

EMS 300

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:

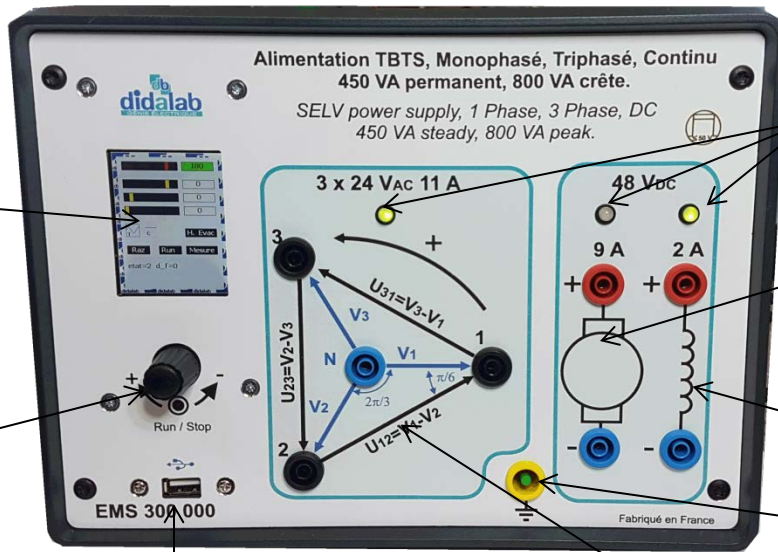
- Output voltage comply with SELV standard s (avoiding expensive measuring and/or protection systems).
- **Pluggable directly to the mains: single-phase socket 240 V_{AC} 16A (available in any given classroom).**
- A LCD HMI associated to a digital potentiometer enables to select the values to display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

PACKING: Dimensions (L x l x h), net, 250x335x200 mm, gross, 300x500x230 mm
Weight: Net, 12 kg, Gross, 13 kg.

Front



Display leds
State of the power supply

Display

DC power supply
48Vdc 9A

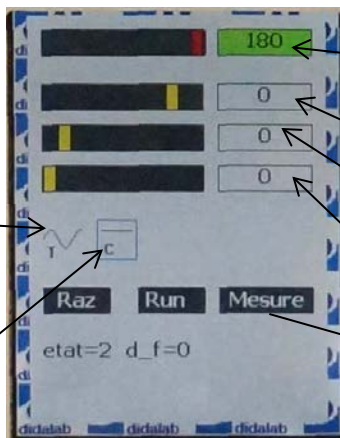
Digital potentiometer

DC power supply
48Vdc 2A

Earth socket

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

AC power supply
1-phase, 3-phase
24 Vac 11A



Delay angle
(0 to 180°)

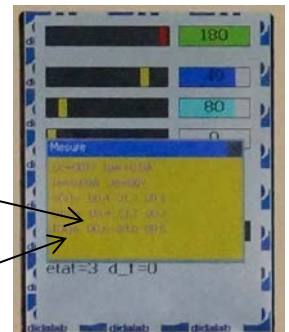
Frequency (Hz)

Activation of the AC
operating mode

Inverter amplitude

Activation of the
DC operating mode

DC excitation
power supply



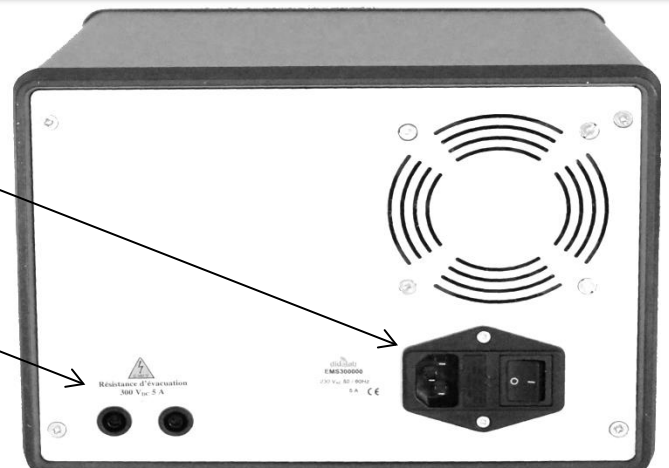
The measures depend on the operating mode :

- 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.

