIVES

- Understanding the different ways of starting an induction motor

Proposed Practical Works

- Studying of the functioning star/delta starting, direct, by frequency converter, by soft starter
- Statement of engine characteristics, taking measurement of U and I
- Study of current transformers
- Modification of the acceleration and deceleration ramp of the frequency converter
- Setting the PC connection – PLC

ref. DEMARAC | USER'S MANUAL WITH PRACTICAL WORKS

Test fan motor connected by safety cords.

Optional grids

WIRING OF THE DIFFERENT ENGINE STARTING MODES

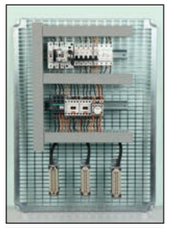
NEW

EDUCATIONAL OBJECTIVES

- Wiring the various starting modes of an asynchronous motor (with optional grids)
- Testing the wiring by connecting the grid to the motor
- Taking electrical measurements (measuring devices not included)

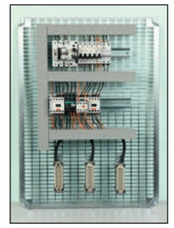
ref. ADC-DEM | TEACHING RESSOURCES STUDENTS / TEACHER

Grid Option Star/delta start



ref. GET2-ADC

Grid Option Direct start and 2 directions of rotation



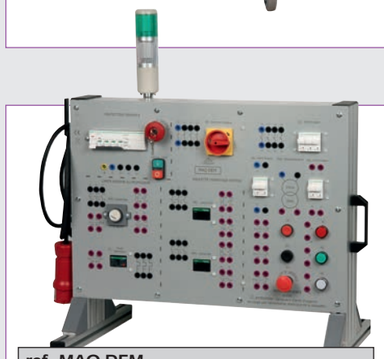
ref. G2S2-ADC

Grid Option Engine start with variator

ref. GVAR2-ADC

Grid Option Soft start of an engine

ref. GPRO-ADC



ref. MAQ-DEM

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER

STUDY OF ASYNCHRONOUS MOTOR STARTS

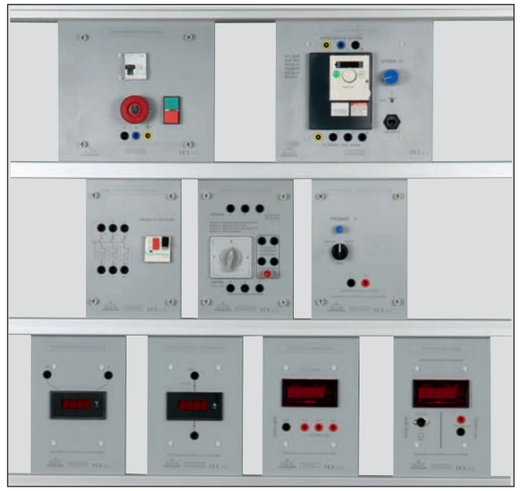
ref. VAL-DEM-1

DELIVERED WIRED & SET | TEACHING RESSOURCES STUDENTS / TEACHER

EDUCATIONAL OBJECTIVES

- Understand the different starting modes of an asynchronous motor
- Know the role and identify the different elements of electrical protection

STUDY OF AN ASYNCHRONOUS MOTOR 1500W WITH POWDER BRAKE



Sets of modules (H-250mm) and rotating machinery for studying an asynchronous motor 1500W coupled with a powder brake with torque sensor and tachometer generator.

ref. QUICK-FPLUS (single-phase)
Requires connection to a mains single-phase electricity supply 230V AC

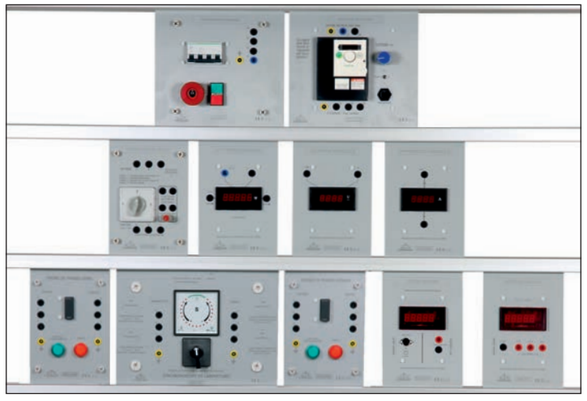
ref. QUICK-FTPLUS (3-phase)
Requires connection to a mains 3-phase electricity supply 3 x 400V AC + Neutral

TEACHING RESOURCES STUDENT / TEACHER

EDUCATIONAL OBJECTIVES

- Study the wiring diagram between a speed controller and an asynchronous motor.
- Study the configuration of a speed controller using SoMove software.
- Study the no-load behaviour of a three-phase asynchronous motor 1500W.
- Study the with-load behaviour of a three-phase asynchronous motor 1500W.
- Read and plot the electrical and mechanical characteristics of an asynchro-nous motor.

