# NEW

# PRODUCTS

# 2019-2020

## KNX TECHNOLOGY – INTRODUCTORY MODEL FOR THE KNX BUS

**NEW**

Learn about KNX building automation technology quickly and easily with this simple, intuitive model. This instructional solution enables acquisition and validation of the skills for the diploma in Electricity and Connected Environments, in a simple home automation environment. Ideal for introducing your students quickly and clearly!

All the KNX modules, as well as the configurable pushbuttons and room thermostat, are integrated in a modular panel fixed to an aluminium frame easy to set up on a table. A connection interface with 4mm safety terminals can connect 2 230V bulkhead lights provided with the model. Statuses of KNX component operation (lighting and roller shutter) are displayed directly on each module.

Two other terminals (on the communicating version only) enable connection of a convector or any other load (not supplied). The power will display directly on your tablet or smartphone. 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.

### COMPOSITION OF THE MODEL

- 2 40W bulkhead lights
- 1 tertiary panel attached to the aluminium frame including:
  - 1 Ph+N C10A circuit-breaker with its residual current device
  - 1 Ph+N C2A circuit-breaker
  - 1 30V-320mA power supply module. KNX
  - 1 USB interface module. KNX
  - 1 module, 2 on/off outputs, power supply for convector (16A). KNX
  - 1 module, 2 on/off outputs, light power supply (10A). KNX
  - 1 module, 2 variable outputs. KNX
  - 1 rolling shutter module. KNX
  - 1 4-key pushbutton. KNX
  - 1 2-key pushbutton. KNX
  - 1 thermostat with screen. KNX
  - 6 4mm safety terminals to connect the 2 bulkhead lights and 1 load
  - 1 wattmeter module. (MAQ-KNX-C only)
  - 1 KNX Ethernet interface. (MAQ-KNX-C only)
- **1 configured WiFi router (MAQ-KNX-C only)**

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

*Dims : H780 x 210 x 280mm*

ref. MAQ-KNX

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

SUPPLIED FULLY WIRED AND CONFIGURED

AUTONOMOUS WIFI NETWORK

TEACHING RESOURCES STUDENT / TEACHER

### EDUCATIONAL OBJECTIVES

- To learn about the HOME AUTOMATION environment of an electrical installation
- To learn about and study the features of a KNX 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
- To configure the KNX components
- To put installation into service

MAQ-KNX-C only
- To configure the WiFi network for control via tablet or smartphone

**TEACHING RESOURCES WITH PRACTICAL WORKS**

**MAQ-KNX** and **MAQ-KNX-C** are delivered completely configured.
Delivered with ETS Lite software for programming the model.
Teaching instructions on DVD in Instructor / Student format, including:
- Technical instructions, manufacturer resources for KNX components
- Excerpts of electrical standards
- Layout diagram of the components
- Electrical wiring diagram
- Video tutorials to teach KNX programming simply.
- Different KNX installation programs
- Learning activities that allow you to create scenarios in order to optimise the installation's operation, while preserving the occupant's comfort.
- Excel question / answer skills assessment forms. An administrator password allows the teacher to correct the student's assessment and modify the questions / answers if necessary.

**PARTNER KNX**

## KNX TECHNOLOGY – INTRODUCTORY CASE FOR THE KNX BUS



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





PARTNER KNX

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

**Learn about KNX building automation technology quickly and easily with this simple, intuitive model. This instructional solution enables acquisition and validation of the skills for the diploma in Electricity and Connected Environments, in a simple home automation environment. Ideal for introducing your students quickly and clearly!**

Safe wiring on 4mm terminals.
Identifying information for components and other technical features are printed on the sides. Operational status of NETATMO Céliane™ components (rolling shutter and lighting) are displayed directly on LEDs integrated in the case.
**With the communicating version**, an energy meter integrated in the system can indicate the power consumed by the spotlight and display it directly on your tablet or smartphone.
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.

**VALDOM-KNX** and **VALDOM-KNX-C** are delivered completely configured.
Delivered with ETS Lite software for programming the model.
Teaching instructions on DVD in Instructor / Student format, including:
• Technical instructions, manufacturer resources for KNX components
• Excerpts of electrical standards
• Layout diagram of the components
• Electrical wiring diagram
• Video tutorials to teach KNX programming simply.
• Different KNX installation programmes
• Learning activities that allow you to create scenarios in order to optimise the installation's operation, while preserving the occupant's comfort.
• Q/A-type skill assessment sheets in Excel® software.
  An administrator password lets the instructor correct the student's assessment and modify the questions/answers as required.

