



**SIEMENS**  
**PROFI**<sup>®</sup>  
**NET**



## Cube-Elec 300

Cube-Elec 300 is **compact and modular**, it allows to implement a complete chain of automatic control. The cube consists of an HMI, a Programmable Logic Controller and a drive for the control of an asynchronous motor (or brushless motor)

## Pedagogical purposes



HMI

KTP 700

- ✓ Profinet connections
- ✓ WinCC programming
- ✓ Web Server management

PLC

S7-1200

- ✓ TIA Portal
- ✓ PLC programming
- ✓ Profinet connections

Drive

G 120

V 90

- ✓ Configuration
- ✓ Set up
- ✓ Study of Profinet and connection

Motor

external

external or internal

- ✓ Connection
- ✓ Study of asynchronous motor
- ✓ Study of Brushless motor

# KTP 700 HMI side

The HMI is a KTP 700

Several characteristics:

- 7" colour graphic terminal: KTP700
- WEB Server function for the simultaneous connection to several computers

## CSM 1277 Switch



- ✓ Ethernet 10/100 Mbit/s non manageable
- ✓ 4 x RJ45 ports
- ✓ LED for diagnostic

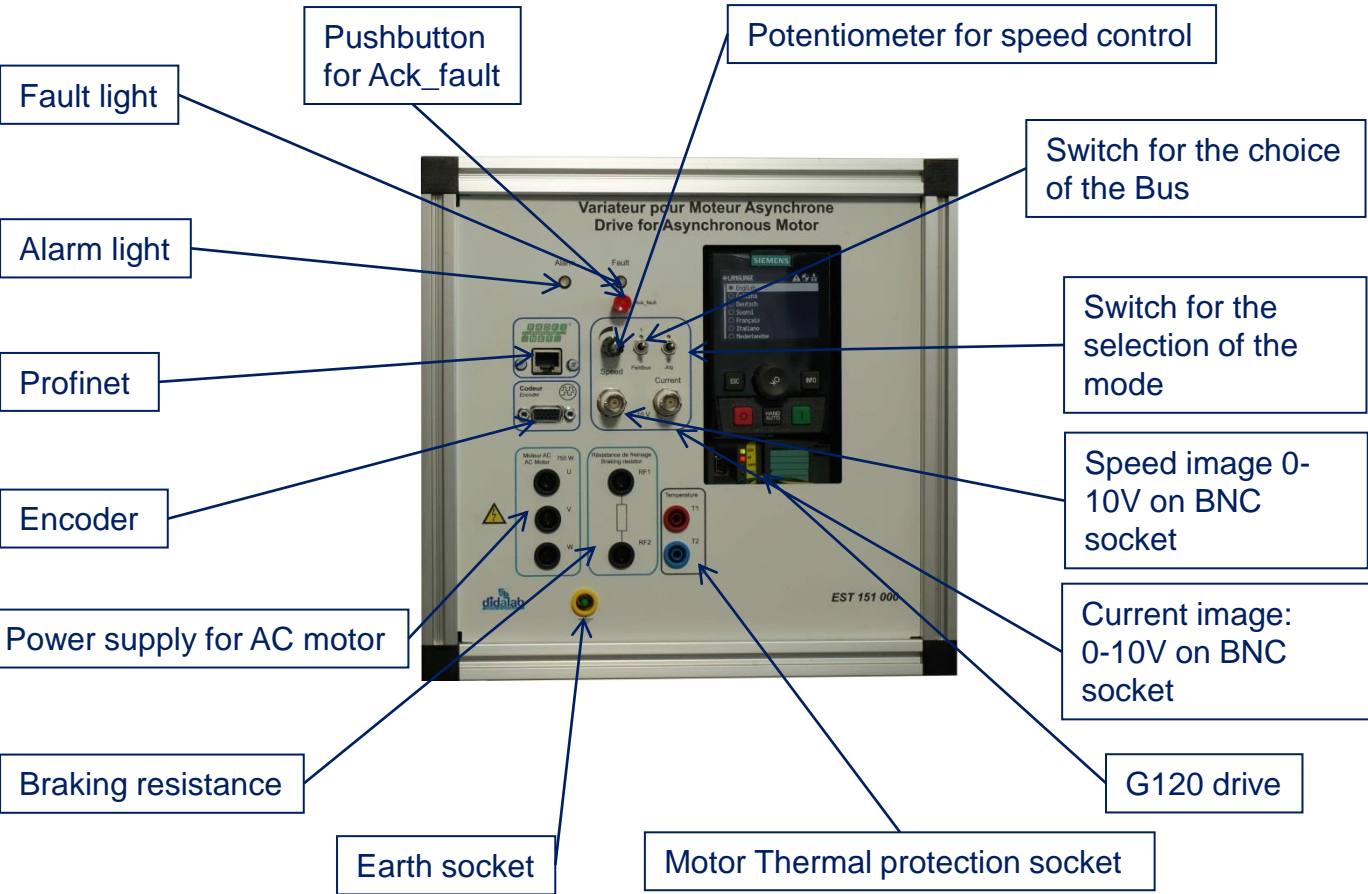


KTP 700

USB connector

# Drive side

The drive (variator) is a SIMATICS G120C, 0.55 kW with graphic terminal included  
Without filter



Fault light

Pushbutton for Ack\_fault

Potentiometer for speed control

Alarm light

Switch for the choice of the Bus

Profinet

Switch for the selection of the mode

Encoder

Speed image 0-10V on BNC socket

Power supply for AC motor

Current image: 0-10V on BNC socket

Braking resistance

G120 drive

Earth socket

Motor Thermal protection socket

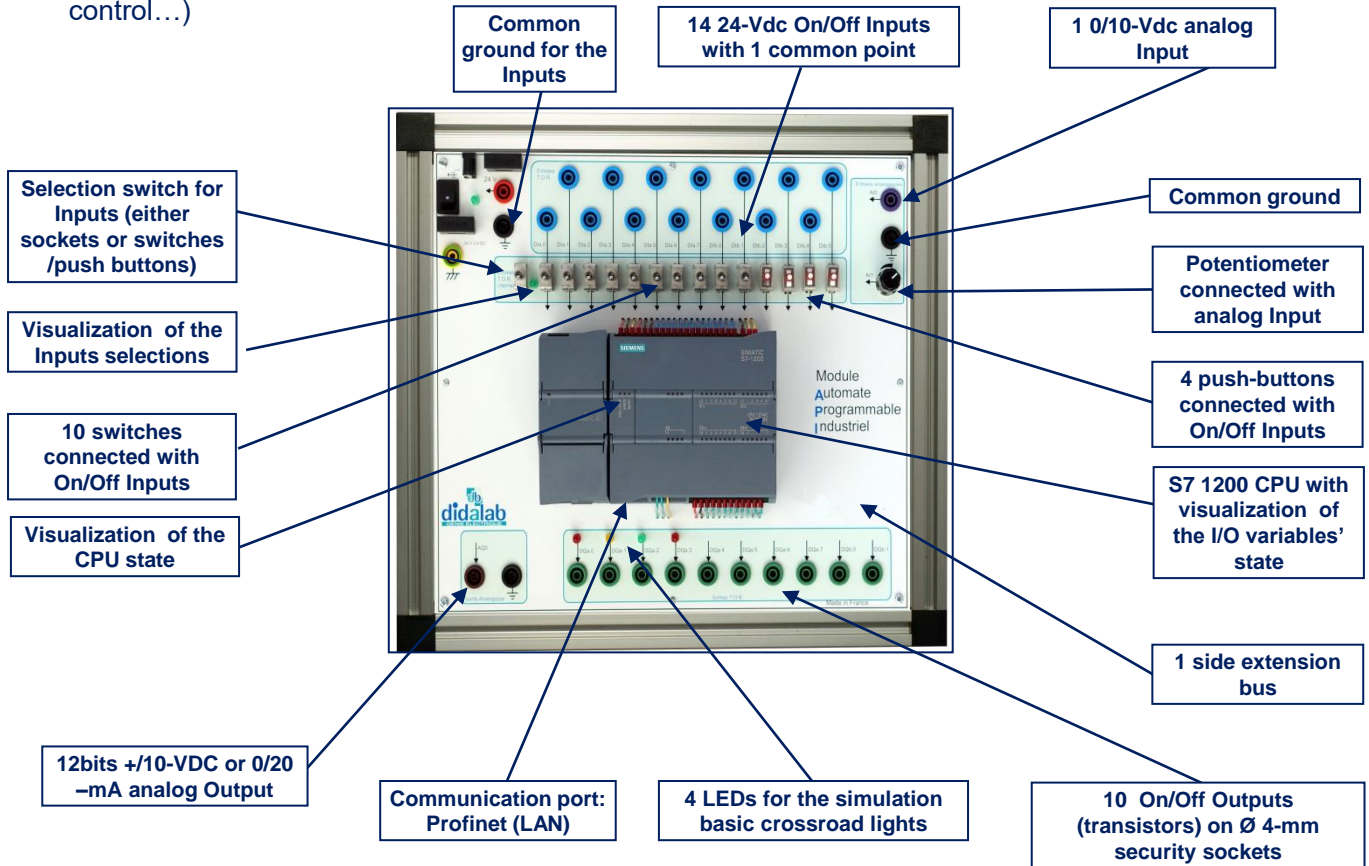
# S7 1200 PLC side

The PLC is a SIMATIC S7 1200.

