CRM013

STUDY OF SPLIT SYSTEM AIR CONDITIONER WITH SMALL ROOM

Experimental capabilities

- **Study of a separate air conditioning system (SPLIT SYSTEM INVERTER)**
- **Identification of plant components**
- **Commissioning and operation of a refrigeration system**
- **Measurement of operating parameters (temperatures, pressures, power consumption)**
- **Basic maintenance operations (cleaning of filters, etc.)**
- **Role of the different bodies**
- **Thermal balance on the fluid part and on the air part**

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version : FT-CRM013-STD-B

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Operating principle

The CRM013 training unit is delivered complete, instrumented with technical manual and practical work. It is based on a Split air conditioning system of a popular brand on the market with a power of 2.5KW. Students will first have to familiarize themselves with the system by discovering the different components. They can then put it into operation and check that the operating parameters are correct. When the system is operating at its nominal speed, they will then have to use the instrumentation made available to them to take readings allowing them to make a complete assessment of the installation and to trace the refrigeration cycle. They will also be able to calculate the power involved and see the energy efficiency of the system.

The rugged design of this equipment makes it perfectly suited for use in a school setting.
Its anodized aluminum structure on wheels gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machinery Directive

Technical specifications

1. An aluminium profile structure on braked, directional castors.
   Two parts: one with the "outer part" condensing unit and a closed part with the "inner part" evaporator.
   The "inside" compartment is equipped with an access door allowing a standing person to pass through.

2. Split system air conditioning with variable (inverter) and reversible (heat or cold) energy production:
   -Compressor power 2.5KW.
   -Refrigerant used: R32
   -A finned condenser type exchanger with variable speed fan
   -A finned evaporator type exchanger (indoor unit) with variable speed fan and flow orientation blades

3. Condensate collection tank in the lower part

4. BP pressure sensor with display on the touchscreen

5. HP Pressure Sensor with Touchscreen Display

6. Temperature measurements of the characteristic points of the circuit by fixed thermocouple type probes and indication on the touch screen on the electrical box (12 measuring points)

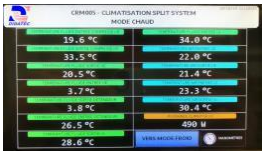
7. Measurement of the electrical power consumed and display on the touch screen on the electrical box (instrument for the study of power variation)

8. Refrigerant flow measurement with magnetic transmission float flow meter. The flow rate is only measured when the system is running in air conditioning mode.

9. The bench is supplied with portable measuring devices allowing students to place themselves in the real case of an HVAC technician (direct measurement on the system).
   -a portable thermometer
   -a propeller anemometer
   -a thermo hygrometer

10. The bench is equipped with an electrical box that complies with the Machine Directive for personal safety. It is equipped with a padlockable power disconnect switch, a punch-type emergency stop button, a residual current circuit breaker with 30mA protection, grounding of all elements, and a 7" color touch screen


On-screen pressure gauges



Temperature display

Services required

- Electrical supply : 230 Vac– 6A
- Power Supply Type: 1 phase(s) + Neutral + T
- Dimensions: (LxWxH mm): 1565 x 800 x 1875
- weight (Kg): 120

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

- Instruction manual
- Pedagogical manual
- Technical file
- Practical work
- Electrical diagram
- Fluidic diagram
- CE Certificate of Conformity

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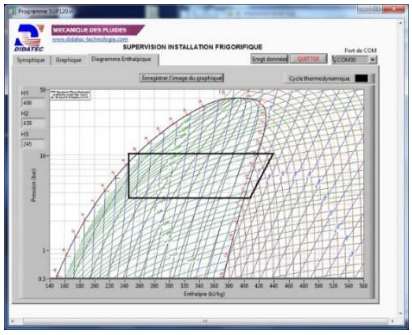
Option

Data acquisition option reference CRM017:
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.



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