### OPTION TABLET WIFI 9,6'' CONFIGURED



Samsung® tablet
• Wifi 9,6 pouce touch Full HD
• 1,3Ghz / 1,5Go RAM
• 8Go

ref. TAB-97

| ref. VALDOM-KNX | Standard version without Wifi |
| --- | --- |
| ref. VALDOM-KNX-C | Communicating version |

| SUPPLIED FULLY WIRED AND CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / 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 KNX home automation installation**
▪ **To understand the specifications of an electrical installation**
▪ **To produce electrical diagrams**
▪ **To create a parts list of components & analyse manufacturer technical data sheets**
▪ **To configure the KNX components**
▪ **To put installation into service**
▪ **VALDOM-KNX-C only :  To configure the WiFi network**

TEACHING RESOURCES WITH PRACTICAL WORKS

### COMPOSITION OF THE CASE

**On the upper side**
• 5 LEDs with 2x 4mm power supply terminals simulating: Garden lighting; Kitchen lighting; Dining room lighting; Living room lighting; Room lighting
• 1 60W wall light for lighting variation and power measurement.
• 2 "Up and Down Roller Shutter" LEDs with 4x 4mm power supply terminals.
• 1 pushbutton 2 keys with LEDs. KNX
• 1 push button 4 keys with LEDs. KNX
• 1 3-way energy meter. KNX (Communicating version only)
• 1 roller shutter actuator. KNX
• 1 thermostat with programming screen + keys. KNX

**On the lower side**
• 1 USB interface for programming. KNX
• 1 BUS supply 30V-320mA. KNX
• 1 KNX Ethernet interface for WIFI communication. (Communicating version only)
• 1 actuator 2x digital outputs supply for convector (16A). KNX
• 1 actuator 2x digital outputs lighting supply (10A). KNX
• 1 actuator 2x dimming lighting outputs. KNX
• 4mm safety terminals for wiring all components
• 1 230V mains socket.
• 1 Ph+N 10A (C curve) circuit breaker with its 30mA residual current block.
• 1 socket with switch + protection for connecting the 230V mains cable.

**1 configured WiFi router (VALDOM-KNX-C only)** Local WiFi specific to the system

## INTRODUCTORY CASE FOR NETATMO TECHNOLOGY

**Learn about NETATMO** building automation technology quickly and easily with this simple, intuitive case.

This instructional solution enables acquisition and validation of the skills for the diploma in Electricity & Connected Environments, in a simple home automation environment.

**Ideal for introducing your students quickly and clearly!**

NETATMO
Une marque du Groupe | legrand

NEW

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

### ref. VALDOM-NET

Safe wiring on 4mm terminals.
Identifying information for components and other technical features are printed on the sides. Operational status of NETATMO Céliane™ components (rolling shutter and lighting) are displayed directly on 5W lamps integrated in the case.
An energy meter integrated in the system can indicate the power consumed by the spotlight and display it directly on your tablet or smartphone through the cloud via the 4G WiFi router.
The WiFi network is created from a 4G WiFi router (delivered without SIM card) in order to have a local network specific to the model and isolated from your institution's WiFi network.

**VALDOM-NET** is delivered wholly configured with a set of 4mm safety leads and a 4G WiFi router (without SIM card). Android 5.0 or iOS9.0 minimum.

Teaching instructions on DVD in Instructor / Student format, including:
• Technical instructions, manufacturer resources for NETATMO Céliane™ components
• Layout diagram of the components.
• Electrical wiring diagram
• 6 learning activities that allow you to create scenarios in order to optimise the installation's operation, while preserving the occupant's comfort.
• Video tutorials to teach programming simply.

### EDUCATIONAL OBJECTIVES

• To learn about the HOME AUTOMATION environment of an electrical installation
• Learn and study the features of a NETATMO Céliane™ 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.

