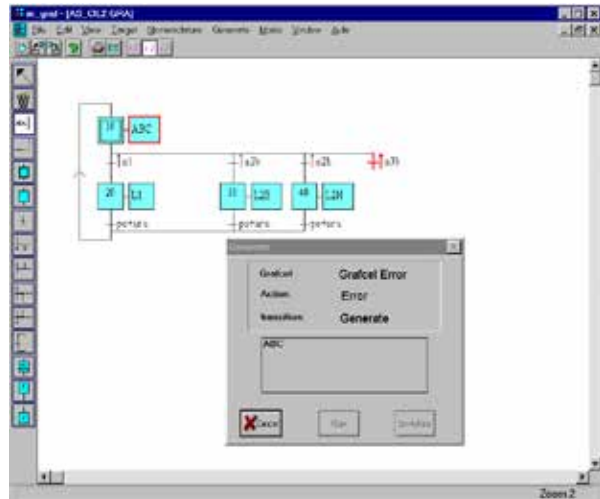
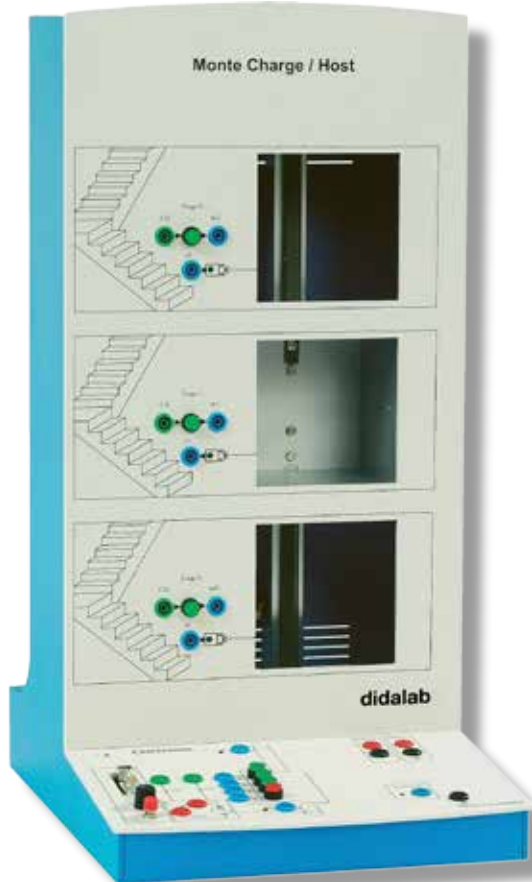


# Sequential Automatic Control



**ESD250**

## 3 LEVELS HOIST MODEL, 21 Inputs/Outputs

### TECHNICAL DESCRIPTION

The ESD250 model package includes:

- ESD 250 000, 3 levels hoist model mechanical part, 21 ON/OFF inputs/outputs, OUTPUTS

- 3 cabin calls,
- 3 level detection devices with 3 state displays
- 3 level calls,
- 2 over travel (high & low) detections

Safety devices (with LED display & buzzer)

- 1 emergency stop,
- 1 programmable overloading detection,

#### INPUTS

- 3 cabin call recording display devices,
- 1 cabin up control,
- 1 cabin down control,
- 2 motor currents & voltages display devices.

Inputs/outputs variables are controlled by Mentorgraf program, via RS232 or USB, or safety 4 mm sockets in the case of sequential control or external PLC (5 to 24 VAC/DC).

- Mentorgraf, grafset simulation & generation program, hoist model control,
- Practical works manuals.

### TOPICS

- Automatic control of a system by Grafset program ,through PLC or PC computer with **Mentor Graf** program : counting & time control.
- Computer science : sequential process control in assembler or advanced language.

