TEMPERATURE REGULATION BENCH

Non contractual photo

SERVICE : POWER SUPPLY VIA STANDARD SINGLE-PHASE 230V + T 16A CONNECTOR.
DIMENSIONS : 1150 X 670 X 1470 MM

REFERENCE : HTBE-C

Designed to be part of the electrotechnical systems test area, this system includes an operative part and a containment box integrated into the chassis :

- The operative part allows to heat and cool a water tank,
- The containment box receives the control board wired by the student.
- This system is autonomous in water and only 230V mains supply is necessary.

It allows to study, and then wire by the student, a control plate temperature control.

According to the turntables, it implements :

- Instrumentation (transmitter, thermostat, regulator, ...)
- Power modulation (static relay, wave train, dimmer, ...)
- Measurement of electrical and thermal quantities.

It meets the security standards in force.

Technical specifications :

Operative part

The bench consists of a mobile chassis (mechano-welded or aluminum profile) integrating :

- A reservoir
- A single-phase immersion heater.
- A temperature sensor.
- A sensor "low level".
- a bimetallic safety thermostat,
- A stainless steel centrifugal circulation pump,
- An air cooler.

The cooling circuit consists of a circulation pump and an air cooler to increase the exchange of calories between the water and the ambient air. It allows to be autonomous with respect to the water network. His goal is twofold :

- disturb the temperature control loop,
- Cool the water reserve to be able to redo the manipulations (without having to wait for the natural cooling of the water).

Order part :

The containment cabinet is an integral part of the system. It has two distinct areas.

1- Cable area :

This is the area where the student has access. She receives the circuit board wired by the student.

We offer you, as an option, several lots of equipment allowing the

student to realize the wiring of this board :

- Thermostatic version hardware package
- Lot of hardware PID controller version

A quick fastening device and connectors allow quick assembly / disassembly of the wired board by the student. The buttons and lights are attached to the door and are connected to the board by a quick connector.

2- Power supply area :

The second zone concerns the supply of the containment cabinet. It is already wired and the student does not have access.

It integrates :

- A 24V AC power supply,
- A 3x400V + N + T power supply protected by a 30mA differential circuit breaker,
- A safety logic block,
- A safety limit switch on the door which conditions the turn on of the turntable,
- Power buttons and lights,
- A main switch-disconnector.

Data acquisition option :

The data acquisition system is offered as an option. It consists of an acquisition card to integrate into a PC and software running Windows. This software allows to visualize the quantities in real time and to record them. The signals to be measured are taken from a connector on the door.

Proposed educational activities :

- Setting and checking of operation,
- Wiring of a heating system,
- Measurement of electrical and physical quantities: current, voltage, temperature,
- Control of characteristic quantities of the installation: voltage, current,
- System that can be used for electrical authorization,
- Reconfiguration of the system: adjustment and parameterization,
- Commissioning : after wiring, the student is required to interconnect his work to the system, then configure and verify the proper functioning of the whole.