STUDY OF THE SYNCHRONIZATION OF AN ALTERNATOR WITH THE ELECTRICAL GRID



Set of modules (H-250mm) and rotating machinery for studying the synchronization of an alternator 1500W with the electricity grid 3 x 400V.

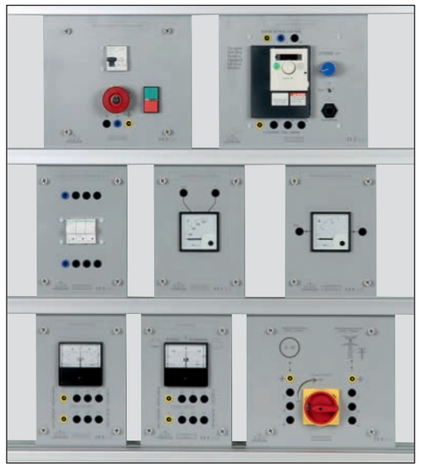
ref. QUICK-JPLUS

TEACHING RESOURCES STUDENT / TEACHER

EDUCATIONAL OBJECTIVES

- Understand the operation of a synchronous alternator.
- Understand the rules of synchronization with the electricity grid.
- Use a synchronoscope.
- Study the wiring diagram between a speed controller and an asynchronous motor.
- Creation of the configuration of a speed controller with software.
- Study the no-load and with-load behaviour of a 3-phase asynchronous motor 1500W.
- Study the no-load and with-load behaviour of an alternator.
- Read and plot the electrical and mechanical characteristics of the motor bench.

STUDY OF THE BEHAVIOUR OF A MACHINE IN HYPO AND HYPERSYNCHRONY



An asynchronous motor can convert mechanical energy into electrical energy.
To perform this conversion, it has to be driven above the synchronous speed.
QUICK-IPLUS is a set of modules of measurement (H-250mm) of switching and 2 asynchronous motors mounted on the same axis of rotation for studying hypersynchrony. The speed controller module drives the first motor above its synchronous speed so that the second becomes a three-phase generator.
A central zero wattmeter module indicates the direction of the electrical energy consumed or fed in the case of feeding into the grid.
A central 0 phase-meter module demonstrates the change of power factor according to the addition of capacitors or speed variation.

ref. QUICK-IPLUS

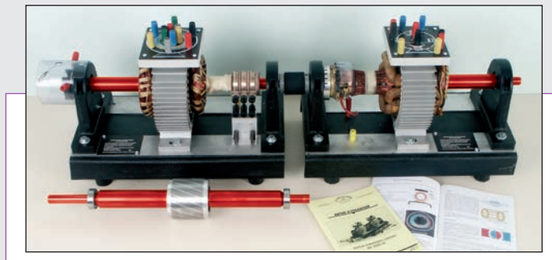
TEACHING RESOURCES STUDENT / TEACHER

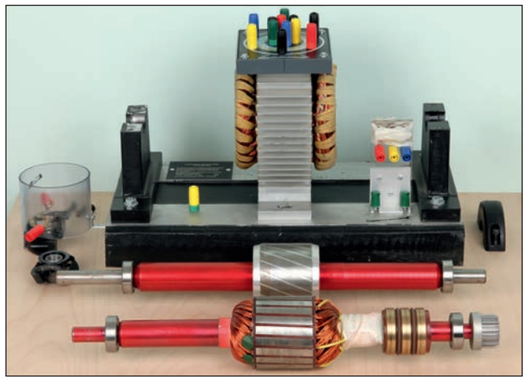
EDUCATIONAL OBJECTIVES

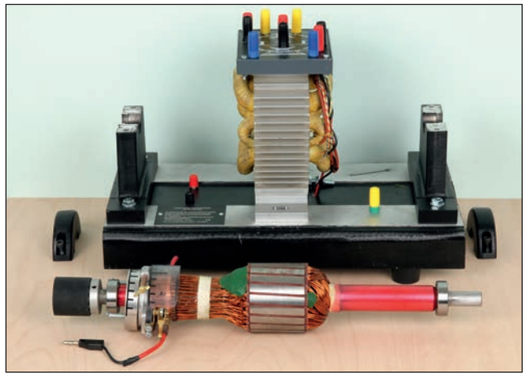
- Study the hyposynchronous and hypersynchronous operations of an asynchronous motor.
- Study the effect of a battery of capacitors on the power factor value.
- Study the synchronisation with the national grid.
- Study energy use at an isolated site.
- Calculate the efficiencies of an energy production system.
- Use a clamp ammeter.