# ESD 250 000 : HOIST MODEL MECHANICAL PART

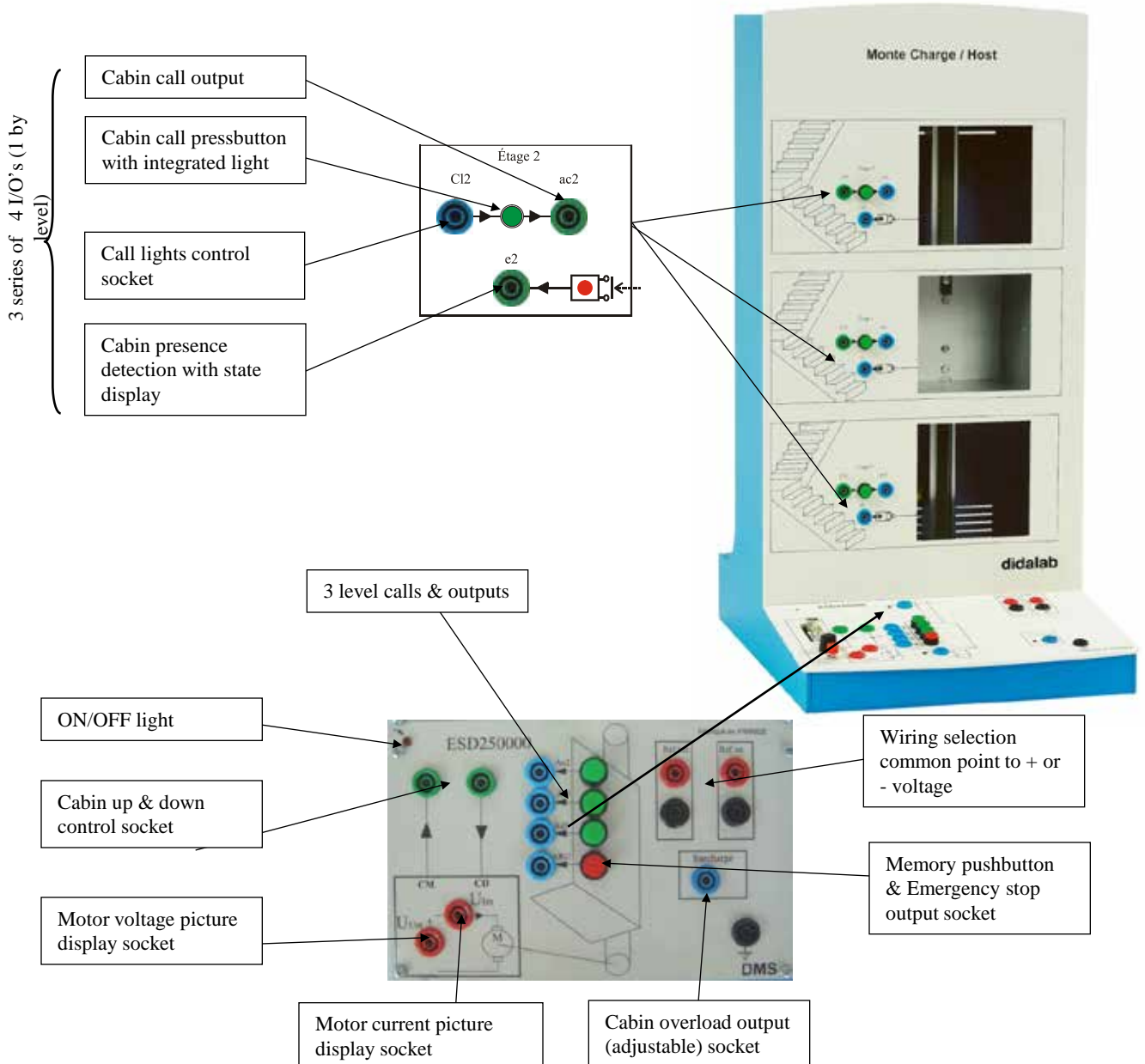
The hoist model mechanical part comes in the form of plastic material case including the Power Supply, the mechanical device & the interface electronic circuit. The cabin is driven by DC motor / gearbox system & reinforced notched belt.

3 safety devices are available and enable the illustration of real system safety management,

- Both high & low level detection devices respectively inhibit up & down controls, in order to overcome any grafcet programming error,
- One motor current adjustable detection device enables to detect cabin overloading (about 0.5 to 5 Kg),
- One emergency stop, available on the control panel, represents « one passenger emergency call»,
- Both safety devices (overloading detection & emergency stop) inhibit the motor control by hardware function, one safety signal is available on socket & on Mentorgraf grafcet variables, doubled of lighting & ringing signal.

## DESCRIPTION OF INPUTS / OUTPUTS

All inputs / outputs through  $\varnothing$  4mm safety sockets are compatibles with 5 / 24V (AC or DC) PLC inputs / outputs with common point connected to positive or negative voltage .

