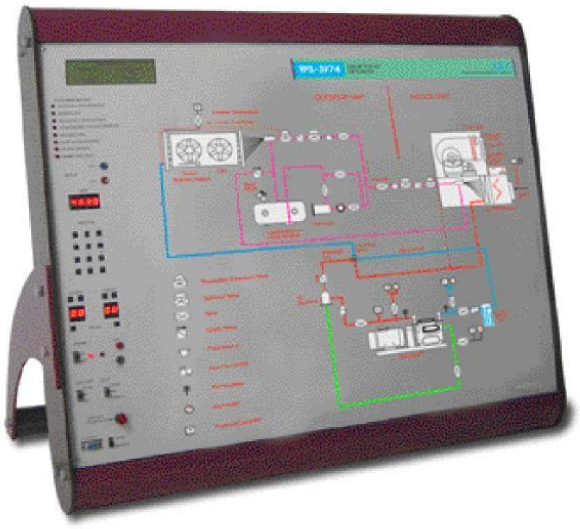
MODULE
TPS-3974 HEAT PUMP SIMULATOR



Objectives

The TPS-3974 heat pump is designed to provide students with training program introducing the principles of heat pump technology, the thermodynamics cycle and various systems and components.

The simulator brings a comprehensive view of the entire system of heat pump, the system's components and their interconnection, functions, operation and behavior diagnosis.

Description

The simulator includes simulated components controlled by internal controller that produces the signals for measurement according to its internal simulating program or according to PC simulation programs.

The simulator's panel is with colored graphics clearly presenting the system components, connections and inter-relations with test points for real measurements and LEDs describing the component status.

MechaTech 3000
Mechatronics

M O D U L E
TPS-3974
Heat Pump Simulator

Technical characteristics

The simulator is in a wide metal case with a colored printed circuit experiment panel (80X60X10 cm) which ensures easy handling and good visibility of the components simulation.

The simulator includes simulation components modules. The experimenting panel includes the system drawings with test points and banana sockets.

The simulator can be operated as a stand alone system without a PC, guided by experimental book using its built in oscilloscope or an external oscilloscope.

The simulator can be connected to a PC in serial communication (RS232 or USB) using SES-CBT courseware and SESCOPE software for signal display

Student PC can be connected to the teacher PC for monitoring, course management and records by SESML software (optional)

The system includes:

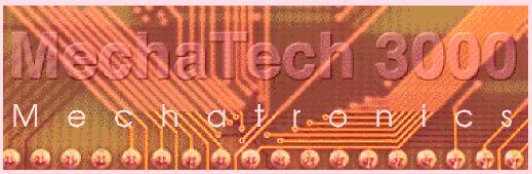
- A power switch with indicating light
- SESLAB 2 channel digital oscilloscope
- 7 segment display and control switches, one for fault insertion unit and one for selecting simulation mode
- Eight (8) LEDs to indicate troubleshooting state
- Status mode switches and display
- Warning indicating light
- Warning indicating light
- Graphic and Alphanumeric LCD display 64X240 pixels
- Numeric keyboard
- CAN-BUS interface
- Serial or USB communication interface with the PC
- PC / MANUAL switch
- 12V Power adapter
- Digital multimeter
- Operating and simulation switches
- Simulation potentiometers and pushbuttons, to change operation condition
- Compressor simulation
- Air cooled condenser simulation
- Air handler unit simulation
- Four way valve simulation
- Liquid receiver simulation
- 6 analoque and digital inputs/outputs, control unit, for calculation enthalpy, condensation point (dew point) and time programming
- Indicator for functioning condition

Experiments

This system enables the student to perform several experiments and covers various topics:

- Introduction of Heat pump.
- Simulating the Thermodynamic conversion of heating.
- Simulating the Thermodynamic conversion of cooling and dehumidification.
- Results obtained from the variations in temperature, capacity and circuits pressures.
- Simulating the Thermodynamic cycles of Freon after the changes of external/internal conditions and of the thermal load.
- Troubleshooting and fault simulation.

An experiment manual for the student and instructor manual accompany the system.



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