HT109

Heat Exchanger Service Unit

Overview

The heat exchanger service unit introduces trainees to the working mechanism and the theoretical background of heat exchangers. Trainees will be able to get familiar with the structure of heat exchangers and how to supply them with hot and cold streams. The unit is aided with software system enabling trainees to monitor and control the system readings through the software.



Specifications

- This training system is designed with the purpose of supplying heat exchanger with cold and hot streams making it suitable for experimentation with different types of heat exchanger.
- The unit consists of an operation panel, screen, water inlets and the water tank.
- The water tank is enclosed inside of the training system casing which provides more safety for users and protects against burning hazards.
- The casing can be opened in order to fill the enclosed tank with water easily. The tank can also be accessed easily and taken out from the casing for maintenance and cleaning purposes.
- The water tank is made out of stainless-steel material in order to withstand higher temperature ranges, this tank is supplied

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with heater rise water temperture in side the tank.

- The water tank is supplied with level sensor in order to protect the heater and pump when the water level is lower than required. A temperature sensor is also mounted to the tank to identify the tank temperature and use it`s signal to control tank temperture.
- Two blocks are located on the training system, the first one on the right side is for hot water while the second block on the left is for cold water, these blocks have quick-release couplings which provide easily connection to the heat exchanger modules.
- At one side of the training system, two plugs are provided for connection of any external device as well as two USB ports for connection with external PC.
- Cold water inlets are provided at the other side of the training system to deliver cold stream to the system.
- System flow can be controlled through mounted valves located on the training system for each cold and hot water.
- Cold and hot water inlet stream flow can be measured through mounted flow sensors.
- A 10`` screen is provided to monitor and display all of the temperature readings, heating power, stirring status and all of the other associated parameters to the system.
- An indication LED for heater is provided to state its operation while low heater indication LED is also provided to state when water level is not enough for heater operation.
- Stirring machine motor indication LED is provided to state its operation. A cable port is also provided to connect the stirring machine motor.
- Six ports for temperature sensors are provided to connect the temperatures displayed on the schematic diagram.
- A schematic diagram is printed on the training system in order to elaborate the structure of heat exchanger service system and all of the temperature sensors within the system.
- The system is provided with software system in order to monitor all of the system readings and control system parameters.
- Trainees will be able to switch on and off any of the system components, they will also be able to control the heater power, stirring speed.
- The software system also enables trainees to plot real-time curves regarding heat exchanging systems.
- The training system is provided with main ON/OFF and an emergency button in case of any inconvenience.
- The unit is supplied with drawer unit in order to accommodate all of the used components during experimentation.

Technical Data

Heater

» Power: 3 KW

» Thermostat: 0 to 70°C

» Voltage: 220 VAC

Water tank

» Material of construction: Stainless-steel

» Volume: 26 Liters

Digital display

» Touch screen 10"

Pump

» Power consumption: 65W

» Max flow rate: 2.4 m^3/hr

» Max head: 6m

Flow sensor

» Measuring range: 0.1...25 l/min

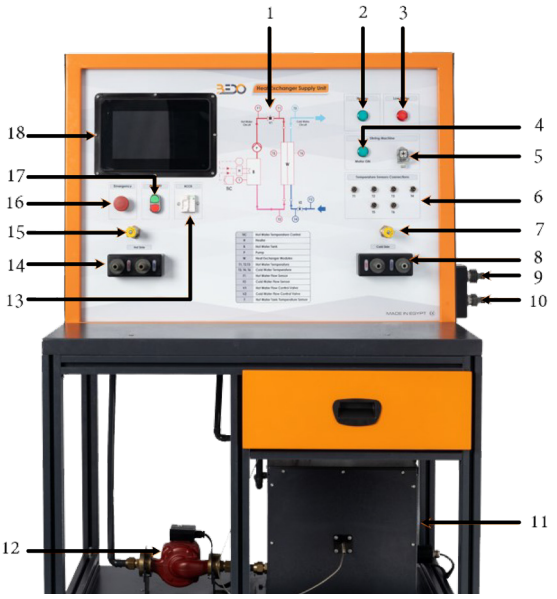
» Medium temperature: -10...70 °C

» Pressure rating: 16 bar

» Operating voltage: 18...30 VDC

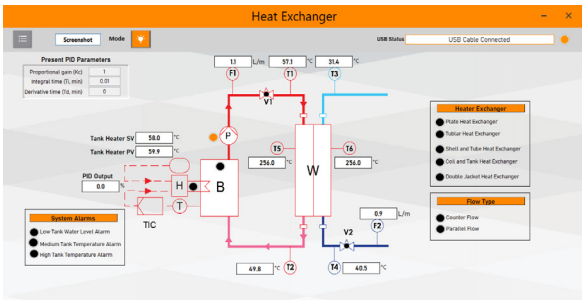
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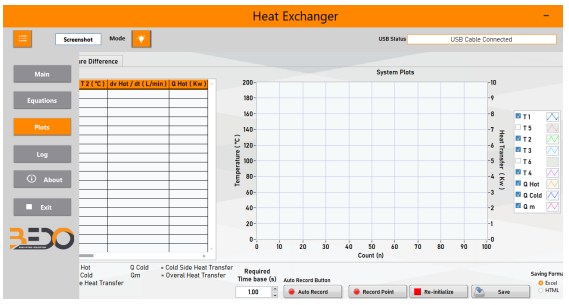
Components



1	Schematic diagram	2	Heater indication LED
3	Low water indication	4	Stirring motor indication
5	Stirring motor connection port	6	Temperature sensors connection ports
7	Water flow regulation valve (needle valve)	8	Cold water side ports
9	Supply water inlet	10	Water outlet
11	Water tank with heater	12	Water pump
13	Main circuit breaker	14	Hot water side ports
15	Water flow regulation valve (needle valve for hot side)	16	Emergency button
17	Main ON/OFF	18	HMI screen

Software Screenshots





Scope of Delivery

- Heat exchanger service unit (HT109)
- Hard copy user manual

Required for Operation

- Laboratory PC

Options

- Digital content (BI01)
- Water Chiller (HT110)
- Plate heat exchanger (HT111)
- Shell & tube heat exchanger (HT112)
- Stirred Tank with Double Jacket & coil (HT113)
- Tubular heat exchanger (HT114)

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