Some characteristics:

- Working memory: 50 ko, 6 fast counters and 2 pulse Outputs included,
- Time of cycle : 1ms for 1000 instructions,
- PROFINET port for programming.

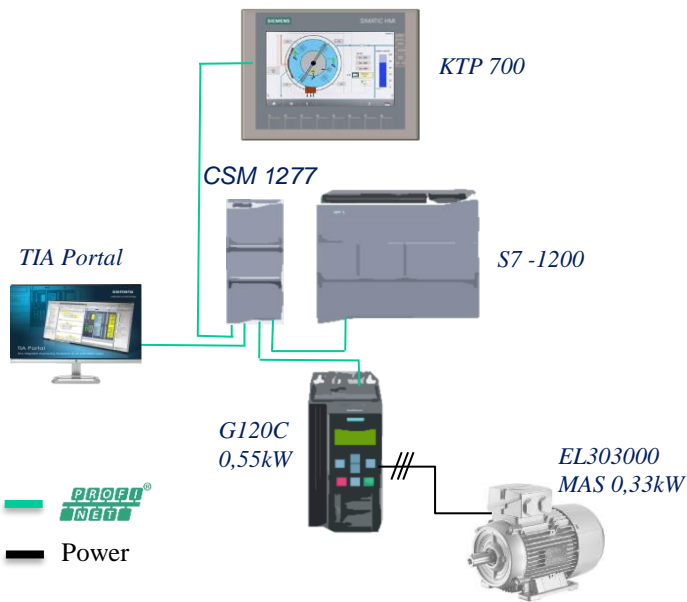
A simulator for Inputs variables (10 switches and 4 push-buttons, colour LEDs on 4 Outputs) allows the use of the product with complete autonomy, simulation of basic crossroad lights, chase, access control...)



## Example of configuration

Block diagram

Setting



## Related products:

### Bench loads:



#### EL 31\_ : Motor bench with magnetic brake, 300 W

- Instrumented and programmable resistive load : Magnetic brake
- Several configurations are available (DC motor with permanent excitation, DC motor with separate excitation, asynchronous 3-ph motor, brushless motor)

#### EL 32\_ : Motor bench with active load, 300 W

- Instrumented and programmable resistive and driving load : brushless motor controlled by Siemens drive
  - Several configurations are available (DC motor with permanent excitation, DC motor with separate excitation, asynchronous 3-ph motor, brushless motor)
- Suggested motors**



Example:



## Standard configurations:

Cube-Elec300		
References	Description	Qty
EST120G	Cube-Elec 300, with G120C drive for 300-W Asynchronous motor	
EST100000	Cube, made of aluminium frame, with 1 side for 230 VAC power supply and the switch for power ON.	1
EST101000	KTP 700 HMI side, with 4 RJ45 crosses and USB socket	1
ESD003000 + ESD000010	S7-1200 PLC side, with TIA Portal program with Ø2-mm safety sockets	1
EST120000	G120C drive side, for 0,55 kW asynchronous motor (without filter)	1
<i>Option Non Include</i>		
EL303000	3-ph asynchronous squirrel cage motor, 240/400V, 370W, with setting accessories	

Cube-Elec300		
References	Description	Qty
EST110V	Cube-Elec 300, with V90 drive for Brushless motor	
EST100000	Cube, made of aluminium frame, with 1 side for 230 VAC power supply and the switch for power ON.	1
EST101000	KTP 700 HMI side, with 4 RJ45 crosses and USB socket	1
ESD003000 + ESD000010	S7-1200 PLC side, with TIA Portal program with Ø2-mm safety sockets	1
EST110000	V90 drive side for 0.2 kW Brushless motor, with Brushless motor embedded in the cube	1

**We can now offer cubes for the following ranges:**

- SELV 100 W and 300 W (for DC and/or Brushless motors)
- LV 300 W and 1500 W (for Brushless and AC 3-ph motors);

**Please ask us for any configuration.**

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