**TEACHING RESOURCES WITH PRACTICAL WORKS**

### COMPOSITION OF THE CASE

**On upper side**
• 2 wireless switches connected with NETATMO Céliane™ technology
• 1 wireless rolling shutter switch connected with NETATMO Céliane™ technology
• 1 wireless outlet/inlet switch connected with NETATMO Céliane™ technology
• 1 spotlight for energy consumption.
• A set of LED indicator lights and 1 lamp for displaying control status for various module outputs, such as the rolling shutter or light variation
• 4mm safety terminals to wire together all components.

**On lower side**
• 1 socket unit module for connecting to 230VAC Ph+N+T mains, protected by 10A fuse
• 1 Ph+N residual current circuit-breaker 10A-30mA
• 2 wired switches connected with NETATMO Céliane™ technology
• 1 wired socket connected with NETATMO Céliane™ technology
• 1 wired switch for wired rolling shutter connected with NETATMO Céliane™ technology
• 1 wired socket connected with integrated energy meter, NETATMO Céliane™ technology
• 3 wired micromodules connected with NETATMO Céliane™ technology
• 4mm safety terminals to wire together all components.

**1 4G WiFi router (delivered without SIM card)**

## INTRODUCTORY CASE FOR MYHOME TECHNOLOGY

**Learn about MyHome building automation technology quickly and easily with this simple, intuitive case.**

**This instructional solution enables acquisition and validation of the skill for the diploma in Electricity & Connected Environments, in a simple home automation environment.**

**Ideal for introducing your students quickly and clearly!**



**L1 legrand®**
**MyHOME®**

**ref. VALDOM-MH**

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



NEW

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

Safe wiring on 4mm terminals. The safety leads and the power cord are provided. Identifying information for components and other technical features are printed on the sides.

A MyHome energy meter integrated in the system can indicate the power consumed by the spotlight and display it directly on your tablet or smartphone. A BUS gateway MyHome / IP + Wifi switch, is integrated in the case. The gateway allows the student to control the installation from a tablet or smartphone. The application is downloadable for free from '' Play Store '' or '' Apple Store ''.
The WIFI network created locally is specific to the system and isolated from the Wifi network of your building.

**VALDOM-MH** is delivered completely configured with a set of 4mm safety leads.

**Teaching instructions on DVD**
**in Instructor / Students format, including:**
• Technical instructions, manufacturer resources for My Home components
• Layout diagram of the components
• Electrical wiring diagram
• Learning activities that allow you to create scenarios in order to optimise the installation's operation, while preserving the occupant's comfort.
• Tutorials sheets for skills assessment.

### OPTION TABLET WIFI 9,6'' CONFIGURED



**Samsung® tablet**
• Wifi 9.6 inch touch screen Full HD
• 1.3Ghz / 1.5Gb RAM
• 8GB

**ref. TAB-97**

### OBJECTIFS PÉDAGOGIQUES
▪ **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.**

### COMPOSITION OF THE CASE
#### On upper side
• 1 wall light for lighting variation
• 4 LED lights simulation of 4 simple lights
• 2 LED lights simulation of 1 rolling shutter
• 1 LED light simulation of a convector
• 1 MyHome / IP BUS gateway for WIFI communication.
• 1 configured WIFI router (system-specific local WIFI)
• 1 circuit breaker 10A Ph+N, habitat type. An LED indicates whether the 230Vac power supply is available on the safety terminals.
• 1 power socket module for power supply (protected by 10A fuse).
• 2 MyHome pushbuttons, 2 keys
• 1 MyHome pushbutton, 1 key
• 1 MyHome pushbutton, 4 keys for scenarios
• 1 room thermostat

#### On the lower side
• 1 BUS power supply 27V-600mA (MyHome)
• 1 MyHome Ethernet interface for WIFI communication
• 1 module allowing MyHome scenario management
• 1 MyHome energy meter module
• 1 MyHome actuator with 2 adjustable light outputs
• 1 MyHome actuator with 4 On/Off control lighting outputs (2A)
• 1 MyHome actuator with 2 On/Off control of a convector outputs
• 1 MyHome actuator with 1 rolling shutter control output

## DELTA DORE TECHNOLOGY - INTRODUCTORY CASE FOR RADIO INSTALLATION



*The radio switches and the remote control are very easily removable thanks to a gripping band.*



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



**DELTA DORE**
Smart is the new power

*The micromodules are protected behind a transparent plate that covers the connectors and protects electrical contacts.*
*Only the programming buttons remain accessible.*

