



EM 300

LV POWER SUPPLY (450W) SINGLE-PHASE or THREE-PHASE & DC

MAIN CHARACTERISTICS:

EM 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:

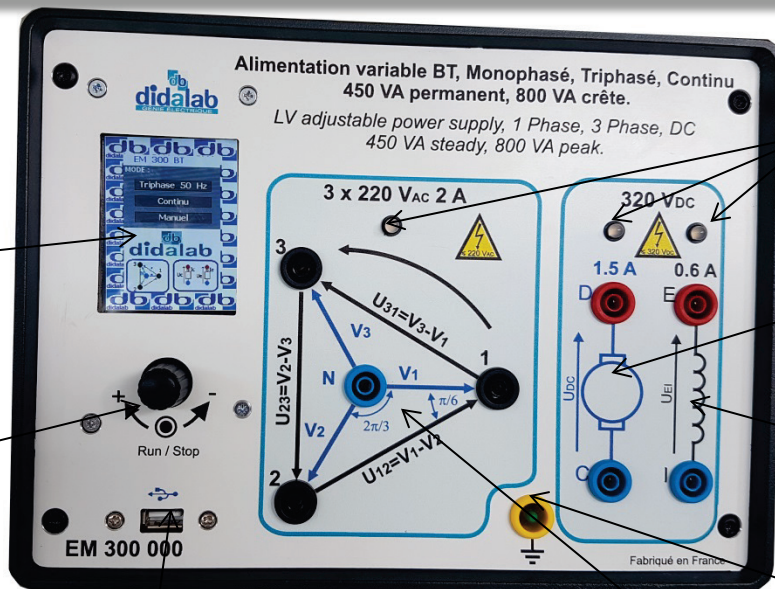
- Output voltage comply with LV standards
- **Pluggable directly to the mains: single-phase socket 240 V_{AC} 16A (available in any given classroom).**
- A LCD HMI associated to a digital potentiometer enables to select the values to display (DC/AC voltage, direct current, effective single or tri, phase difference, cosine ϕ , etc.
- *Optional: a software under Windows enables to retrieve the information of electrical power to carry out rotating 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 (240 Vac 2 A) or DC (320 Vdc 1.5 A) and DC (320 Vdc 0.6 A for excitation)
- Silkscreen printed front panel.
- Permanent power: 450 VA ; peak power: 800 VA.
- Electronic protection: voltage, current, temperature (components & transformers)

PACKING : Dimensions (l x p x h), 250x335x200 mm, weight: 15kg

Front



Display : 3 modes (AC, DC, manual)

Digital potentiometer

USB socket for data registering on a computer (Voltage, Current, Power, cosine ϕ ...)

Display leds
State of the power supply

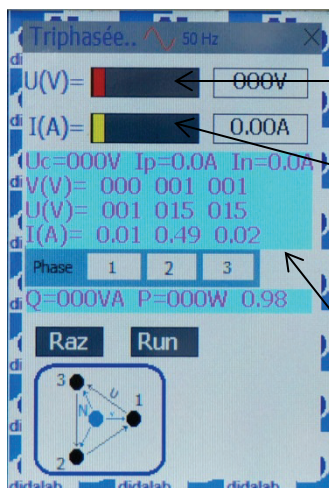
DC power supply
320Vdc 1.5A

DC power supply
320Vdc 0.6A

Earth socket

AC power supply
1 phase– 3 phase
3x220 Vac 2A

3-phase AC supply mode



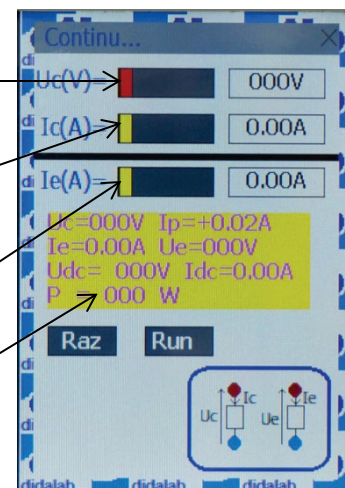
Control slider for voltage

Control slider for current

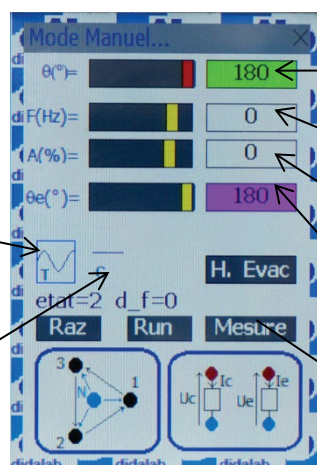
Control slider for excitation current

Measure

DC supply mode



Manual mode



Delay angle
(0 to 180°)

