AIR-CONDITIONING CONTROL UNIT SIMULATOR

Mod. SIM-CL/EV

INTRODUCTION

Educational simulator mod. SIM-CL/EV represents a proper and natural adaptation to the new demands of labour market requiring high training levels of all the operators of air-conditioning systems installed in great industrial and business complexes.
This equipment meets two aspects:

- the first one concerns the design of a single-duct air handling unit, with setting of design parameters such as thermal loads, fresh air flow rate, thermohygrometric conditions of outdoor and room air and the assessment of:
  - air flow having to be handled and air inlet conditions for meeting thermohygrometric needs of the room having to be air-conditioned
  - power for feeding pre/post-heating, cooling and dehumidification batteries
- the second aspect concerns the simulation of the operation of the automatic control system of a single-duct air-conditioning installation at the variation of the operating parameters and of their respective set-point values.

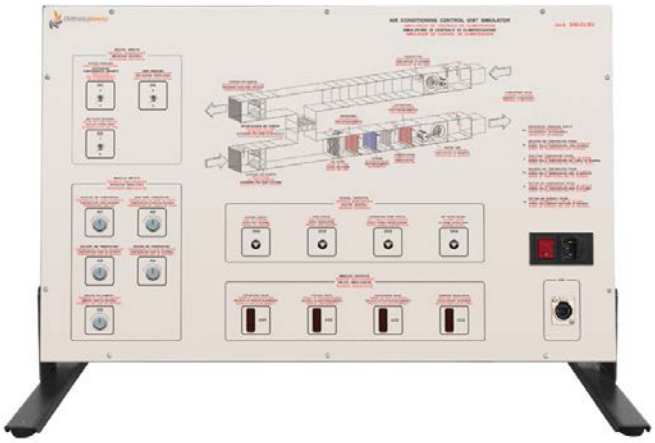
This simulator must necessarily be connected with a PC (supplied on demand).

TRAINING PROGRAM

- Studying the transformation the air undergoes when crossing the various sections of an air handling unit, with the aid of the psychrometric chart; these transformations are: sensible heating, adiabatic humidification, cooling and dehumidification, mixing
- Assessing the air supply conditions to meet the thermohygrometric needs of the room having to be air-conditioned
- Thermal factor
- Sizing the heat exchange batteries of an air handling unit
- Analyzing the operation of temperature and humidity regulators for air-handling units
- Proportional and ON/OFF control
- Air dampers control according to temperature

TECHNICAL SPECIFICATIONS

- Colour panel reproducing the air-handling unit
- Board for data acquisition and control of output signals to the actuators
- Connection with PC via USB cable
- 5 potentiometers for simulating the following analog inputs:
  - outdoor air temperature
  - pre-heating/cooling air temperature (dew point)
  - supply air temperature
  - return air temperature
  - return air relative humidity
- 4 bargraph LEDs for simulating the following analog outputs:
  - control signal for the motor of pre-heating battery
  - control signal for the motor of cooling/dehumidification battery
  - control signal for the motor of post-heating battery
  - control signal for the motor of air dampers
- 3 switches for simulating the following digital inputs:
  - system operation enabling
  - fans enabling
  - air filter clogged
- 4 LEDs for simulating the following digital outputs:
  - system status
  - fans status
  - humidifier pump status
  - air filter clogged alarm
- Program for dimensioning the batteries of a single-duct air-handling unit
- Program for the simulation of the air conditioning control system operation



- Development software that can be used to modify the application programs according to one's own needs

Power supply: 230 Vac 50 Hz single-phase - 200 VA
(Other voltage and frequency on request)
Dimensions: 65 x 40 x 12 cm
Net weight: 5 kg

REQUIRED

PERSONAL COMPUTER
- NOT INCLUDED -

SUPPLIED WITH

THEORETICAL-EXPERIMENTAL HANDBOOK