**NEW**

**Learn about Delta Dore® radio home automation technology quickly and easily with this simple, intuitive case. This instructional solution enables acquisition and validation of the skills for the diploma in Electricity & Connected Environments, in a simple home automation environment.**
**Ideal for introducing your students quickly and clearly! The configurable radio modules (transmitter / receiver) and habitat type switches are integrated on both sides of the case.**

Safe wiring on 4mm terminals (safety leads supplied).
Identifying information for components and other technical features are printed on the sides. A Delta Dore® / IP radio gateway + Wifi Switch is integrated into the case. It is removable thanks to a gripping band to facilitate the update. The gateway allows the student to control the installation from a tablet or Smartphone. The application is downloadable for free from '' Play Store '' or '' Apple Store ''.
The WIFI network created locally is specific to the system and isolated from the Wifi network of your building.

**VALDOM-DD** is delivered completely configured.
**Teaching instructions on DVD in Instructor / Students format, including:**
• Technical instructions, manufacturer resources for Delta Dore® components
• Excerpts of electrical standards
• Layout diagram of the components
• Electrical wiring diagram
• Learning activities that allow you to create scenarios in order to optimise the installation's operation, while preserving the occupant's comfort.
• Tutorials sheets for skills assessment.

### OPTION TABLET WIFI 9,6'' CONFIGURED



Samsung® tablet
• Wifi 9.6 inch touch screen Full HD
• 1.3Ghz / 1.5Gb RAM
• 8GB

ref. TAB-97

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**ref. VALDOM-DD**

| SUPPLIED FULLY WIRED AND CONFIGURED | AUTONOMOUS WIFI NETWORK | TEACHING RESOURCES STUDENT / 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.**

### COMPOSITION OF THE CASE
**On upper side**
• 1 LED wall light for lighting variation
• 10 LED lights of simulation: 2 simple lights, 2 roller shutters, 1 gate, 1 garage
• 2 opening / closing control receivers for a gate / garage
• 4 micromodules radio receiver: 2 for simple lights, 2 for roller shutter
• 1 micromodule radio receiver for variable lighting

**On the lower side**
• 1 circuit breaker 10A Ph+N, Habitat type
• 1 power socket module for power supply (protected by 10A fuse).
• 1 radio remote control 4 keys
• 1 two-ways switch, 1 habitat type module
• 1 push button, 1 habitat type module
• 1 two-ways switch, 2 habitat type modules
• 1 roller shutter switch, 2 habitat type modules
• 2 double radio transmitter switches, type On / Off
• 2 double radio transmitter switches, type roller shutter
• 3 micromodules radio transmitter for push button and switch
• 1 radio / IP gateway for Wifi communication
**1 configured WIFI router (system-specific local WIFI)**

**COMPATIBLE PRODUCT**
The VALDOM-DD case is compatible with the study case of a radio alarm.

ref. VALDOM-ALR



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## DELTA DORE TECHNOLOGY - INTRODUCTORY CASE FOR RADIO ALARM

**Learn about Delta Dore® radio home automation technology quickly and easily with this simple, intuitive case. This instructional solution enables acquisition and validation of the skills for the diploma in Electricity & Connected Environments, in a simple home automation environment. Ideal for introducing your students quickly and clearly!**
**The Delta Dore® configurable radio alarm modules and radio fire detector are integrated on both sides of the case.**

A Delta Dore® / IP radio gateway + Wifi Switch is integrated into the case. It is removable thanks to a gripping band to facilitate the update. The gateway allows the student to control the installation from a tablet or Smartphone. The application is downloadable for free from '' Play Store '' or '' Apple Store ''.
The WIFI network created locally is specific to the system and isolated from the Wifi network of your building.

**VALDOM-ALR** is delivered completely configured.
**Teaching instructions on DVD in Instructor / Students format, including:**
• Technical instructions, manufacturer resources for Delta Dore® components
• Excerpts of electrical standards
• Layout diagram of the components
• Electrical wiring diagram
• Tutorials sheets for skills assessment.

### 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**

**Practical works**
• Identification and functionality of each component
• Implantation of components on the architectural plan of an apartment.
• Programming of the alarm unit with a presence detector, fire detector and remote control.
• Programming of the alarm unit with the addition of the information keyboard and a second presence detector.
• Troubleshooting the installation.