PDF

Technical datasheets on our website







Technical datasheets
on our website

DEMO PLUG AND PLAY MOTOR AC OR DC

EDUCATIONAL OBJECTIVES

- Understanding the different types of electrical motors & generators.
- Studying the operating characteristics of each device.

FEATURES OF DEMO-AC

Works with the 3-phase variable 0-48V 15A power supply (not included).
Presentation: The interconnection of the windings on to a didactic terminal box provides a visual understanding of the coil of the various electrical machines and their functions. Users are able to see the position of the brushes and their movement. It is powered by 48 volt ELV.
A full user manual is provided with the motor/alternator.

ref. DEMO-AC 48V alternating current

TEACHING RESSOURCES

FEATURES OF DEMO-DC

Works with the 3-phase variable 0-48V 15A power supply (not included).
Presentation: The interconnection of the windings on to a didactic terminal box provides a visual understanding of the coil of the various electrical machines and their functions. Series poles can be added or removed to/from the shunt poles to create a compound machine. Users are able to see the position of the brushes and their movement. It is powered by 48 volt ELV.
A full user manual is provided with the motor/alternator.

ref. DEMO-DC 48V direct current unit

TEACHING RESSOURCES

OPTION POWER SUPPLY BENCH FOR DEMO-AC & DC

Workbench for the study of motors ref. DEMO-AC and DEMO-DC.
Fitted with a 1200 x 750mm worktop and a 250mm width electrical cabinet.
High mechanical and high temperature resistance stratified worktop.

The lateral console delivers below outputs:

- variable 3-phase + N 0-48V / 15A per phase, usable in two-phase
- variable DC 0-48V / 6A
- 12V DC / 4,2A
- 2 x 230V power sockets (2P+E)

MOBILE VERSION WITHOUT TABLE POWER SUPPLY ON WHEELS

ref. ALI-DEMO-M

ref. ALI-DEMO

DISMANTLED MOTOR

MAS-DEM educational objective is theoretical research into, and discovery of, the 3-phase asynchronous squirrel-cage motor. Presented in a case containing:

- The motor carcass with stator wiring, fitted with a terminal block.
- The squirrel-cage rotor.
- The left and right flanges + fan.
- Screws + screwdriver kit

The 370W motor can be assembled and disassembled depending on needs.
This provides a better understanding of three-phase motor technology.
The instructions cover all theoretical research into the operation and technology involved in the 3-phase squirrel-cage motor

FEATURES OF THE CASE

- Dim. 534 x 427 x 182mm
- Weight: 10Kg

ref. MAS-DEM

AUTOMATICALLY CONTROLLED SYNCHRONOUS MACHINE

SCOPE OF SUPPLY
Supplied complete and in working order, together with:

- 1 wound stator
- 2 additional bare combs for winding
- enamelled wire dia. 0.5 mm
- 14 leads dia. 2 mm
- 1 full set of instructions with amended tutorials.

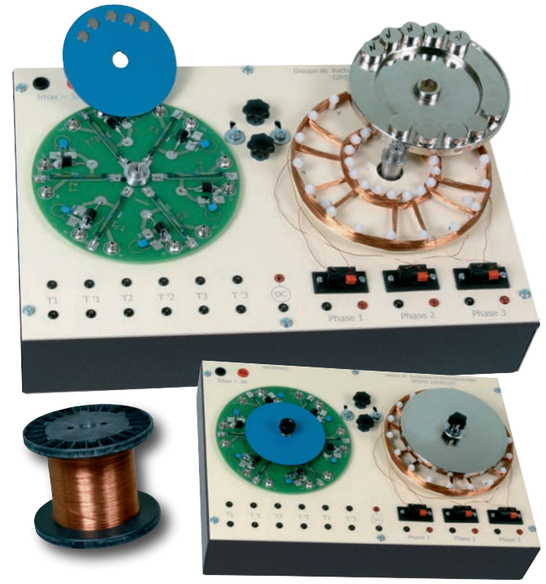
Dimensions : 425 x 300 x 110mm. Weight : 6.5kg.

