DELTALAB · SMT
ÉQUIPEMENTS PÉDAGOGIQUES & TECHNIQUES

TEMPERATURE REGULATION BENCH - FLOW - LEVEL

REFERENCE : MP132

Non contractual photo

SERVICE : 400 V, 50 HZ, 8 KW;
COMPRESSED AIR: 6 BAR, 6 NM3 / H
CLEAN WATER: 4 BAR, 20 A° C, 2000 L / H
COMPUTER FOR USING THE SOFTWARE
DIMENSIONS : 1850 X 800 X 2010 MM

The bench allows simple regulation of temperature, flow, level, temperature-flow and flow-rate cascade regulation and the study of hot / cold fluid control around a plate heat exchanger.

The level control can be realized with 2 types of sensor (hydrostatic or capacitive pressure).
Flow control can be performed with 2 types of actuator (control valve or variable speed pump).
The temperature regulation is carried out on a heat exchanger with the possibility of studying the delay effect.
The cascade control of temperature - flow is carried out on a tank filled with water in which a coil is immersed and water at controlled temperature circulates there
The level-flow cascade control is carried out on a column filled with water by action on a valve
The device is mounted on a welded stainless steel frame

Educational Objectives :

- Identification of sensors and actuators.
- Simple regulation loop wiring and cascade.
- Simple regulations of 1st order.
- Cascade regulation.

Technical specifications :

It's made of :

- A feed tray
- A feed pump, stainless steel body,
- A stainless steel coil located in the feed tank.
- An electric stainless steel line heater
- Brazed plate heat exchanger (water / water),
- An altuglas column,
- Two float flowmeters
- A float flowmeter
- A pallet flowmeter,
- An electromagnetic flowmeter.
- Two variable CV needle valves with pneumatic actuator,
- Two Intensity / Pressure converters.
- Temperature probes
- A hydrostatic pressure sensor for measuring the water level,
- A capacitive level sensor,
- A hot circuit made of 304L stainless steel and a PVC cold circuit.
- An electrical box, waterproof IP 55, including:
- A lockable disconnector,
- A power-on LED,
- Emergency stop,
- An Ascon master controller with input connection to either level measurements, temperature measurements or flow measurement with RS485 digital output,
- An Ascon slave controller with input connection to RS485 digital

output and output measurements,

- A regulator for the preparation of the hot fluid,
- An electronic speed variator,
- A static relay power unit,
- Secure plugs with 4-20 mA output to wire the inputs / outputs of the regulators,
- The equipment comes with a technical documentation and TP proposal for the different control loops.

OPTIONS :

Option 1: 1 specific "heat exchange" software for the acquisition of temperatures and the calculation of the heat exchange efficiency, developed under Autolink with synoptic . Plotting heat exchange curves . Calculation of the efficiency of the exchanger Option 2: Software acquisition and settings of 2 regulators composed of: - 1 RS485 / RS232 converter - 1 operating software under Windows allowing: Reading PID parameters The plot of the curves The configuration of the remote controller Archiving values