### COMPOSITION OF THE CASE

**On upper side**
• 2 open contacts for opening protection
• 2 infrared detectors. Range 12m.
• 1 radio fire detector
• 1 outdoor siren (Decibel level reduced)

**On the lower side**
• 1 radio alarm unit with 2 zones
• 1 radio keyboard with information reception and remote control, with LCD display, switching On and Off. Full and partial operation with 3 access codes: 1 master, 2 users. History of the last 200 events. Information on the state of the system: on and off, open doors, etc ... siren test. System configuration.
• 2 radio remote controls. 4 keys. Range 100m to 300m.
• 1 radio / IP gateway for WIFI communication.
**1 configured WIFI router (system-specific local WIFI)**

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ref. VALDOM-ALR

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

**DELTA DORE**
Smart is the new power

*The infrared detectors and door detector are very easily removable thanks to a gripping band.*

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

**COMPATIBLE PRODUCT**
The VALDOM-ALR case is compatible with the study case of a radio installation.

ref. VALDOM-DD

## OPTION TABLET WIFI 9,6'' CONFIGURED

Samsung® tablet
• Wifi 9.6 inch touch screen Full HD
• 1.3Ghz / 1.5Gb RAM
• 8GB

ref. TAB-97

## KNX TECHNOLOGY - CONNECTED HOUSE



PARTNER
**KNX**

ref. MC-KNX-1

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


*Profile view*


*Back side*



*The micromodule is protected behind a transparent plate that covers the connectors and protects electrical contacts. Only the programming button remains accessible without disassembly.*

*Front side*

The educational panel study of home automation systems of KNX type is a habitation of house type. Simple and intuitive, it makes it easy to discover this technology.
It offers educational features allowing the student:
- To observe, manipulate, assemble and disassemble
- To measure, evaluate characteristics
- To reproduce industrial schemes
- To understand and to interpret the mechanical, electrical, electronic operations...

### EDUCATIONAL OBJECTIVES
- **Discovery of the KNX protocol**
- **Discovery of the ETS5 programming tool**
- **Getting started with the system and maintenance**

### TEACHING FILE PROVIDED
Teaching instructions in Instructor / Students format (supplied on DVD and paper support), including:
- Educational activities to create scenarios
- Tutorials sheets for skills assessment.
- Technical instructions, manufacturer resources for KNX components
- Excerpts of electrical standards
- Layout diagram of the components
- Electrical wiring diagram

### COMPOSITION
**An aluminum profile frame**
- Profile section 30 x 30mm
- Frame dimensions: 650 x 700 x 350mm

**1 silkscreened front panel equipped with:**
- 1 electric panel 1 row 18 modules
  - 1 residual current circuit breaker 25A of habitat type
  - 1 16A circuit breaker of habitat type
  - 1 circuit breaker 2A of habitat type
  - 1 KNX Power Supply
  - 1 variable lighting actuator
  - 1 actuator with 4 digital outputs (2 fixed lighting and one electric strike)
  - 1 USB / KNX interface
- 1 recessed roller shutter actuator
- 1 LED lighting spot for variable lighting
- 2 fixed LED lights (living room + bedroom)
- 1 LED light simulating the gate strike
- 1 KNX switch with 2-button (manages the variable and fixed lighting of the room)
- 1 KNX switch with 4-button (manages the fixed lighting of the living room, the electric lock and realize 2 scenarios).

**1 white back side equipped with:**
- 1 roller shutter
- 1 Wifi router to create a local Wifi network and control the installation from a Smartphone application (Wifi network specific to the model)
- 1 power socket 230V 2P+E to connect the Wifi router.

**An "EASY" configuration kit from HAGER**
- Allows KNX programming with PC or tablet.


:hager

## DELTA DORE RADIO TECHNOLOGY - CONNECTED HOUSE

The educational panel study of home automation systems of KNX type is a habitation of house type. Simple and intuitive, it makes it easy to discover this technology.
It offers educational features allowing the student:
- To observe, manipulate, assemble and disassemble
- To measure, evaluate characteristics
- To reproduce industrial schemes
- To understand and to interpret the mechanical, electrical, electronic operations...