EDUCATIONAL OBJECTIVES

- Identifying the internal components of a auto-controlled synchronous machine (theoretical and practical)
- Functioning in motor and in generator
- Achieving the coils and set the switch

MICROMAG uses only dry contacts (with no complex electronic circuit) so that its operation is accessible to everyone. Using this model, students discover little by little the various components of an automatically controlled synchronous machine and, more generally, of a motor, via a theoretical and practical approach. The theoretical approach can be accessed at different study levels. At the secondary school level, the torque, the EMF and the number of turns in the winding are calculated simply by applying formulae. Engineering students will have the necessary mathematical knowledge to establish these relationships by using the laws of electromagnetism and applying them to the MICROMAG machine.
MICROMAG comes with a manual containing all of the basic laws which are necessary for understanding the tutorials. Wherever necessary, colour drawings are used to illustrate comments. Angular diagrams, timing diagrams and schematic diagrams are used to illustrate, step-by-step, the operation and/or stages of implementation.
In addition, the following is required for all tutorials:

- a 30V DC 2A power supply
- an oscilloscope with a memory function
- a dynamometer
- a gaussmeter – not essential – used for checking the current of the field
- enamelled wire for winding on the rotor(s) (supplied)



ref. MICROMAG TEACHING RESSOURCES

OPTION POSTE DYNAMOMETRE

- Calibre 5000 gf
- Résolution : 1gf
- Précision 0,2% + 1dgt
- Arrêt automatique
- Dimensions 240x80x40mm
- Poids : 440g

ref. FG5000

Technical datasheets
on our website

STUDY CASE FOR SPEED CONTROLLER ATV32

EDUCATIONAL OBJECTIVES

- Studying a 3-phase speed controller
- Studying a setup software and setting the speed controller

VAL-VAR is a study case for the speed controller ATV32 for asynchronous machine. It contains all the equipment required for autonomous operation.
The case connects directly to the mains 230V single-phase.
The printed PVC face includes the electrical protection and control equipment, safety terminals for cabling the inputs/outputs of the speed controller and taking current measurements in each phase of the motor.

CASE SUPPLIED READY TO USE WITH

- 1 set of safety leads and jumpers.
- 1 programming graphic terminal
- 1 SoMove software (Schneider Electrique®) with RJ45/USB lead to link to PC
- 1 instruction manual including the component data sheets and practical assignments for speed controller programming help.

ref. VAL-VAR | TEACHING RESSOURCES STUDENTS / TEACHER

STUDY OF SPEED CONTROLLER

EDUCATIONAL OBJECTIVES

- To study and use a motor starter for an asynchronous machine.
- To configure an electronic controller
- To use the SOMOVE software
- To configure industrial ETHERNET communications.

ref. VAR-3KW | TEACHING RESSOURCES

Instructional Schneider® speed controller for asynchronous motor 3000W at voltage of 3x400V.
Supplied with Schneider® SOMOVE software.
Motor power supply output on terminals 4mm at 3x400V +E.
Power supply input 3x400V+N+E on safety terminals 4mm

STUDY OF A STARTER / RETARDER UNIT

EDUCATIONAL OBJECTIVES

- To study and use a motor starter for an asynchronous machine.
- To configure an electronic starter/retarder unit

Adjustment of the initial voltage, of rise time and fall time
with 3 adjustment potentiometers on the front of the starter.
Power supply input 3x400V+N+E on safety terminals 4mm.
Motor power supply output 3x400V +E on terminals 4mm.

ref. DERA-3KW | TEACHING RESSOURCES

STUDY OF THE 140VA SINGLE-PHASE TRANSFORMER

ref. ETM140 | USER'S MANUAL WITH PRACTICAL WORKS

EDUCATIONAL OBJECTIVES

- Theoritical practical study of a single-phase transformer with no load and loaded.
- Studying the electromagnetic induction
- power calculation, efficiency, transformation ratio, transformer losses.

ref. QUICK-GPLUS

Existe en version modulaire

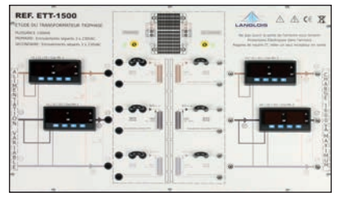
STUDY OF THE 1500VA 3-PHASE TRANSFORMER

EDUCATIONAL OBJECTIVES

- Study of a 3-phase transformer with no load, in short-circuit and loaded
- Creation of Star / Delta wiring according to the primary/secondary voltages selected
- Electrical measurements of the different values
- Calculation of the powers with the method of the 2 wattmeters

ref. ETT-1500 | USER'S MANUAL WITH PRACTICAL WORKS

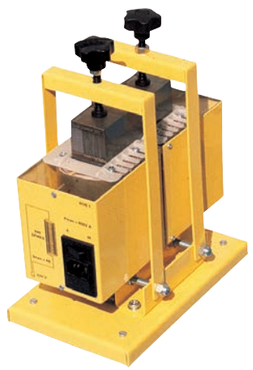
Upper face
4 multi-displays show the active powers, voltages, currents and power factors at the primary and at the secondary.
Engraved synoptic equipped with safety sockets to facilitate the wiring.