Frequency (Hz)

Inverter amplitude

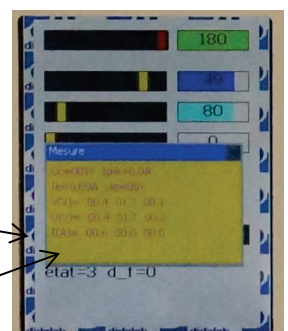
DC excitation
power supply

Activation of the AC
operating mode

Activation of the DC
operating mode

The measures depend on the operating mode :

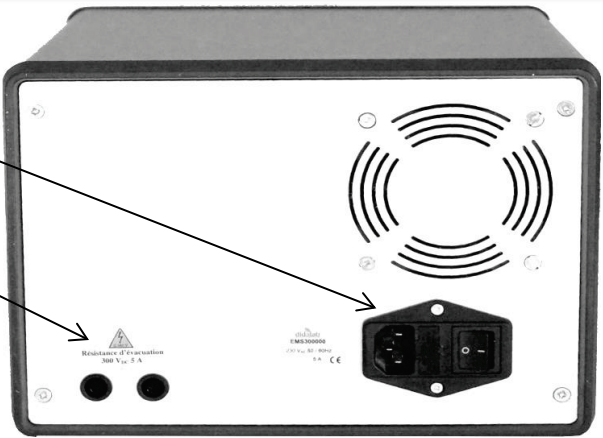
- In 3-ph AC mode: RMS voltage (V and U (phase voltage and compound voltage) in each phase ; RMS current in each phase
- In DC mode: average voltage and average current.



Back

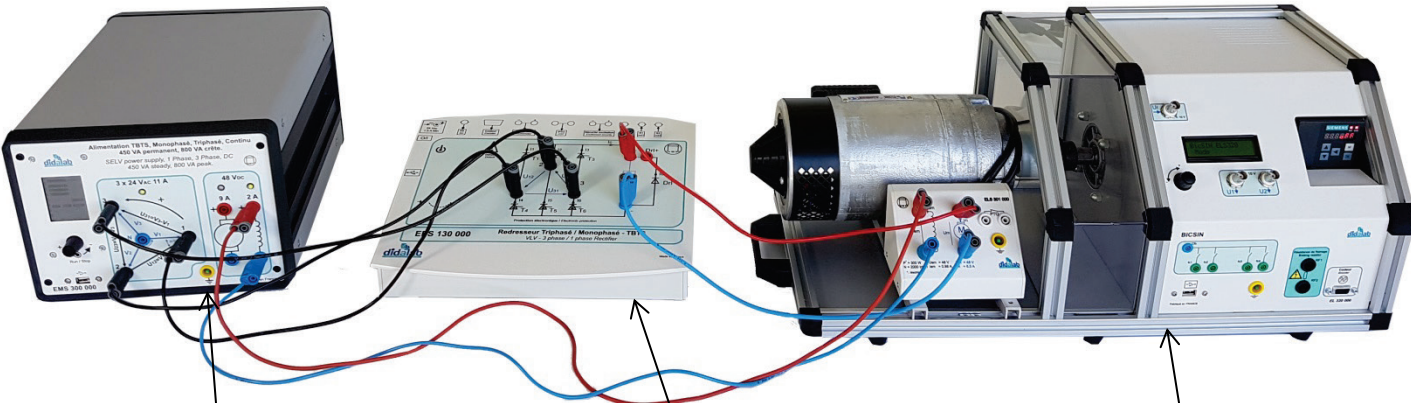
Socket for supply to mains

Ø 4-mm security sockets to connect a resistance for energy discharge.



