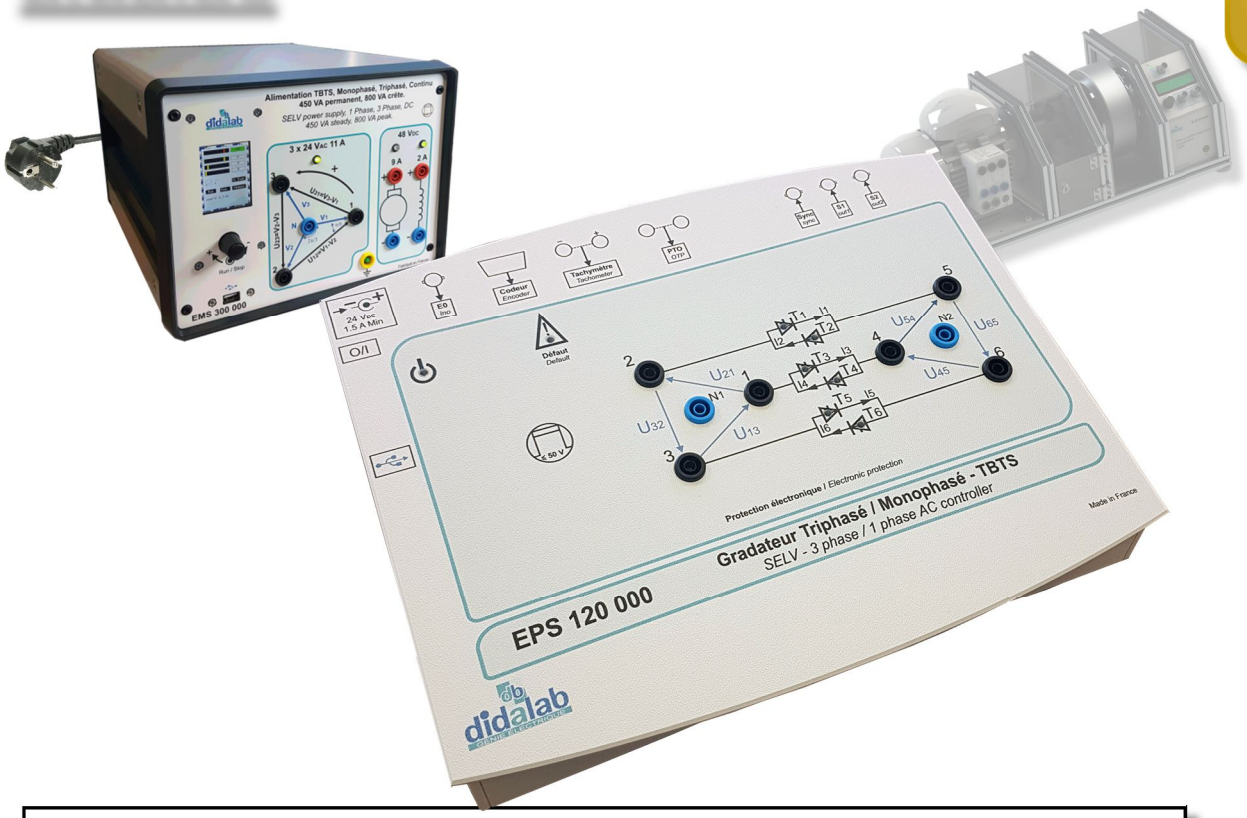
Power Electronics



EPS 120 pack

1-PHASE, 3-PHASE AC-CONTROLLER, SELV 150/300 W

GENERAL CHARACERISTICS

The **EPS120B** pack from the **Electrical Engineering** department includes the EPS120000 operations module, manual, a set of accessories, a driver software.
It enables the study of:

Single-phase upstream AC voltage controller:

- Phase-angle.

Three-phase upstream AC voltage controller:

- Phase-angle with neutral.
- Phase-angle without neutral.

External control:

- By electronic assembly +/-10 V_{DC} (in static chopper or single-phase inverter).

A setting software is provided (ref.: EPS120100).
Optional: the EPS211000 TFT colour display (320x240) with digital potentiometer enables the functioning in autonomous mode.

TECHNICAL CHARACTERISTICS

Nominal characteristics

- Voltage range of the power supply: 24 V_{AC} phase/phase.
- Maximum peak current in each static switch: 10 A.

