

STUDY OF SPLIT SYSTEM AIR CONDITIONER



Experimental capabilities

- Study of an air conditioning system with separate elements (SPLIT SYSTEM INVERTER)
- Identification of the components of the installation
- Commissioning and operation of a refrigerating system
- Measures of operating parameters (temperatures, pressures, power consumption)
- Basic maintenance operations (cleaning of filters ...)
- Role of components
- Heat balance on the fluid part and on the air side

Operating principle

The bench CRM005 is delivered complete, instrumented with technical handbook and lab exercises. It is based on a split system air conditioning of a widely brand on the market with an output of 2,5kW. Students will initially be familiar with the system and discover the different components. They can then switch it on and check that the operating parameters are correct. When the system is operating at its rated speed, they will have then to use the instrumentation at their disposal to conduct the surveys enabling them to complete assessment of the installation and trace the refrigerating cycle. They can also calculate the powers involved and see the energy efficiency of the system.

The robust design of this equipment makes it perfectly suited for use in schools.

Its anodized aluminium structure on feet gives it great robustness as well as great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive

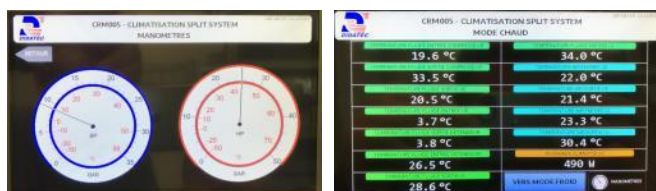
Illustrations



1. Split system Air conditioning with variable power production (inverter) and reversibility (heating or cooling). Power : 2.5KW. Refrigerant fluid used: R32
2. Collection tank for the water (condensation)
3. LP pressure sensor with display of the measure on the touch screen
4. HP pressure sensor with display of the measure on the touch screen
5. Temperature measurements at the characteristic points of the circuit by fixed probes thermocouple type and display of the measures on the touch screen (12 measuring points)
6. Measurement of the electrical power used by the system and display of the measures on the touch screen

Technical specifications

7. Measurement of refrigerant flow rate with float flowmeter with magnetic transmission (7.5 to 60kg/h). The flow rate is measured only when the system operates in air conditioning mode (cooling mode).
8. The bench is supplied with portable measuring devices allowing students to get into the real case of a climate engineering technician (direct measurement on the system).
 - a portable thermometer
 - a propeller anemometer
 - a thermo hygrometer
9. The bench is equipped with an electrical box conforming to the machine directive for the safety of persons. It is equipped with a pad lockable power disconnect switch, a punch-type emergency stop button, a GFCI with 30mA protection, a grounding of all elements and a 7 "colour touch screen



Services required

- Power supply: 230Vac – 50 Hz – 10 A
- Power supply type: 1 phase(s) + Neutral + Earth.
- Dimensions: (LxWxH mm): 1350 x 790 x 1790
- weight (Kg): 100

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
- Wiring diagram
- Fluidic diagram
- Certificate of conformity CE

Option

Data acquisition option reference CRM006:

Data acquisition software that allows you to trace the refrigeration cycle in real time and with the following features:

- display of measurements on a synoptic diagram (pressure, temperature and electrical power)
- plotting of the evolution of values as a function of time
- real-time enthalpy plot and enthalpy display
- graphical recording of the diagram in progress
- Data recording to excel.