Example of Application :

Control of a DC motor with a rectifier



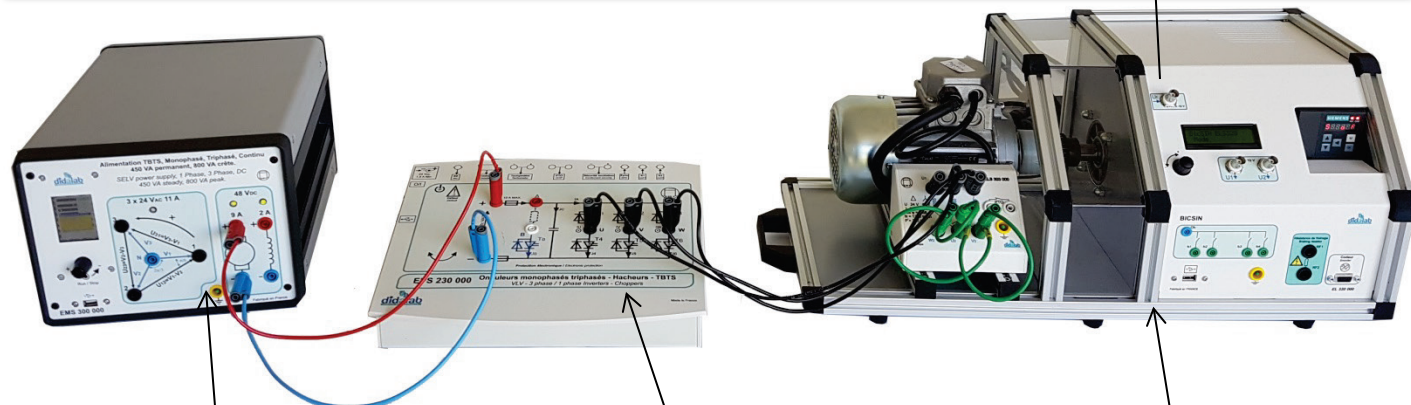
LV power supply
(ref EM300)

Power bridge (ref EP130
1-phase, 3-phase rectifier)

DC motor with active load
(ref EL321)

Example of Application :

Control of a AC motor with a 3-phase PWM inverter



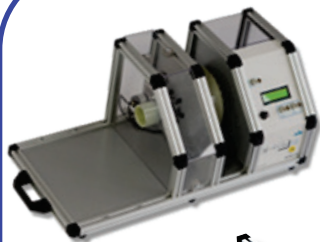
LV power supply
(ref EM300)

Power bridge (ref EP230
Chopper, 3-phase inverter)

AC motor with active load
(ref EL323)

Related products:

Motor benches:



EL 31_ : 300-W Motor bench with magnetic brake

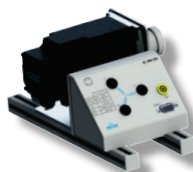
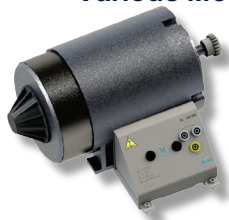
- Instrumented and programmable resistive load : magnetic brake
- Several configurations are available (DC motor with permanent excitation, AC 3-phase squirrel cage motor, brushless motor)



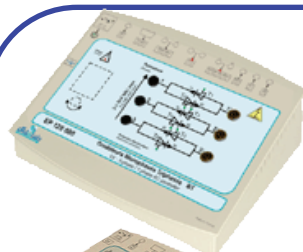
EL 32_ : 300-W Motor bench with active load

- Instrumented and programmable resistive and driving load : brushless motor controlled with Siemens variator
- Several configurations are available (DC motor with permanent excitation, AC 3-phase squirrel cage motor, brushless motor)

Various Motors



Power bridges:



EP 120 B 1-phase, 3-phase AC converter, 300 W, LV

- Up-line 1-phase AC controller: - phase angle mode, - burst firing mode
- Up-line 1-phase AC controller: - phase angle mode with neutral, phase angle mode without neutral - burst firing mode



EP 130 B 1-phase, 3-phase rectifier, 300 W, LV

- 1-phase rectifier : commuting cell, all diodes, all thyristors, mixed and symmetrical, mixed and asymmetrical
- 3-phase rectifier: all diodes, mixed, all thyristors.
- Assisted inverter.



EP 210 B Chopper, 1-phase inverter, 300 W, LV

- Choppers: serial, voltage reversible, current reversible, four quadrants, over-fitted double serial,
- 1-phase inverter: Shift control full wave with fixed frequency, with variable frequency, PWM +E/-E, MLI +E/0/-E, constant U/F ratio.



EP 230 B Chopper, 1-phase inverter, 3-phase inverter 300 W, LV

- Choppers: serial, voltage reversible, current reversible, four quadrants
- 1-phase inverter: Shift control full wave with fixed frequency, with variable frequency, PWM
- 3-phase inverter: Shift control full wave with fixed frequency, with variable frequency, PWM