SAFETY DISMANTLED TRANSFORMER

MAGNETIC CIRCUIT

ref. MAG800



PRIMARY COILS

ref. BOB1

ref. BOB6

SECONDARY COILS

ref. BOB2

ref. BOB3

ref. BOB4

UNIT FOR FAULT DIAGNOSTICS ON INDUSTRIAL ELECTRICAL WIRING

ESSAI-DIAG is a model that allows troubleshooting at different points on a wiring grid.
The wiring on the grid represents the Star/Delta starting of an asynchronous machine with two rotation directions.
The **ESSAI-DIAG2** version is a complete system, consisting of a control section and a power section with 3 x 24 VAC, controlling a three-phase asynchronous motor. Troubleshooting is performed on the entire circuit. On the **ESSAI-DIAG** version, only the control circuit is wired and allows troubleshooting.
Faults are selected by the instructor using switches located under a hatch at the rear of the model. The operating voltage is 24 VAC. Students can therefore safely perform measurements and tests regardless of the type of fault.

EDUCATIONAL OBJECTIVES

- Understand and understand motor starter wiring
- Create an industrial wiring diagram
- Simulate the most common faults in an industrial installation
- Visualize the effects of a coupling change on a motor (ESSAI-DIAG2)
- Perform measurements of various electrical quantities
- Take a voltage and current reading on the power section (ESSAI-DIAG2)
- Analyze and interpret the results
- Troubleshoot a relay installation
- Replace a faulty component

ref. ESSAI-DIAG2

ref. ESSAI-DIAG

USER'S MANUAL WITH PRACTICAL WORKS

ELECTRO-PNEUMATIC SYSTEM FAULT DIAGNOSIS STATION

EDUCATIONAL OBJECTIVES

- Learn about pneumatic components
- Understand an electro-pneumatic circuit
- Commission and handle pneumatic equipment
- Study the operation of photoelectric sensors and vacuum switches.
- Simulate failures on electrical and pneumatic circuits.
- Analyze and interpret the results.

Practical works

- Identification of components
- Creation of electrical and pneumatic diagrams
- Analysis of an operating cycle
- Search for different faults on the circuit using measuring devices.

ref. PNEU-DIAG

USER'S MANUAL WITH PRACTICAL WORKS

Technical datasheets on our website

FAULT FINDING ON INDUSTRIAL ELECTRICAL WIRING

EDUCATIONAL OBJECTIVES

- To understand the wiring of a programmable logic controller (PLC)
- To load a program into a PLC with Ethernet connection.
- To simulate the most frequent faults on an automation installation with analogue signal.
- To analyse and interpret the results

Practical works

- Identification of the different components and production of electrical diagrams.
- Loading a PLC program on USB and Ethernet with ExoStructure basic software.
- Viewing of the PLC input/output states on the ExoStructure basic software.
- Finding the different faults on the circuit using measuring devices.

Supplied with loop calibrator 4-20mA

ref. PLC-DIAG

USER'S MANUAL WITH PRACTICAL WORKS

ref. TEMP-DIAG

USER'S MANUAL WITH PRACTICAL WORKS

FAULT DIAGNOSIS UNIT FOR TEMPERATURE CONTROLLER

EDUCATIONAL OBJECTIVES

- To understand the wiring of a temperature control loop by PID
- To simulate the most frequent faults on an temperature controller with analogue signal.
- Analysing and interpreting the results.

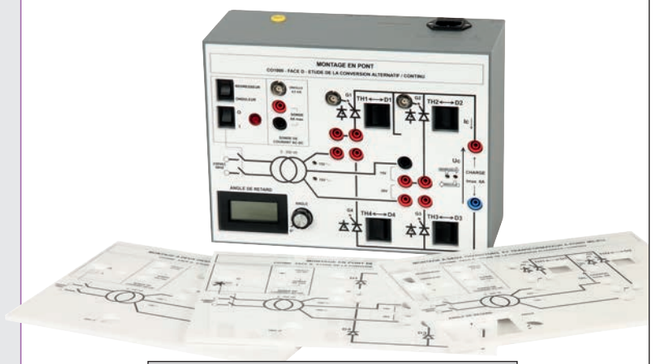
Practical works

- Identification of the different components and production of electrical diagrams.
- Production of the wiring of the temperature control loop.
- Programming the PID.
- Measuring the analogue signal 4-20mA.
- Finding the different faults on the circuit using measuring devices.

