STL500

DIDATEC

TEMPERATURE CONTROL UNIT

Experimental capabilities

- Study of a temperature control loop
- Identification of the elements: Sensors, Controller, Actuator
- Setting the controller via interface
- PID All Or On/Off control
- Display of the different signals (by software, set point, measure)
- Plotting of curve in real-time
- Optimization of PID parameters of a regulating loop
- Reaction facing a disturbance

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Illustrations non contractuelles / Illustrations not contractual   version : FT-STL500-STD-D
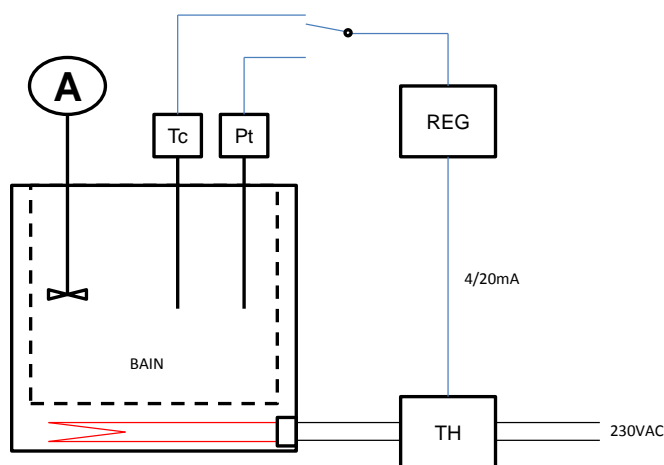
STL500

Operating principle

The STL500 bench allows the study of the temperature control. Two temperature sensors a T-type thermocouple or a Pt 100 probe 3 wires measures the water temperature in the tank. A digital PID controller receives the temperature information and has to adjust the heating power of the resistor immersed in the tank to reach the setpoint. The bench also allows to wire the control loop with double sink sockets in Ø = 4 mm. The unit comes complete with instrumentation with technical and pedagogical documentation in French and all the accessories required for proper operation (including the monitoring software).
The robust design of this equipment makes it perfectly suited for use in schools.
Its anodized aluminum frame with legs gives it great strength as well as great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive.

Illustrations

Technical details

Hot water bath
Capacity of 2 L
Maximum power 1000 W
Integrated safety thermostat

A : Agitator with variable speed
Adjustable speed: 50-1300 rpm
Volume of water up to 15L

TH : Power modulation block
Power voltage 230 VAC
Control signal : 4/20 mA
Linear modulation : 0 à 100 %

Tc : Temperature sensor: Thermocouple T
Thermocouple under sheathed steel
Diameter 3 mm
Length 150 mm
The sensor signal is available at 2 terminals dual sinks

Pt : Temperature sensor: Probe Pt 100
Sheathed steel probe
Diameter 3 mm
Length 150 mm
The sensor signal is available on 3 terminals double sink

REG : Electronic controller
Pt100 input signal or thermocouple
Possibility of regulating in PID or On/Off
4-20 mA output signal
RS485 communication interface with USB output
towards PC allowing the supervision

Wiring synoptic of the loop
Sensor and actuator signals are brought back
on double sink sockets

Services required

- Electricity: 230 VAC mono - 50 Hz - 16 A
- Water supply, filling: 2 L
- Dimensions: (LxWxH mm): 580 x 400 x 600
- weight (Kg): 25

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

Supervision

The bench is supplied with an interface software running under Windows and developed under Labview.
It allows to change the PID parameters and the setpoint, view the measurement and output power, launch the auto setting and plot the curves in real time. The image below shows the interface:

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