SAFETY DEVICES:

- Excitation current monitoring
- Short-circuit protections
- PTO (thermal protection)
  - Power supply monitoring: min. 12 V_{AC} / max. 24 V_{AC}.

AREAS OF APPLICATION

Secondary & higher technical education.

- Prep school
- Vocational training in electrical engineering
- Institue of technology
- Engineering school & University

Class illustration/demonstration:
The EPS120 is also specially adapted to spot a particular phenomenon during a lecture *via* a video-projector (with the EPS120100 software and a PC).

ENVIRONMENT

Equipment necessary for a correct use of the EPS 120 pack:

- SELV 3-phase power supply 3x24 V_{AC}.
- 300 W resistive load banks.
- 1-/3-phase inductive load banks with independent branches.
- Engine test bench: AC squirrel cage with 300-W load generator.
- PC.

Technical guide

The **EPS 120** pack is provided with a commissioning and maintenance booklet indicating the general conditions of commissioning and use.

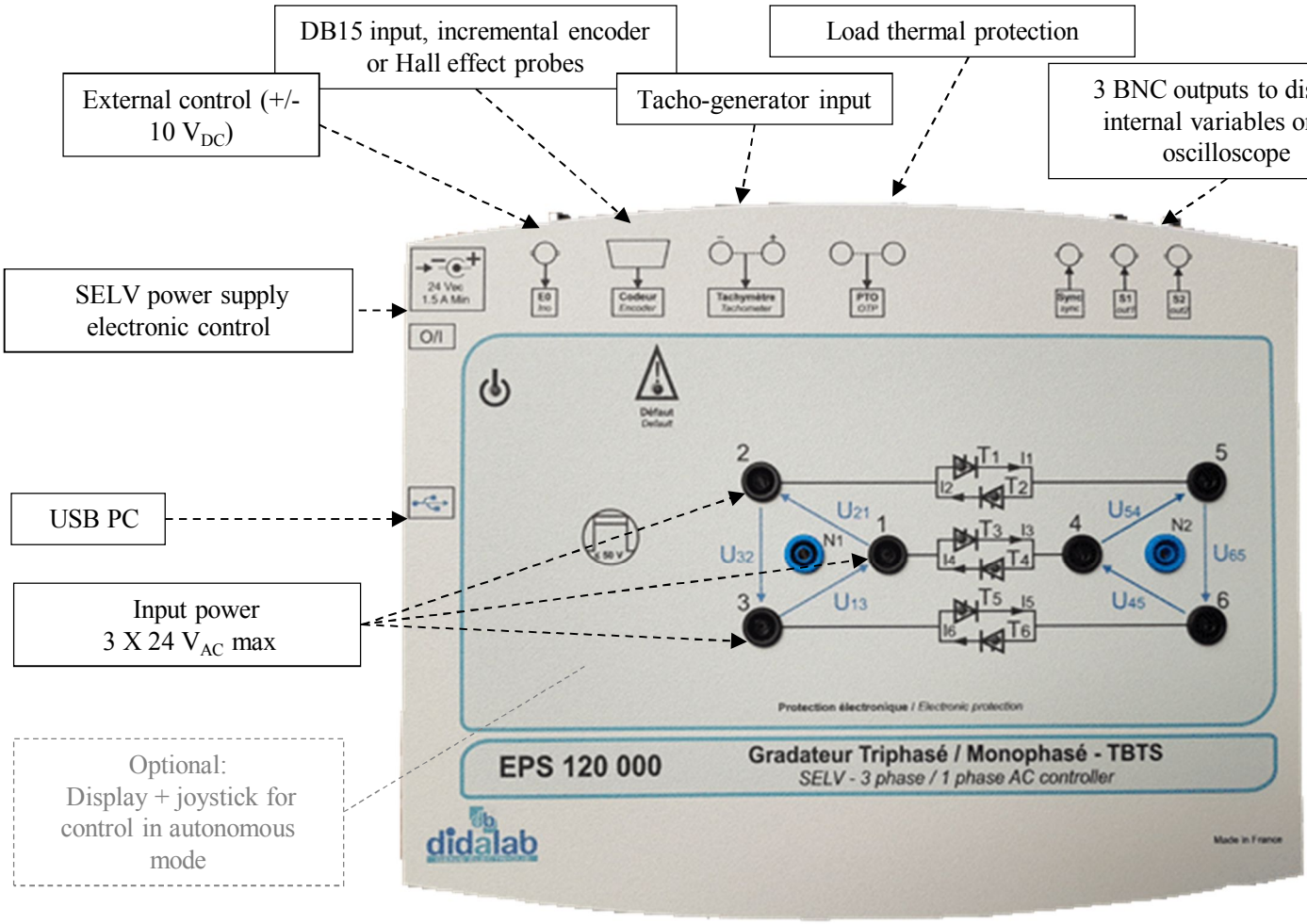
PACKAGING:

