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Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Air Conditioning Lab Unit | PolarX - 556

Category: Refrigeration and Air Conditioning · **Country of Origin:** India

Product Overview

The Air Conditioning Lab Unit PolarX - 556 studies the effect of individual HVAC components on room air conditioning using an open air duct system. This Air Conditioning Lab Unit includes an air cooler, steam humidifier (500g/h, three stages), fan (810m³/h max), air preheater (2kW), and reheater (1kW), all individually switchable. Sensors monitor temperature (9 Type-k, -40~400°C), humidity (5 sensors, 0~100%), and refrigerant pressure/temperature before and after each stage. Optional LABVIEW-based DAQ software supports automated data transmission to a PC.

View this product online: https://scienticoindia.com/product/air-conditioning-lab-unit-polarx-556/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Air Conditioning Lab Unit PolarX - 556, Technical Specifications

Component	Type / Detail
System Type	Air conditioning system with open air duct
Components	Air cooler, steam humidifier, fan, air preheaters, reheaters
Air Flow Determination	Differential pressure measurement using inclined tube manometer
Component Control	All components individually switchable on and off
Sensors	Combined air humidity and temperature sensors before and after each stage
Refrigerant Sensor	Pressure and temperature sensor for refrigerant
Refrigerant	R134a, CFC-free

Technical Data

Steam Humidifier

Parameter	Value
Power Consumption	2x250W
Steam Capacity	500g/h, switchable in three stages

Fan

Parameter	Value
Power Consumption	190W
Max. Volume Flow	810m³/h
Speed	500~1100rpm
dpmax	420Pa

Air Heating

Parameter	Value
Air Preheater	2kW, switchable in two stages
Air Reheater	1kW, switchable in two stages

Air Duct

Parameter	Value
W x H	300x360mm

Direct Evaporator (Air Cooler)

Parameter	Value
Capacity	4.5kW

Condensing Unit

Parameter	Value
Power Consumption	950W at 5/25°C
Refrigeration Capacity	2kW at 5/25°C

Cabinet (PolarX - 556)

Parameter	Value
Function	Cabinet for measuring and maintaining HVAC condition according to ASHRAE standards for summers and winters (optional)

Pressure Safety Switch

Side	Value
Delivery Side	Not specified
Suction Side	Not specified

Temperature Sensor

Parameter	Value
Range	-40~400°C
Type	Type-k
Total	9

Humidity Sensor

Parameter	Value
Total	5
Range	0~100%

Digital Multifunctional Power Meter

Parameter	Value
Range of AC Volt	0~500 volts
Range of AC Ampere	0~40 Ampere

Differential Pressure (Air Flow)

Parameter	Value
Range	0~100Pa

Refrigerant Pressure Gauges

Parameter	Value
Suction Side (low pressure gauge)	-1~16bar
Delivery Side (high pressure gauge)	-1~25bar

Flow Rate (Refrigerant)

Parameter	Value
Range	8~102L/h

Liquid Receiver

Parameter	Value
Maximum Working Pressure	450psig
Capacity	1.2L

Filter Drier

Parameter	Value
Maximum Working Pressure	450psig

Key Features

Key Features

- **Application:** Air Conditioning Lab Unit for studying HVAC component effects on room air
- **System Type:** Open air duct configuration
- **Components:** Air cooler, steam humidifier, fan, air preheaters, reheaters, individually switchable
- **Steam Humidifier:** 2x250W, 500g/h capacity, three switchable stages
- **Fan:** 190W, max. 810m³/h, speed 500~1100rpm
- **Air Heating:** Preheater 2kW and reheater 1kW, each with two switchable stages
- **Direct Evaporator:** 4.5kW air cooling capacity
- **Condensing Unit:** 950W consumption, 2kW refrigeration capacity at 5/25°C
- **Temperature Sensors:** 9 x Type-k, range -40~400°C
- **Humidity Sensors:** 5 sensors, range 0~100%
- **Refrigerant:** R134a, CFC-free

Experiments

- Set-up of a refrigeration system: main components and their function
- Measurements in the refrigeration circuit: cyclic process in the log p-h diagram, determine heating and cooling capacities
- Air conditioning of room air: set-up of an air conditioning system, main components and their function, variables in air conditioning, measure temperature and air humidity, effect of the air flow, changes of state in the h-x diagram

Construction and Design

The Air Conditioning Lab Unit PolarX - 556 uses an open air duct system incorporating an air cooler, steam humidifier, fan, air preheaters, and reheaters. All components can be switched on and off individually to study their individual and combined effects. Combined sensors for air humidity and temperature are placed before and after each stage, and a sensor monitors the pressure and temperature of the refrigerant. Air flow is determined using differential pressure measurement via an inclined tube manometer. The system runs on R134a refrigerant, which is CFC-free.

Software

PolarX - 556 (optional). A DAQ software package, specially designed in National Instruments LABVIEW environment, measures and calculates the results of the apparatus. The software is optional. When the software is used, a set of electronic sensors is included. The software can be run on any Windows environment.

Scope of Delivery

- 1 experimental module
- 1 instruction manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q: What components make up the Air Conditioning Lab Unit PolarX - 556?
A: An air cooler (direct evaporator with condensing unit), steam humidifier, fan, air preheaters, and reheaters, all placed in an open air duct.

Q: Can individual components be tested separately?
A: Yes. All components can be switched on and off individually to study their individual and combined effects on air conditioning.

Q: How is air flow measured?
A: Air flow is determined by differential pressure measurement using an inclined tube manometer, with a range of 0~100Pa.

Q: How many temperature and humidity sensors are included?
A: 9 Type-k temperature sensors (range -40~400°C) and 5 humidity sensors (range 0~100%).

Q: Is the DAQ software required to operate the unit?
A: No. The PolarX - 556 software is optional, and data gathering software is not required for standard operation.

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