**ref. MC-DD-1**

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

### 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).**

### TEACHING FILE SUPPLIED

Teaching instructions in Instructor / Students format (supplied on DVD and paper support), including:
- Educational activities to create scenarios
- Tutorials sheets for skills assessment.
- Technical instructions, manufacturer resources for Delta Dore components
- Excerpts of electrical standards
- Layout diagram of the components
- Electrical wiring diagram

### COMPOSITION

**An aluminum profile frame**
- Profile section 30 x 30mm
- Frame dimensions: 650 x 700 x 350mm

**1 silkscreened front panel equipped with:**
- 1 residual current circuit breaker 25A of habitat type
- 1 16A circuit breaker of habitat type
- 1 LED lighting spot for variable lighting
- 1 micromodule radio receiver Delta Dore for variable lighting
- 1 single touch switch
- 1 micromodule radio receiver Delta Dore for roller shutter
- 1 roller shutter switch
- 1 radio switch 2-button Delta Dore
- 1 Delta Dore radio opening receiver module for managing gate strike
- 1 LED indicator simulating the gate strike
- 1 Delta Dore radio room thermostat
- 1 Delta Dore radio connected heating receiver module for the management of a convector
- 1 LED indicator simulating a convector

**1 white back side equipped with:**
- 1 roller shutter
- 1 radio / IP home automation box for the communication in WIFI.
- 1 Wifi router to create a local Wifi network and control the installation from a Smartphone application
- 2 power sockets 230V 2P+E to connect the Wifi router and the Wifi box



*The micromodule is protected behind a transparent plate that covers the connectors and protects electrical contacts. Only the programming button remains accessible without disassembly. It allows safe working with power on.*
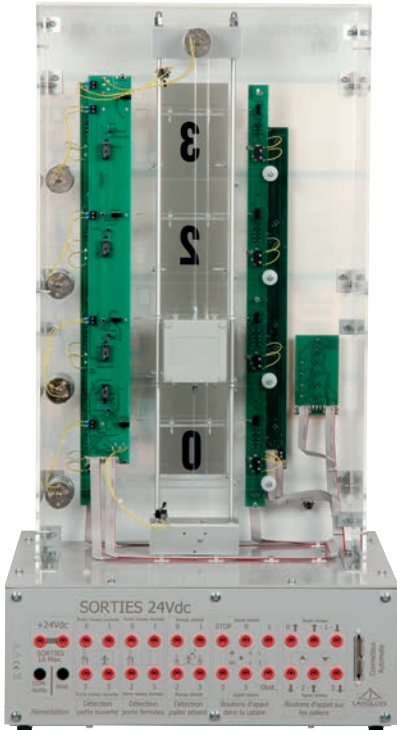