Dimensions - net: 330x265x110 mm
(l x w x h) - gross: 595x560x160 mm
Weight: Net 2 kg, Gross 5 kg.

MADE IN FRANCE
FABRICATION FRANÇAISE

EPS120000: SELV (150/300 W) 1-/3-phase AC voltage controller panel, technical characteristics:

The EPS120000 is composed of a PVC insulated frame with a front panel including operating diagrams, the device is suitable for table-top installation. The power supply unit is external (3 x 24 V_{AC} max, 10A). The adjustment control and choice is made by a PC due to the EPS120100 software.
It is designed to be used from an AC power supply, in compliance with established safety standards.

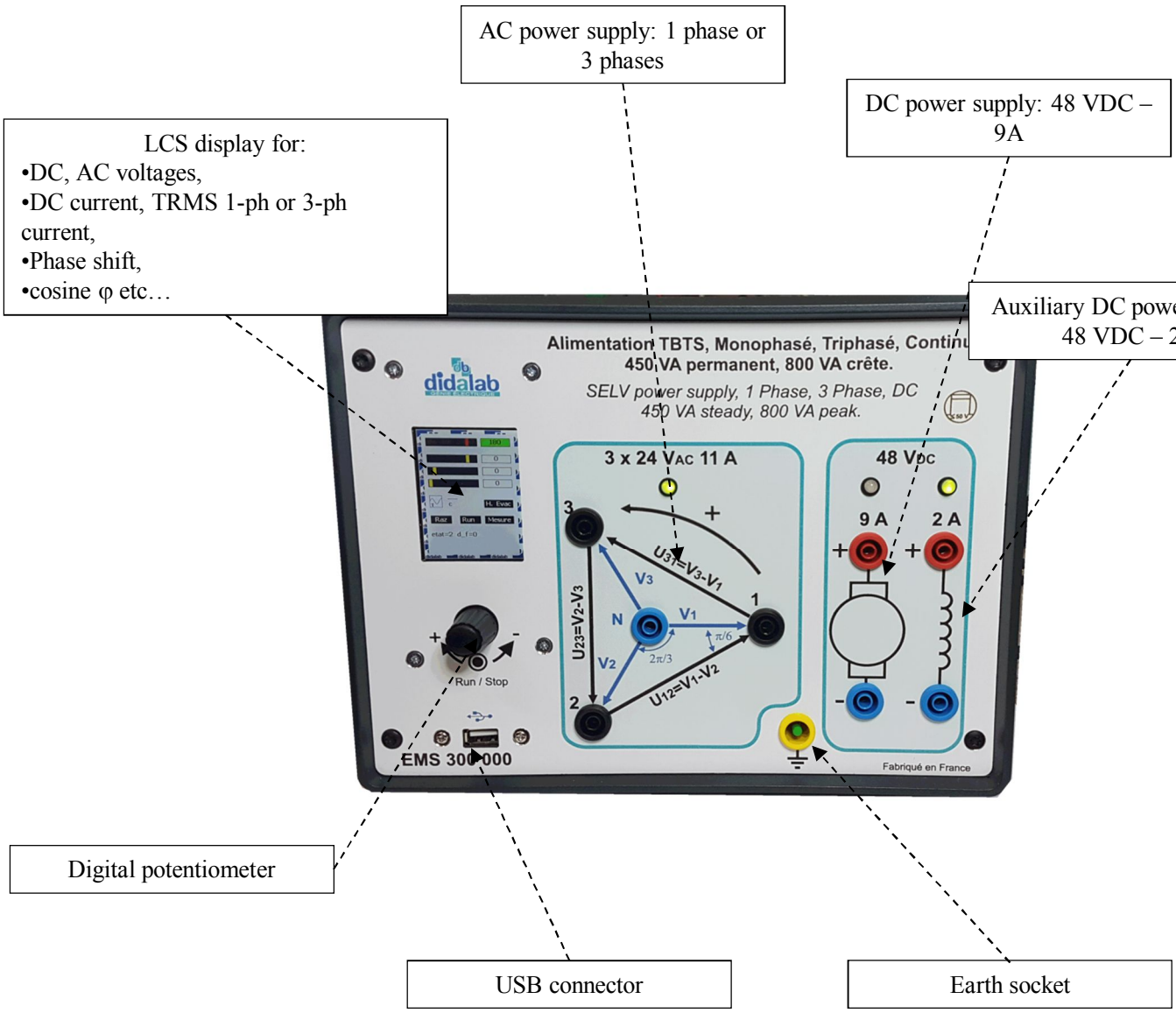


The EPS210000 can be operating in complete autonomous mode. The control board is based on a very high power le processor (ARM-M4), assisted with a 50,000-gate FPGA.

EPS120100 : CONTROL AND ACQUISITION SOFTWARE

- It is operating under *Windows* environment and enables to drive the EPS120 power bridge *via* USB.
- The students chooses the structure of the power bridge.
- They choose the values they want to display on the embedded oscilloscope
- They adjust the operating parameters, delay triggering,….

SELV POWER SUPPLY (430W) SINGLE-PHASE or THREE-PHASE & DC



MAIN CHARACTERISTICS:

EMS 300 000 power supply is specially designed to carry out practical works in Power electronics and Electrotechnics in the DIDALAB 300-W range. Its main assets are:

- Output voltage comply with SELV standard s (avoiding expensive measuring and/or protection systems).
- **Pluggable directly to the mains: single-phase socket 240 V_{AC} 16A (available in any given classroom).**
- A LCD HMI associated to a digital potentiometer enables to select the values to display (DC/AC voltage, direct curre effective single or tri, phase difference, cosine φ, etc.

