

Automotive Air-Conditioning Training Platform Nvis 438AC



Nvis 438AC Automotive Air-conditioning Training Platform is an adaptable training solution that has extensively been used for Electric Vehicle and Refrigeration & Air-conditioning Laboratories. This training Platform is designed to provide a hands-on learning experience for students to understand the operation, maintenance, and troubleshooting of automotive air-conditioning systems in vehicles. It typically includes components such as compressors, condensers, evaporators, and expansion valves, allowing students to observe how these parts work together to cool the interior of a vehicle.

Features

- Nvis 438AC includes all major components required for an automotive air conditioning system, allowing students to study and understand their functions and interactions.
- Temperature sensors for the evaporator and condenser provide real-time temperature readings, enabling students to monitor and analyze the cooling process.
- Students can adjust the fan speeds for condenser to simulate typical performance problems and study their effects on system operation.
- The platform features a built-in speed measurement system for the motor, allowing students to analyze motor performance and its impact on system operation.
- Experiments configurable through patch cord.
- Caster wheel (with locking mechanism) at the legs of WorkBench for easy movement.

- MCB provided with AC supply for safety.
- An operational drive is included to demonstrate the functionality and operation of the system's drive components.
- Nvis 438AC is designed with diagrammatic representations to facilitate easy connections and understanding of component interactions.
- This setup offers real-time operation and interactive features to engage students in handson learning and experimentation.
- Open frame design of the platform allows easy access to all areas, making it convenient for students to observe and interact with the components.
- This platform features a visible compressor, electromagnetic compressor clutch, condenser, evaporator, dryer and expansion valve allowing students to observe their operation modes and study their functions in the system.



Scope of Learning

- To study the functioning of essential component in an automotive AC system such as the magnetic clutch, compressor, condenser, evaporator, expansion valve, and refrigerant.
- To study the operation and control of electric propulsion systems.
- To study the fundamental concepts of air conditioning systems, including the principles of heat transfer, refrigeration cycle, and temperature control.

Technical Specifications

AC Machine	:	1 no.
Туре	:	PMSM
Motor rating	:	1HP
Voltage rating	:	70V ±10%
Rated speed	:	2500RPM ± 7.5%
Insulation	:	Class 'H'
AC Drive	:	1 no.
Input voltage	:	90-245VAC
Output voltage	:	0-70VAC
Frequency	:	0-160Hz
Graphical LCD	:	128 X 64 pixels
Temperature Display	:	2 nos.
Temperature measuring range	:	-50°C~99°C
Sensor	:	NTC sensor
Accuracy	:	±1° C (-50°C~ 70°C)
Resolution	:	0.1°C
Compressor	:	1 no.
Air cooled condenser and 12V DC fan	:	1 no.
Evaporator fitted speed regulated 12DC fan	:	1 no.
Thermostatic expansion valve	:	1 no.
Refrigerant gas	:	R134a
Energy meter	:	1 no.
Toggle switches	:	3 nos. (for condenser fan, clutch, blower)
Indicators	:	3 nos. (for condenser fan , clutch , blower)
Blower speed control potentiometer	:	1 no.
МСВ	:	1no.
Current rating	:	16 Amp.
Multi function meter	:	1 no.
Voltage	:	10-230V,
Current	:	100mA-5A
Watt	:	10-1200W
Energy meter display resolution	:	0.001kWh
Frequency	:	50Hz

Designed & Manufactured in India by

Nvis Technologies Pvt. Ltd.

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