*Front side*



*Profil view*



*Back side*

## DIDACTIC LIFT

USER'S MANUAL + 7 PRACTICAL WORKS


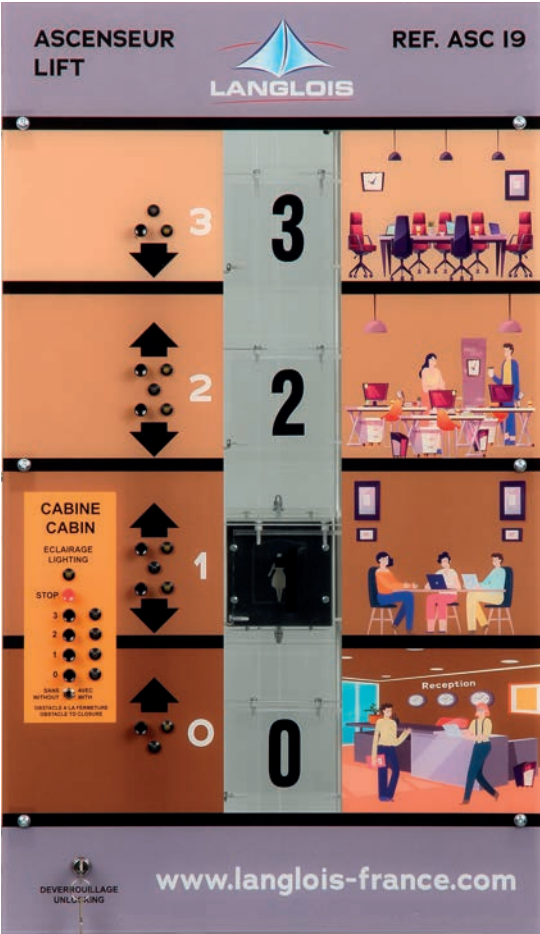*Front view with inputs interface*


*Rear view with outputs interface*


*Profile view*

ref. ASC19



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

**MAIN FEATURES :**
- Opening and closing of the doors on each floor is done by electric servo motors.
- The rear of the lift is visible through the sides and the bottom which are transparent
- The route of the lift is sensed at each floor by a photo-detectors.
- Limit switches (without program control) stop the lift if there is an error in the program.
  These mechanical stops are present on all movement axes of motor.
  A key switch can return to a position called "normal"
- All of the buttons and switches are fitted with de-bounce circuits.
- The outputs are protected against the possibility of a short-circuit.
- The rear sliding door is of a transparent Plexiglass design and there is no manual access possible, as there is risk of damaging the servomotor.
- Une alimentation 24V (1A max) est présente sur l'interface des entrées et sorties. Elle est protégée contre les courts-circuits et les surcharges.

**The mechanical controls are sturdy and can withstand any likely faults.**

| | |
|---|---|
| **4 LEVELS EACH LEVEL HAS** | 1 electrically opening door - 1 photo-detector for 'door closed' |
| | 1 photo-detector for 'door-open' |
| | 2 safety limit switches for door open/close (No control from the program possible) |
| | 1 button to call the lift 'up' (except the 3rd floor) with indicator lamp. |
| | 1 button to call the lift 'down' (except the ground floor) with indicator lamp |
| | 1 lamp to indicate the presence of the lift - 1 photodetector to indicate the presence of the lift |
| **CONTROLS INSIDE THE LIFT** | 4 buttons for each floor - 1 stop button |
| | 1 switch to simulate a blocked door |
| | 4 lights for each floor - 1 light inside the lift (simulating the lighting) |
| **UNIT SUPPLIES POWER TO** | the motors - the LED - internal logic to the unit. |
| **OTHERS SPECIFICATIONS** | Dims 900 x 480 x 410mm  Weight 18kg  Supply 230V 50Hz |
| | Driving logic values 24V. Power supply : 230V - 50Hz (protected by fuse) |

## PLC OPTION WITH PRE-WIRED CLAMP CONNECTORS
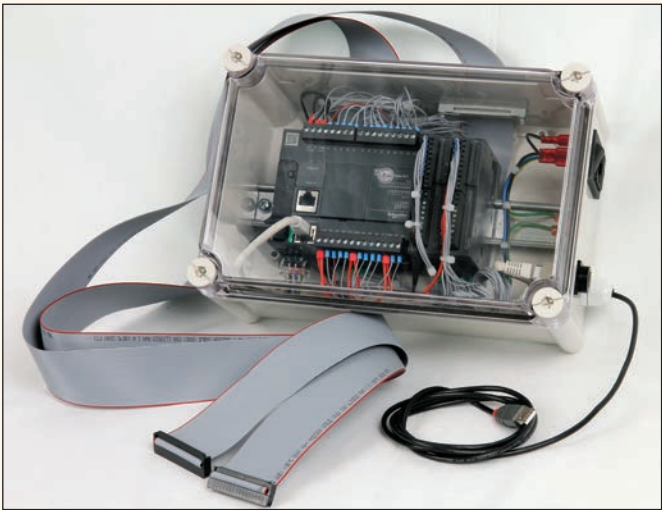
Interface designed to be connected to the ASC19 lift.
Comprises one PLC 30 inputs 26 outputs dry contacts, one USB connection with the PC and all cables to the lift, mains cable.
Dimensions : 250 x 180 x 175mm.
Weight : 2.7kg

**ref. AUTOMASC**

## PLC OPTION TO CONNECT WITH SAFETY LEADS 4MM

**ref. 221-MAX**

| | |
|---|---|
| Nb inputs | 30 inputs 24VDC |
| Nb outputs | 26 outputs TOR  2A max |
| Analog | 2 analog inputs 0-10V |
| Ethernet | yes |
| Power supply | 230VAC-50/60Hz by means of socket unit + switch |
| Dimensions | 380 x 280 x 180mm |
| Supplied with | 1 ethernet RJ45 3-m cable.<br>1 USB cable PC/PLC |

## CONVEYOR BELT



Dimensions: 875 x 320 x 141mm.
Weight 10.5kg.