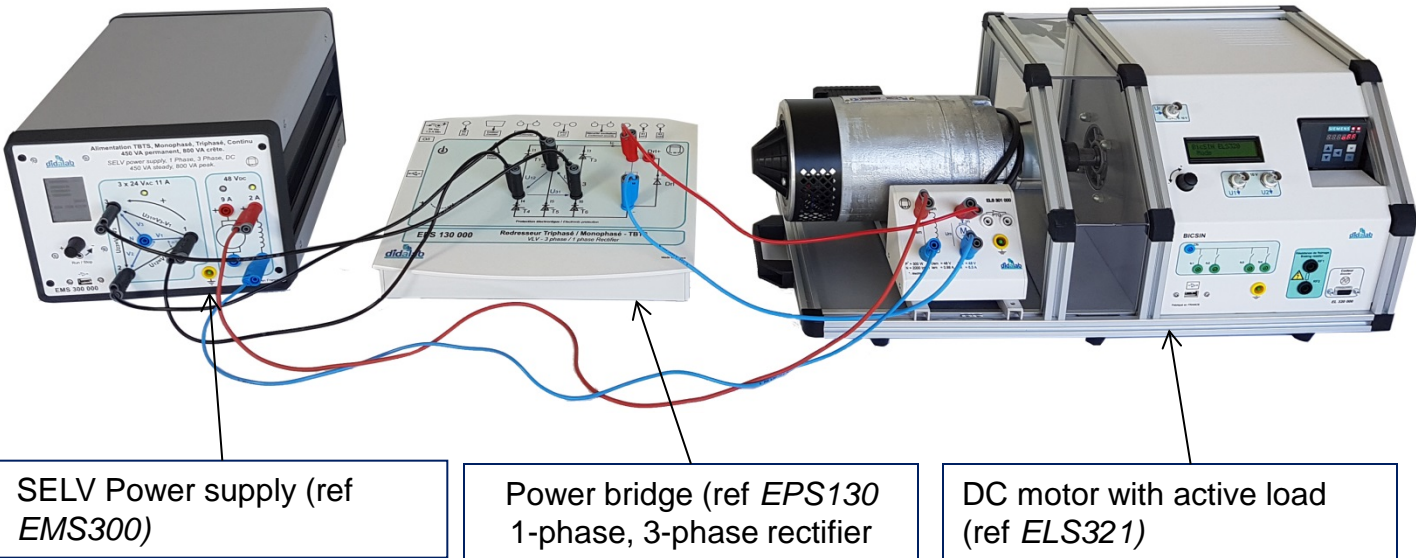
Back

Socket for supply to mains

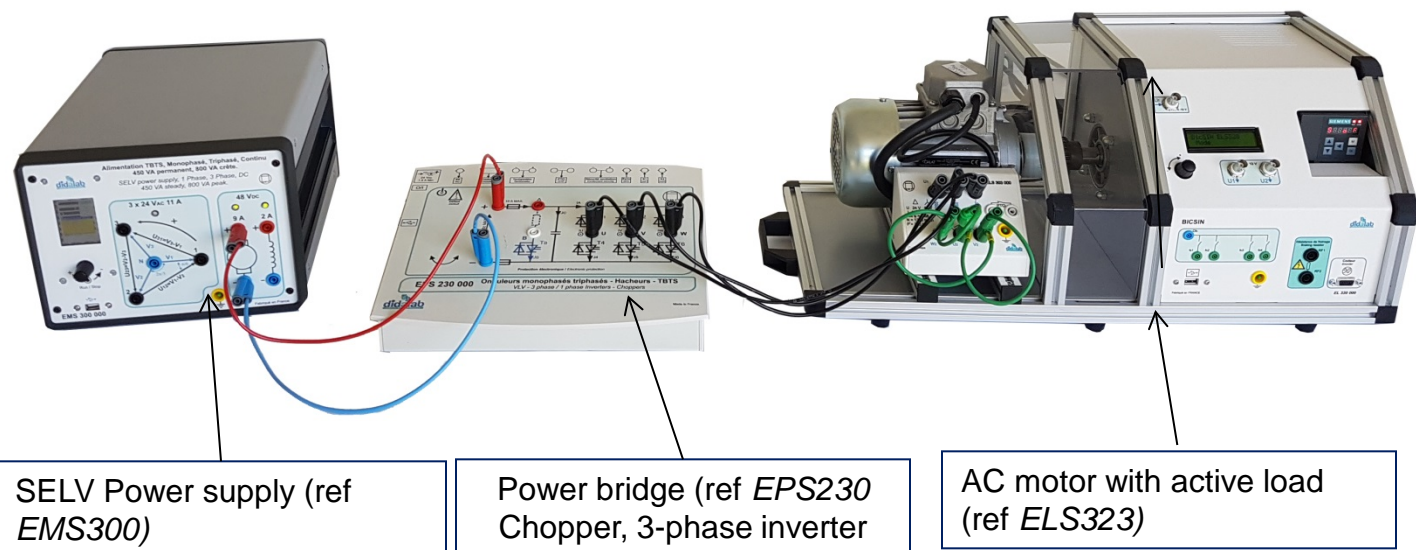
Ø 4-mm security sockets to
connect a resistance for energy
discharge.



Example of Application : Control of a DC motor with a rectifier



Example of Application : Control of a AC motor with a 3-phase PWM inverter



Related products:

Motor benches:

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

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

ELS 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, DC motor with separated excitation, AC 3-phase squirrel cage motor, brushless motor)

Different motors



Power bridges:

EPS 120 B 1-phase, 3-phase AC converter, 300 W, SELV

- 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

EPS 130 B 1-phase, 3-phase rectifier, 300 W, SELV

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

EPS 210 B Chopper, 1-phase inverter, 300 W, SELV

- 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.

EPS 230 B Chopper, 1-phase inverter, 3-phase inverter 300 W, SELV

- 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