- *Optional: a software under Windows enables to retrieve the information of electrical power to carry out rotat machines yield studies (mechanical energy acquisition on the load module).*

TECHNICAL CHARACTERISTICS:

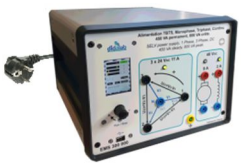
- Single-phase power supply 240 V_{AC} 16 A (mains).
- Outputs: 3-phase AC +neutral (24 Vac 11 A) or DC (48 Vdc 9 A) and DC (48Vdc 2 A for excitation)
- Silkscreen printed front panel.
- Permanent power: 450 VA ; peak power: 800 VA.
- Electronic protection: voltage, current, temperature (components & transformers)

Optional extra:

•**EPS121000,** Display + joystick for control in autonomous mode (without PC)

Suggested accessories:

AC power supply: 3x24 VAC 11A



ELS331B : BICMAC S300, Load bench, with AC motor coupled to a programmable load (magnetic break),

PMM064000 : (3 x) Rheostats 320 W, 10 Ohms, 5,7 A, EPSD037340 : (3 x) Self loads 1, 2, 4, 6, 8 mH, 5A.

Standard configurations:

EPS120A : Basic package « STUDY OF A 1-/3-phase AC VOLTAGE CONTROLLER 150/300 W with SELV Power supply », including:		
References	Description	C
EPS120000	Safety module for power electronics SELV 150/300 W, 1-/3-phase AC VOLTAGE CONTROLLER	
EPS120100	Control and acquisition software	
EGD000005	24 Vdc, 2.9 A Power supply, with Jack socket	
EPS1200010	User's guide	
EGD000006	USB patching cord, AA model	
EGD000018	Carrying suitcase	
EMD300000	SELV power supply, 3-phase, 1-phase AC, DC.	

EPS120B: Basic package « STUDY OF A 1-/3-phase AC VOLTAGE CONTROLLER 150/300 W », including:		
References	Description	C
EPS120000	Safety module for power electronics SELV 150/300 W, 1-/3-phase AC VOLTAGE CONTROLLER	
EPS120100	Control and acquisition software	
EGD000005	24 Vdc, 2.9 A Power supply, with Jack socket	
EPS1200010	User's guide	
EGD000006	USB patching cord, AA model	
EGD000018	Carrying suitcase	