**ref. MAQ-CONV**

**Operative part reproducing a conveyor belt.**
In addition to studying the various sensors, many scenarios of programming are possible, depending on, the weight of the piece, its height, its material. The accuracy of an optical fiber can also detect any defects. MAQ-CONV has 9 inputs and 12 digital outputs, as well as a 4-20 mA analog output.

On-off inputs / outputs being dry contacts, this model is controllable by any type of programmable logic controller (PLC) positive or negative, by microcomputer or sequential system. The connection is made via Ø4 mm safety terminals, with orange signage for the actuator inputs, blue for the sensor outputs.

**Practical works**
• Conversion of weight into 4-20mA signal according to the characteristics of the strain gage
• Detection accuracy of single photocells and optical fiber
• Detection distances of objects by L and C sensors according to the material of the item
• Using the meter
• Using the conveyor to sort

**SUPPLIED WITH PRACTICAL WORKS**

**INPUTS**
• 1 start of the drive motor of the belt
• 4 cylinders marked V1 to V4.
• V1 pushes the item on the carpet, V2 to V4 eject it
• 1 input incrementation of the counter (0 to 99)
• 1 counter reset input
• 2 LED indicators : PASS and FAIL

**ON-OFF OUPUTS**
• 6 photocells, including 1 barrier, 2 mirror reflection, 2 simple reflections, 1 optical fiber.
• 1 capacitive sensor for detecting non-metallic parts
• 1 inductive sensor for detecting metal parts
• 1 SET NUMBER makes a contact when the counter reaches the preset value
• 3 START / STOP / RESET buttons control the set
An LED next to each sensor lights up if detected

**4-20mA OUTPUTS**
Placed in front of the cylinder V1 a scale weighs the item, and displays its weight in grams. The image of the weight is converted into a 4-20mA signal.
The automaton then actuates the cylinder V1 to push the item on the band, or actuates V2 to eject it.

**VARIOUS**
Supplied: a set of 6 pieces of different weights, shapes and materials.
Dimensions conveyor belt: 590 x 60mm
MAQ-CONV is integrated in a case that protects the components during transport.
Dimensions: 875 x 320 x 141mm. Weight 10,5kg.
Switching capacity of the input / output contacts: 30Vpp-1A.
220VAC power supply.

## PLC OPTION



**ref. 221-MAX**

| | |
|---|---|
| Number of inputs | 30 inputs 24VDC |
| Number of outputs | 26 digital outputs 2A max |
| Analog | 2 analog inputs 0-10V |
| Ethernet | Yes |
| Power supply | 230VAC-50 / 60Hz by plug socket + switch |
| Dimensions | 380 x 280 x 180mm |
| Delivered with | 1 RJ45 Ethernet cord of 3m. 1 USB link PC / PLC |

## MOBILE RESISTIVE & CAPACITIVE LOADS



| Ref | RCH05-RP | RCH20-RP | RCH40-RP |
|---|---|---|---|
| *Power* | 0,5kW / 500VAR | 2kW / 2kVAR | 4kW / 4kVAR |
| *Switch* | 6 | | |
| *Variation in steps* | 5% | | |
| *Type* | On wheels | | |
| *Weight* | 30kg | 35kg | 35kg |

**RESISTIVE**
- Using the same switches and resistors as the other models, this load is intended for use on the laboratory bench.
- The ultra fast switches and operating mode jump leads are found on the front panel.
- DC and single-phase 240V mode/3-phase delta 240V/ 3-phase star 400V. (Exists also for voltages 127/230V in 4kW - upon request)
- Dimensions: 500 x 220 x 400mm
- Male earth socket in standard. Female earth socket upon request.
- CEI1010 CATIII 1000Vrms pol2

**CAPACITIVE**
- Capacitve load useable from 0 to the rated power.
  4 jump leads to plug in safety terminals, connect a bank of capacitors in 3-phase star 400V, delta 240V or single-phase 240V.
- 6 switches 5%, 10%, 15%, 20%, 25%, 25% regulate the load from 0 to the rated power without interupting the load (ie 0 to 4kVAR for CH40).
- Safety : a discharge resistor is placed at the terminals of each capacitor.
- Male earth socket in standard. Female earth socket upon request.
- Portable unit (in steel). Dim. 500 x 300 x 200mm.
- CEI1010 CATIII 1000Vrms pol2