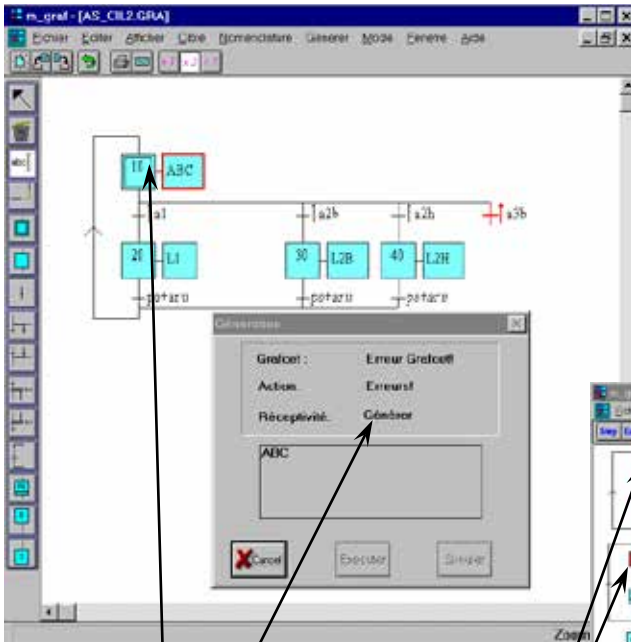


is one interpretative program, operating under Windows environment, enabling through USB or RS232 port, the control of different actuators such as the hoist model ESD 250 000. It has one editor, one GRAFCET generator & simulator. It can control any target following a graphical algorithm.

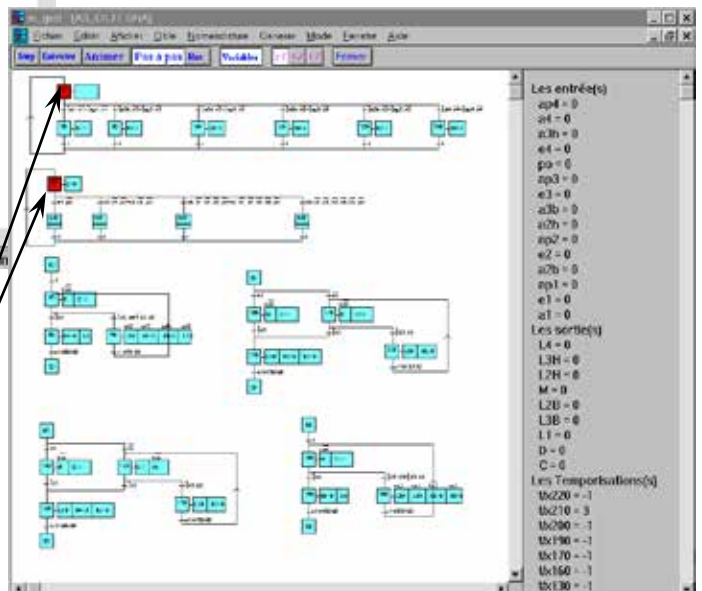
## Description

- Editor : enabling the drawing of GRAFCET with the basic tools, step, transition, divergence/convergence in AND, OR, macro steps...
  - Generator : converting GRAFCET into executable code, checking of syntax & coherence between target variables & used variables...
  - Simulator : executing GRAFCET in simulation, one "click" on the input variable enables the activation of the corresponding transition, the complete graph can be checked before controlling the mechanical part.
  - Interpreter : enabling execution & control following step by step, trace & quick modes.
- Some characteristics :
- 256 steps, 256 transitions, 256 x 8 bits storage, macro steps, simultaneous control possibility of several independent grafquets.

### EDITION



### EXECUTION IN TRACE MODE



Generation reporting with indication of errors, grafcoet, labels...

Display of active cells

It includes for each practical work :

- One course recall upon notions treated on this practical work,
- One specification of the function to be carried out,
- One solution proposition with source file is provided on CDROM

PW N°	Description	Purpose
1	Carrying out of the up & down cabin motion between levels 0 & 2	Monostable, divergence / convergence & receptivity actions
2	Improving of grafcet N°1 by conditional action & insertion of time delays	Conditional actions, time delays
3	Cabin positioning at any level	Front receptivity
4	LED activation orresponding to the cabin presence	Master grafcet &slave grafcet
5	Cabin motion to level corresponding to a call	Internal variables (memory)
6	Cabin motion following level call & level lights flashing	Bistable actions
7	Cabin motion following level call, destination level light flashing	AND divergence
8	Cabin motion following level call, destination level light flashing, lighting upholding after cabin arrival, emergency stop control, overload detection	Macro steps
9	Same specification than the preceding, taking into account & storage of continous calls & execution after time delay	

### Standard configuration

In order to propose a complete solution to the User, we can provide full sets called “Packages”, including all accessories.

#### Details on constituting elements of the full package ESD250C :

Reference	Designation	Qty
ESD 250 000	3 levels hoist model mechanical part with built-in Power Supply & technical guide	1
ESD 250 200	MENTOR GRAF, GRAFCET edition & execution program,	1
ESD 250 041	« HOIST MODEL applications » practical works manual	1
EGD 000 003	RS232 serial lead	1
EGD 000 009	« AB » TYPE USB serial lead	1

### Packing list :

Net : 62 cm, 41 cm, 30 cm, weight : 7 kg,  
Gross : 70 cm, 50 cm, 40 cm, weight : 9 kg.