SINGLE-PHASE / DIRECT CURRENT CONVERSION TEST BENCH

RECTIFIER

CO-1000 IS SUPPLIED WITH 4 MOVEABLE FRONT PANELS, INSTRUCTION BOOK INCLUDED TUTORIALS



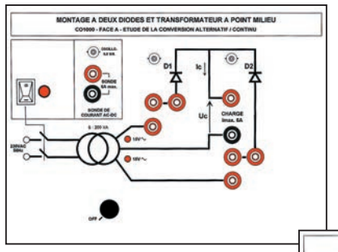
ref. CO-1000

USER'S MANUAL WITH PRACTICAL WORKS

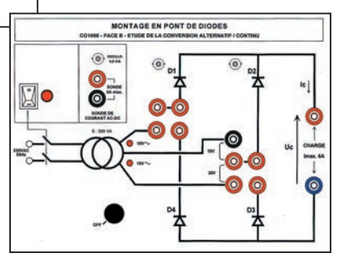
SOME CO-1000 PRACTICES REQUIRE OPTIONAL ACCESSORIES

Rheostat ECO1/2 10Ω	Variable coil	90W motor
Ref. ECO1/2 10Ω	Ref. PSYJR	Ref. CO-110

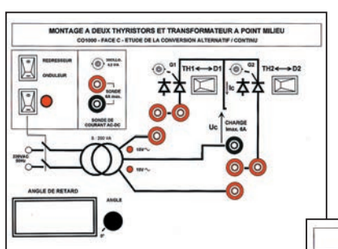
Réf. CO-104	Smoothing coil 40mH - 3A
Réf. CO-105	Smoothing coil 20mH - 3A
Réf. CO-108	Smoothing coil 60mH - 3A
Réf. CO-106	12V/24V Battery



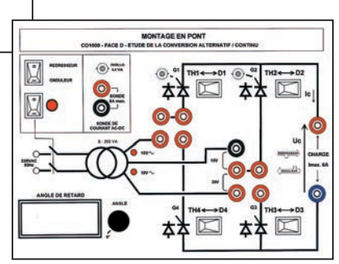
PANEL A: ASSEMBLY WITH TWO DIODES AND MID-POINT TRANSFORMER
Return to single half-wave rectification and switching to double half-wave rectification by simply adding jumper straps.
Experiment 1 Power flow on resistive load (R)
Experiment 2 Power flow on inductive load (R,L)



PANEL B: DIODE BRIDGE CIRCUIT ASSEMBLY
Experiment 1 Power flow on resistive load (R)
Experiment 2 Power flow on inductive load (R,L)
Experiment 3 Power flow on active load (E,R)
Experiment 4 Power flow on active inductive load (E,R,L)
Experiment 5 Application to a DC motor power supply
Any of these 4 diodes can be replaced by a rectifier at any time, simply by throwing the appropriate switch. This facilitates comparisons between all-diode, all-rectifier, symmetrical mixed, and asymmetrical mixed assemblies.



PANEL C: ASSEMBLY WITH TWO RECTIFIERS AND MID-POINT TRANSFORMER
Controlled single- and double-wave rectification.
The tests on panel A may be used again for comparison.

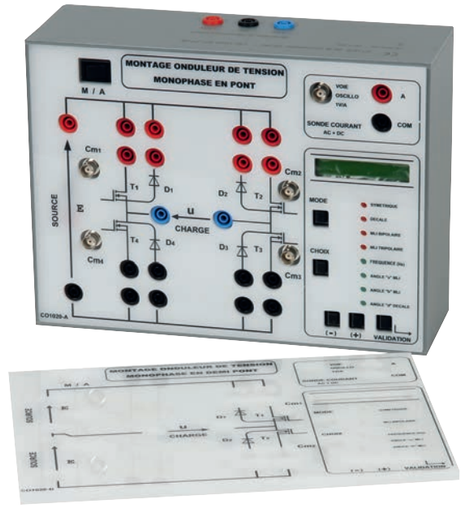


PANEL D: BRIDGE CIRCUIT ASSEMBLY (ALL RECTIFIERS OR MIXED)
Comparative studies of diode / rectifier / mixed assemblies
Experiment 1 Power flow on active inductive load (E, R, L)
Operates as a static convertor
Operates as a grid-interactive inverter
Experiment 2 Application to a DC motor power supply (DCM)
Mixed bridge-circuit assembly
Experiment 3 Power flow on active inductive load (E, R, L)
Experiment 4 Application to a DC motor power supply (DCM)

