

SER 330: Heat Pump pedagogical bench, water/air, DidaPAC





Pedagogical aims:

- Pedagogical bench, homothetic to home heating applications, renewable energy (aerothermal) with domestic hot water and heating functions (reversibility option)
- This system is designed from standard components of an industrial heat pump. It allows to demonstrate the effectiveness of this type of energy.

Technical characteristics:

> Operating unit

- 1 evaporator, 1 compressor, 1 expansion valve, 1 plate exchanger
- 1 pump for water circulation

Control of a Heat pump system

- 1 set of sensors (8 temperature sensors, 2 safety pressure switches)
- 2 analog switches to read the LP and HP pressures
- 1 flowmeter (water flow in the tank or in the external load in real time)
- 1 electric power pulse counter with display of current consumption
- 1 water tank of about 20 liters
- 1 output on the side of the heat pump for the connection of an external consumer
- Reversibility valve: the 4-way valve on the fluid part ensures reversibility by successively rising temperature and cooling of the water in the tank or of the external circuit

> .Control unit

- S7 SIEMENS PLC 1200 Data acquisition with web server function (optional)
- Ethernet port for programming and reading of data systems

Experiments:

- Learning and deepening technologies to ensure production from renewable energy
- Exploitation of renewable energy from the aerothermal technology
- Management and analysis of values measured in local or remote mode (Ethernet)

