

BASE MODULE FOR REFRIGERATION AND AIR-CONDITIONING

Mod. AA/EV

INTRODUCTION

The base module mod. AA/EV combines the common components of all Laboratory applications.

It includes connectors and cocks for the necessary electric and hydraulic connections (via flexible pipes) with the experimental module under examination. Thus various configurations representing different aspects of refrigeration and air conditioning techniques can be prepared.

This basic module also includes a display for viewing data. The module is controlled via PC with the help of a specific software, different for each operation module. At last, some non destructive faults can be inserted in the system.



TECHNICAL SPECIFICATIONS

Tabletop unit mounted on an aluminium structure including:

- Hermetic compressor
- Variable speed fan air condenser
- Sight glass, dehydrator filter, liquid separator
- High and low pressure gauges
- 2 temperature sensors to be applied onto different points of the hydraulic circuit
- Electronic flowmeter
- High and low pressure transducers
- Voltage, current and power transducers
- Double pressure switch
- Operating valve for filling and bleeding the refrigerant
- Cocks and flexible pipes with valve for the connection with the experimental module
- Solenoid valves for inserting faults
- Switchboard including:
 - power cord
 - thermomagnetic - earth leakage control button
 - emergency button
 - start button with pilot lamp
- Data acquisition and control system with the following characteristics:
 - Remote Control (via PC, not included in the equipment)
 - USB interface for connection with PC
 - Display for viewing the acquired data such as: temperature, pressure, relative humidity, volume flow rate, air speed, voltage, current, electric power
 - The software allows to control analog and digital inputs and outputs, the state of solenoid valves, of compressor, of fan, of heating, cooling, humidification and dehumidification, etc...
 - Fault insertion according to the experimental module in use

Power supply: 230 Vac 50 Hz single-phase - 350 VA
(Other voltage and frequency on request)

Dimensions: 89 x 74 x 50 cm

Net weight: 54 kg

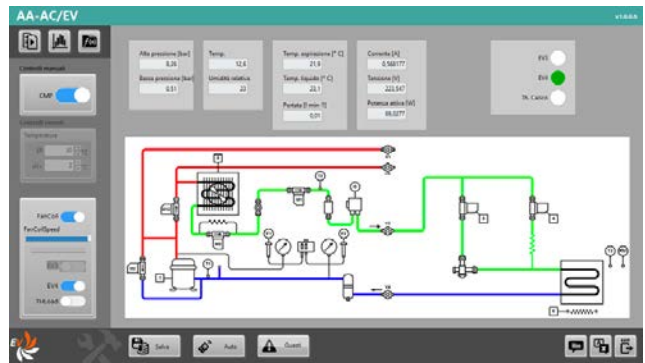
SOFTWARE

The **Supervision Software** (different for each experimental module) is designed to study and verify the laws of thermodynamics and their actual applications to refrigeration and to air conditioning.

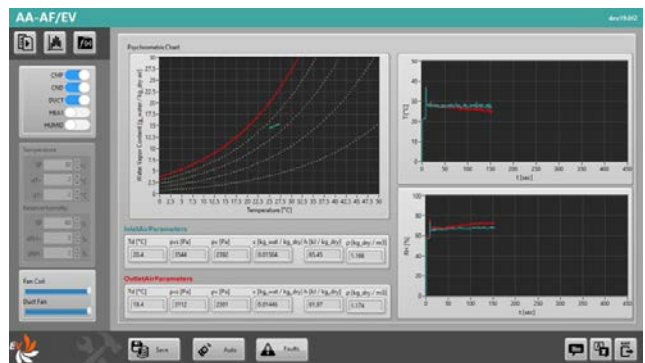
Each program enables to acquire and process the values of input variables and to control the output variables manually or automatically (for the modules that offers this option) according to the logics of industrial processes. They also allow to send the control signals to the actuators for the management of the selected Experimental Module.

Using this software the teacher can also insert some non destructive faults into the system, or modify some operating parameters and consequently the analysis results.

The heat balances at the compressor, at the evaporator and at the condenser are calculated automatically. The volumetric efficiency of the compressor, the C.O.P. or E.E.R. of the system are displayed. Some characteristic parameters of the air such as temperature, relative and specific humidity, enthalpy, are determined.



Supervision software working with module AC/EV



Supervision software working with module AF/EV

REQUIRED

PERSONAL COMPUTER
- NOT INCLUDED -



AT LEAST 1 EXPERIMENTAL MODULE

SUPPLIED WITH

EXPERIMENTAL HANDBOOK