SINGLE-PHASE CONTINUOUS / ALTERNATING CURRENT CONVERSATION TEST BENCH

INVERTER

CO-1000 IS SUPPLIED WITH 2 MOVEABLE FRONT PANELS, INSTRUCTION BOOK INCLUDED TUTORIALS



SOME CO-1020 PRACTICES REQUIRE OPTIONAL ACCESSORIES

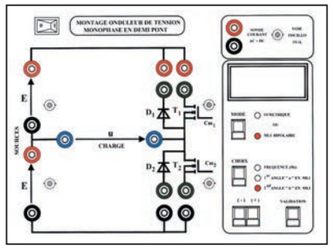
Ref. ECO1/2 10Ω	Rheostat ECO1/2 10Ω
Ref. ECO1/2 15Ω	Rheostat ECO1/2 15Ω
Ref. ECO1/2 22Ω	Rheostat ECO1/2 22Ω
Ref. ECO1/2 33Ω	Rheostat ECO1/2 33Ω

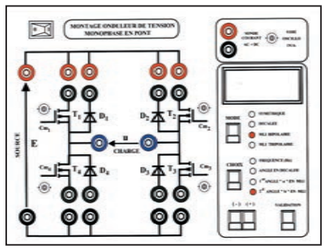
for an optimal use, low resistance loads are better

Ref. PSYJR	Variable coil
Ref. CO-106	12V/24V Battery
Ref. CO-107	Single-phase transformer 12V - 230V with its lamp 230V - 40W
Ref. CO-122	Capacitor 22µF

ref. CO-1020

USER'S MANUAL WITH PRACTICAL WORKS





PANEL: A "SINGLE-PHASE, STATIC, HALF-BRIDGE VOLTAGE CONVERTER (2 SWITCHES)"
The diode and power transistor operate by cross-barring
Presentation of symmetrical control
Presentation of the Pulse-Width Modulation control: Bipolar PWM wave
Experiment N°1: Throughput over resistive load (R)
Experiment N°2: Throughput over inductive load (R, L)
Experiment N°3: Throughput over resonant load (R, L, C)

PANEL B "SINGLE-PHASE, STATIC, BRIDGE VOLTAGE CONVERTER (4 SWITCHES)"
Presentation of offset control
Presentation of the Pulse-Width Modulation control: Three-pole PWM wave
Experiment N°1: Throughput over resistive load (R)
Experiment N°2: Throughput over inductive load (R, L)
Experiment N°3: Throughput over resonant load (R, L, C)
Experiment N°4: Application to induction heating
Experiment N°5: Application to a backup power supply
Using the CO-1000 test bench as a charger.

Technical datasheets on our website

Technical datasheets
on our website

ELECTRONIC TEST UNITS

COMPLETE TEST UNIT

ref. AT102

Designed for installation and rapid testing of prototypes and for practical experiments with analog and digital circuits. The contact board, which is hardwearing, is removable.
Dimensions: 340 x 265 x 130mm.
Weight: 4.8kg.

1 BOARD
4 SUPPLIES
1 FUNCTION GENERATOR
2 DIGITAL DISPLAYS
1 DC DIGITAL VOLTMETER
1 UNIVERSAL COUNTER 8 DIGITS
8 DIODE DISPLAYS
10 LOGIC SWITCHES
2 LOGIC PUSH-BUTTONS
4 ADAPTERS

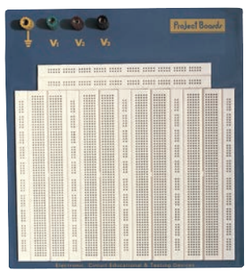
ANALOG TEST UNIT

ref. AT106

AT106 is a test bed for analog circuits.
Easy maintenance: common circuits and diagrams provided.
Dims: 340x265x130mm. Weight 3.7kg.
Mains 230V.

