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Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

Phone: +91 7015865225 **Email:** info@scienticoindia.com **Web:** scienticoindia.com **Address:** #71, Industrial Area, Ambala Cantt, Haryana, India

Recirculating Air Conditioner Trainer | PolarX - 560

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

Product Overview

The Recirculating Air Conditioner Trainer PolarX - 560 models a complete air conditioning system with a transparent air duct and climate chamber. This Recirculating Air Conditioner Trainer includes an air cooler with condensing unit (360W, 400W refrigeration capacity), steam humidifier (400W), air heater (600W), and 3 motorized flaps for recirculating and outer air operation. Wet and dry heat sources in the climate chamber, each with 2x 250W heaters, simulate cooling loads, monitored by 5 Type-k temperature sensors. Optional LABVIEW-based DAQ software supports automated data measurement.

View this product online: https://scienticoindia.com/product/recirculating-air-conditioner-trainer-polarx-560/



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

Technical Specifications

Recirculating Air Conditioner Trainer PolarX - 560, Technical Specifications

Component	Type / Detail
System Model	Model of an air conditioning system with outer air and recirculating operation
Air Duct	Transparent front
Duct Components	Fan, air cooler, humidifier, flaps, air heater, sensors
Climate Chamber	Wet (latent) and dry (sensible) heat source as cooling load
Flap Control	Motorized flaps for recirculating and outer air operation
Process Indication	Process with signal lamps
Automation Readiness	Ready for different automation solutions
Refrigerant	R134a, CFC-free
Expansion Valve	Thermostatic

Technical Data

Air-Cooled Condensing Unit

Parameter	Value
Power Consumption	360W at -10°C
Refrigeration Capacity	400W at +5/40°C

Humidifier

Parameter	Value
Humidifying Power	400W

Air Heater

Parameter	Value
Heating Power	600W (selectable in steps), freely adjustable

Chamber Cooling Load

Parameter	Value
Heaters	2 heaters in the chamber
Power Output	250W each, freely adjustable

Refrigerant Pressure Gauges

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

Pressure Safety Switch

Side	Value
Delivery Side	Not specified
Suction Side	Not specified

Digital Multifunctional Power Meter

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

Relative Humidity

Parameter	Value
Range	0~100%

Liquid Receiver

Parameter	Value
Maximum Working Pressure	450psig
Capacity	1.2L

Filter Drier

Parameter	Value
Maximum Working Pressure	450psig

Temperature Sensor

Parameter	Value
Range	-40~400°C

Parameter	Value
Type	Type-k
Total	05

Duct

Parameter	Value
Flow Cross-Section, W x H	150x150mm

Measuring Ranges

Parameter	Value
Power Consumption (condensing unit)	0~650W
Power (cooling load)	2x 0~250W
Power (heating power)	0~600W
Flow Rate	0~1.5 LPM
Velocity	0~3m/s

Key Features

Key Features

- **Trainer Type:** Recirculating Air Conditioner Trainer with transparent air duct and climate chamber
- **System Model:** Outer air and recirculating operation
- **Major Components:** Air cooler with condensing unit, fan, steam humidifier, air heater
- **Flap Control:** 3 motorized ventilation flaps for air distribution
- **Climate Chamber:** Wet and dry heat sources as cooling load
- **Condensing Unit:** 360W consumption, 400W refrigeration capacity
- **Humidifier:** 400W humidifying power
- **Air Heater:** 600W, selectable in steps
- **Chamber Heaters:** 2 x 250W, freely adjustable
- **Temperature Sensors:** 5 x Type-k, range -40~400°C
- **Automation Ready:** Compatible with various automation solutions

Experiments

- Representation of the circuit in the p-h diagram
- Effect of a cooling load (dry and wet)
- Mixing different air flows
- Representation in the psychometric chart for humid air
- Air conditioning system and its components
- Conditioning room air
- Humidification and dehumidification
- Heating and cooling
- Recirculating and outer air operation
- Automation in an air conditioning system (in conjunction with optional accessories)

Construction and Design

The Recirculating Air Conditioner Trainer PolarX - 560 features a transparent air duct that displays a complete air conditioning system. The duct houses a fan, air cooler, humidifier, flaps, air heater, and sensors. The climate chamber includes wet and dry heat sources as cooling load. Three motorized flaps manage recirculating and outer air operation, with a process display using signal lamps. Two manometers, thermocouples, and a flow meter provide measurements for the refrigeration circuit. The system uses a thermostatic expansion valve and runs on R134a refrigerant, which is CFC-free.

Software

PolarX - 560 (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 makes this trainer "recirculating"?

A: The Recirculating Air Conditioner Trainer PolarX - 560 models an air conditioning system with both outer air and recirculating operation, controlled by three motorized flaps.

Q: How is the air conditioning system operated?

A: Manual control is used to operate the system, though it is fully ready for various automation solutions.

Q: What heat sources are used in the climate chamber?

A: The chamber contains two different heat sources, wet (latent) and dry (sensible), each with 2 heaters rated at 250W and freely adjustable.

Q: What measurements are available for the refrigeration circuit?

A: Two manometers, thermocouples at relevant points, and a flow meter provide the necessary measurements.

Q: Is the DAQ software required to operate the trainer?

A: No. The PolarX - 560 software is optional, and a set of electronic sensors is included when the software is used.

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