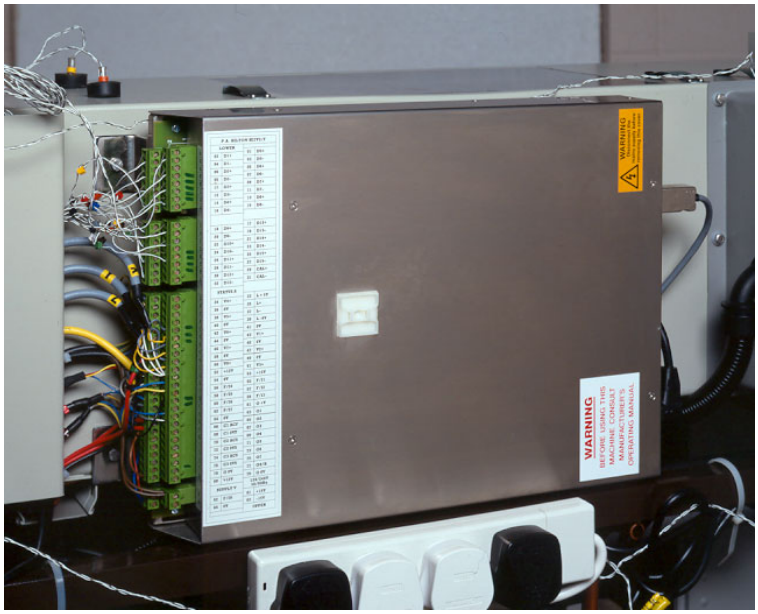
AIR CONDITIONING LABORATORY UNIT (220V), COMPUTER LINKED, with PID CONTROLLER

A660/220/C/AC



Year 1
study

Features

- A660 complete with Recirculating duct, PID control and Fully Data Acquisitioned as standard
- Digital Temperature display supplied as standard
- High accuracy wet and dry bulb sensors before and after each process to determine air condition.
- All processes fully instrumented to allow energy and mass balances across each process of heating cooling and humidity change.
- Reaches stability rapidly after a change of operating conditions.
- May be upgraded at any time to reduce capital outlay.
- Upgrade options available include:
- 1. Computer linking (with software) (AC660A),
- 2. Environmental Chamber (A600D).

Description

A fully data acquisitioned A660 Air conditioning Laboratory Unit, with all the functionality of the A660 standard unit, but computer linked, recirculating duct and PID controller.
Allows the proportion of recirculated air to be varied and its effect upon the energy requirements for air conditioning to be investigated. Additional psychrometric measuring points supplied allow the enthalpy of two-mixed streams to be investigated.
Allows investigation of the individual and combined effects of Proportional, Integral and Derivative control of temperature and humidity and the components that are required for the process. Additional software allows the process to be computer controlled and monitored as in a Building Energy Management System.

Related laws

- Refrigeration and air conditioning
- Building services

- Mechanical Engineering
- Marine engineering
- Plant and process engineering
- Food processing
- Chemical engineering
- Mining engineering
- Control engineering
- SCADA Software

Learning capabilities

- Investigation of the effects of air recirculation proportion on the energy requirement of the air conditioning process.
- Investigation of the enthalpy of mixing of two airstreams.
- Investigation of proportional, integral and derivative (PID) control of humidity and temperature in the Recirculated air.
- Investigation of computer control of two PID controllers and the system response time.
- Demonstration of the processes and components used in heating, cooling, humidification, de-humidification of an airstream.
- Measurement of air psychrometric condition before and after humidification, heating, de-humidification / cooling using pairs of precision wet and dry bulb sensors.
- Determination of a heat and mass balance across each process resulting in heating, cooling and humidity change using the instrumentation fitted.
- Construction of a complete refrigeration cycle diagram for the air-cooling plant plus an energy balance between the refrigeration circuit and the change in air enthalpy and its mass flow across the evaporator.
- Investigation of the volumetric efficiency of the refrigeration compressor under varying load.
- Determination of the specific heat capacity of air, by measurement of the change in psychrometric condition across a heating or cooling process.

Technical Specification

- Data Acquisitioned Parameters:
- 15 x Temperature (Dry, Wet, Refrigerant)
- 5 x Pressure (1 x Duct, 1 x Fresh Air, 3 x refrigerant)
- 1 x Humidity
- 1 x Refrigerant Flow rate
- 2 x Voltage (Mains, Fan)
- 1 x Current (Compressor)
- 7 x Logic Control
- 1 x Recirculating Duct system
- 1 x PID controller and software

Recommended Ancillaries

- A660D
- R100

What's in the Box?

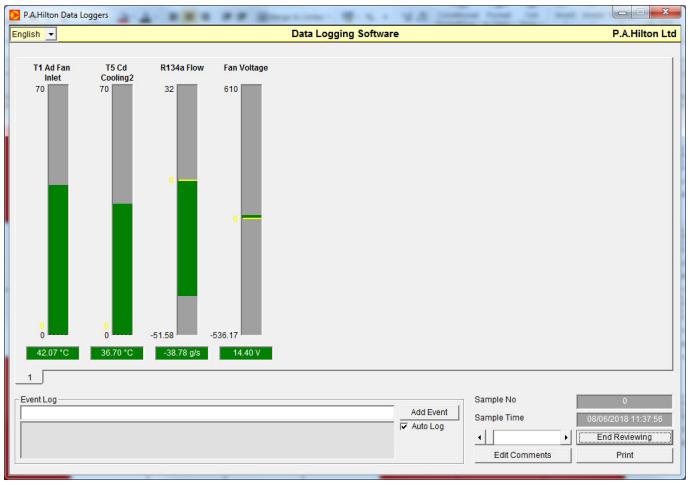
- 1 x A660
- 1 x Recirculating Duct
- 1 x PID controller
- 1 x Data Acquisition System installed
- 1 x Data Acquisition System software
- 1 x Water measuring cylinder
- Encapsulated charts
- Tool kit
- Instruction manual
- Packing list
- Test sheet
- 2 year spares

You might also like

- A660
- A660/220/AC
- A660/220/C
- A660/415/AC
- A660/415/C
- A660/415/C/AC
- R100

Supporting Software

COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 2 YEARS



- Hilton HDL Software

Minimum System Requirements

- IBM PC or compatible
- Pentium processor or higher
- 1GB RAM
- Windows XP or later
- VGA monitor resolution at least 1600x 1200 pixels
- USB port
- CD drive

Weights & Dimensions

- Weight: 224 kg
- Length: 3630mm
- Width: 530mm
- Height: 1260mm

Essential Services

- Electrical:
- 208/220V, 3 Phase, 50 or 60Hz. 4 wire system comprising 3 phases and earth. Line current up to 32 Amps per phase.
- Clean water:
- Up to 10 litres per hour at a minimum 2m head. May be mains or tank source.
- Floor space of at least: 3630(L) x 530(W) x 1260(H) mm

Ordering information

To order this product, please call PA Hilton quoting the following code:
A660/220/C/AC