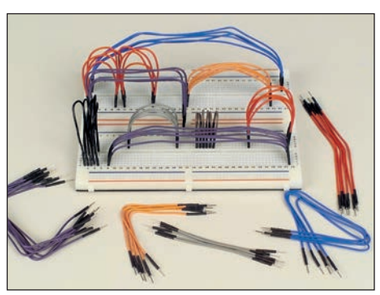
1 BOARD
4 SUPPLIES
1 FUNCTION GENERATOR
1 VOLTMETER
1 UNIVERSAL COUNTER 8 DIGITS
1 MICRO-AMMETER
1 LOUDSPEAKER
4 ADAPTERS
3 SWITCHES
1 POSITION ROTARY SWITCH
2 POTENTIOMETERS

ELECTRONIC TEST BOARDS & MICRO-LEADS



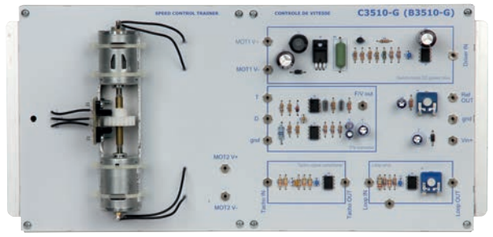
Ref.	GL12	GL12S*	GL24	GL24S*	GL48	GL48S*
Nb of contacts	840	840	1680	1680	3260	3260
Dimensions mm	200 x 75	200 x 75	225 x 150	225 x 150	260 x 240	260 x 240

** With safety sockets*



Ref.	M5	G7	R10	N10	V1	B2
Length	50mm	70mm	100mm	100mm	150mm	200mm
Obligatory color	BROWN	GREY	RED	BLACK	PURPLE	BLUE

The flexible wire used for these leads is terminated at each end by a 0.6mm diameter nickel-plated plug. The electrical contact is excellent.



SPEED FEEDBACK

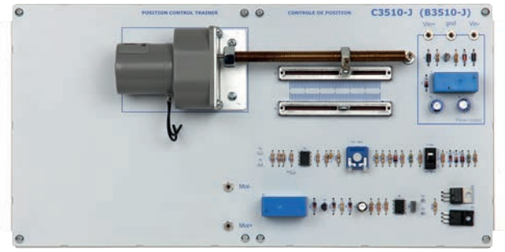
PRACTICAL WORKS
- Study of the luminous barrier/frequency voltage converter.
- Study of the tachometric filter.
- Study of the loop amplifier and of the controlled switching power supply.
- Comparison of tachometric voltages and opticalencoder + converter.
- Comparison of low rotation frequencies with and without feedback loop.
- Study of the feedback response for different values of loop gain.

ref. C3510-G

POSITION FEEDBACK

PRACTICAL WORKS
- Study of the principle of a closed feedback loop: error voltage, pre-amplification, driver stage, push-pull.
- Study of limitation of movements circuits.
- Anti-jamming system.
- Study of the feedback response to a voltage step for different values of loop gain.

ref. C3510-J



ALL OR NOTHING SENSORS & ACTUATORS

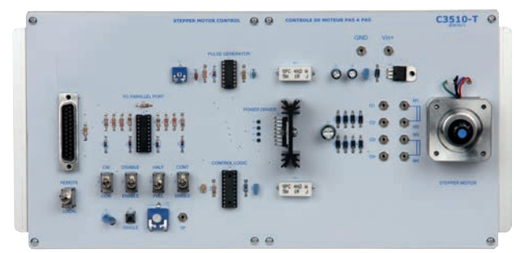
PRACTICAL WORKS
- Description of the different components and their usage.
- Functioning of the amplifiers.
- Measurement of the detection distance of the inductive sensor.
- Analysis of the electronic switch, controlled by direct or alternating current.
- Study of a line consisting of an optoelectro-barrier, a switch and a solenoid.
- Possibility of making other lines: optoelectro-barrier - reed relay - Hall sensor - electronic switch - buzzer

ref. C3510-L

STEPPING MOTOR

PRACTICAL WORKS
- Study of the principle of a stepping motor and its different ways of functioning by step and half-step.
- Vibrations seen at low frequency, loss of steps at high frequency.
- Determination of the take-in resonance frequency and of the rotation limit frequency
- Observation of signals delivered by the driver to the motor windings.
- Inversion of currents in the motor coils.
- Observation of 4 signals applied by the control logic to the driver out of phase with one another.

ref. C3510-T



INCREMENTAL & ABSOLUTE ENCODER

PRACTICAL WORKS
- 3-BIT ABSOLUTE DCB ENCODER correspondence between the position of the disc, the status of the sensors and the display. Transition codes and synchronisation sensor.
- INCREMENTAL DCB ENCODER use of the encoder in counter and count-down mode. Detection of the direction of rotation, improvement of accuracy using an angle sensor.
- 4 BIT GRAY ENCODER GRAY/DCB code comparison. A synchro. sensor is required.

ref. B3510-R

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