Industrial Refrigeration and Air Conditioning Trainer

Professionals in the refrigeration and air conditioning field are in very high demand. Intelitek’s training program is designed to expose students to the various systems and real components used in refrigeration and air conditioning configurations. The curriculum teaches students both the fundamentals and advanced principles of industrial refrigeration and air conditioning.

The training program includes hardware and curriculum to study actual components, their interconnection, related functions, operation, diagnosis, and repair methods through safe, hands-on, practical activities.

The trainer is a modular system that can be used for both the refrigeration and air-conditioning training. The base platform accommodates removable plug-in panels to easily switch from refrigeration to air conditioning. The system includes the cooling components, temperature and pressure sensors, pressure gauges, valves and peripheral connections, as well as the control components including switches, push buttons, and an LCD display.

The system implements all the required control functions while maintaining pressures and temperatures within the predefined safe operating conditions of the system. Temperature and pressure sensors are integrated in the system to show their actual values on the display.

The proper refrigerant flow for the chosen operating mode is moderated by solenoid valves, which are integrated in the system’s piping. The system’s piping is painted in various colors to easily identify the refrigerant state (liquid or gas, high or low pressure).

Features
- Designed for practical, hands-on training
- Modular with refrigeration and air conditioning training all in one unit
- Flexible Programming
- Desktop unit, easy to setup and operate

Skills to Prepare students for In-Demand Professions:
- HVAC Service Engineer
- Refrigeration Technician
- Plant Operator
- Control System Engineer

Skills used in industry and commerce for restaurants, food production plants, pharmaceuticals, retail, and much more.

System Includes:
- Base Platform
- Refrigeration Panel and/or Air Conditioning Panel
- Equipment Installation Manual
- Instructor Training/Experiment Manual

About the Trainer
Each panel includes operations used in refrigeration and air conditioning such as:
- Capillary or thermal expansion valves (TEV)
- Temperature or pressure control
- Low or high speed fans
- Add/remove heat load in the cooled compartment
- Temperature displays in °C or °F.

The LCD display in graphic mode can alternatively display temperature and pressure versus time and the cooling cycle.

The training system may be operated as a standalone system and can also be connected to a PC via USB to use the S-COOL software to monitor and control the training system.

Curriculum
Solution includes a comprehensive training program covering:
- Introduction to Cooling and Refrigeration
- Principles of Operation and Components
- Electrical Control Systems
- Troubleshooting and Maintenance

Curriculum Details:
- Type: PDF
- Languages: English
- Hours of Instruction: 30 hours
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Trainer Specifications

**Base Platform**
- **Electrical Requirements:** 120VAC, 60 Hz, 15A
- **Compressor:** 1/3 HP semi-hermetic, scroll
- **Refrigerant:** HFC – 134A
- **Dimensions:** 965 x 635 x 790mm / 38” x 25” x 31” [L x W x H]
- **Weight:** 43 kg / 95 lbs

**Features:**
- Operating Switches, Keypad and Indicators
- Graphic/Alphanumeric LCD Display and Status Displays
- PC / Manual Mode, USB Interface and Windows Control Software
- Temperature Sensors (4)
- Pressure Sensors and Transducers (2)
- Low Pressure and High Pressure Gauge, 0-300 psi
- Solenoid Valves (9)
- Troubleshooting State Indicators
- Fault Insertion Switches and Fault Display
- Manifold
- Digital Hanging Scale and Wrench

**Refrigeration Panel**
- **Dimensions:** 965 x 305 x 400mm / 38” x 12” x 15.5” [L x W x H]
- **Weight:** 16.6 kg / 36.6 lbs

**Features:**
- Plug-In Module for Base Platform
- Quick Connect/Disconnect to Base Platform
- Transparent Two Section Cooling Chamber with Door
- Thermostatic Expansion Valves
- Electric Fans (2)
- Thermal Load
- Temperature Sensors and Transducers (2)
- Control Valves (3)

**Air Conditioning Panel**
- **Dimensions:** 965 x 305 x 400mm / 38” x 12” x 15.5” [L x W x H]
- **Weight:** 12 kg / 26.5 lbs

**Features:**
- Plug-In Module for Base Platform
- Quick Connect/Disconnect to Base Platform
- Transparent Air Conditioning Tunnel with Door
- Evaporator with Electric Blower
- Temperature Sensors (2)
- Electric Control Valve
- Thermal Load
- Humidity Sensor

**Ordering Information**

**Hardware**
- Refrigeration/Air Conditioning Base Unit: 00-5901-0001
- Professional Refrigeration Panel: 00-5901-0002
- Professional Air Conditioning Panel: 00-5901-0003
- Piping kit for refrigeration systems with instruction module: 00-5901-0004

**Curriculum**
- Professional Refrigeration Training Module: 77-8301-0001
- Professional Air Conditioning Training Module: 77-8301-0002

**Professional Cooling Systems Course Outline**

Chapter 1: Basic Cooling and Refrigeration Systems
- Introduction to Cooling and Refrigeration Systems
- Pressure/Temperature Relation
- Materials and Circuits of the Control System
- Compressor Types
- Evaporation and Condensing Techniques
- Materials and Circuits of the Electrical System
- Troubleshooting
- Maintenance Methods and Equipment Required for Servicing

Chapter 2: Professional Cooling Systems
- Introduction to Professional Cooling Systems
- System’s Operation and Stabilization Conditions
- Parallel Connection
- Serial Connection
- Troubleshooting

**Professional Air Conditioning Course Outline**

Chapter 1: Basic Cooling and Air Conditioning Systems
- Introduction to Cooling and Air Conditioning Systems
- Pressure/Temperature Relation
- Operational Principles and Materials
- Compressor Types
- Evaporation and Condensing Techniques
- Materials and Circuits of the Electrical System
- Troubleshooting
- Maintenance Methods and Equipment Required for Servicing

Chapter 2: Professional Air Conditioning Systems
- Introduction to Professional Air Conditioning Systems
- Distribution
- Troubleshooting

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