Product Overview

The Production Automation Training Equipment is designed to provide practical and theoretical training in modern industrial automation processes. It enables learners to understand and practice various control techniques used in automated production systems, including analog/digital interfacing (AD/DA), PLC-based control, sensor integration, pneumatic actuation, and inverter-based motor control. The system supports hands-on experiments in manufacturing automation, assembly, process sequencing, and industrial communication, ensuring a complete learning experience aligned with Industry 4.0 practices.

Key Features

- Comprehensive training system for industrial process automation with integrated AD/DA modules.

- Facilitates study of PLC logic, I/O interface, sensor signals, and actuator control.

- Supports practical learning of analog and digital control systems with real-time feedback.

- Incorporates industrial-grade PLC, inverter, pneumatic actuators, and sensors for realistic operation.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.

- Includes both manual and automatic control modes to simulate real production conditions.
- Equipped with safety devices and modular architecture for easy maintenance and upgrades.
- Compatible with industrial communication protocols for SCADA or PC interfacing.
- Enables experiments in production line automation, sequence control, and signal monitoring.
- Designed for educational institutes, training centers, and industrial skill development programs.

Technical Specifications

Main System

Item	Specification
Function	Production automation and process control training
Configuration	Base unit with PLC, inverter, pneumatic modules, AD/DA converter, sensors, and actuators
Power Supply	AC 220V ±10%, 50/60Hz
Control Voltage	DC 24V
Structure	Modular bench-type structure with aluminum profile frame
Mounting	Table-top or workstation-mounted
Dimensions (Approx.)	1200(W) × 700(D) × 800(H) mm
Weight (Approx.)	60 kg

PLC Control Unit

Item	Specification
Type	Industrial PLC with expandable I/O
Digital Inputs	Minimum 16 points (24V DC)
Digital Outputs	Minimum 16 points (Relay/Transistor type)
Analog Inputs/Outputs	2 Channels each (0–10V / 4–20mA)
Communication Ports	RS-232C, Ethernet

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Item	Specification
Programming Software	Ladder, FBD, and Structured Text supported
Display	HMI Touch Screen Interface (optional)

AD/DA Module

Item	Specification
Analog Input Range	0–10V or 4–20mA
Analog Output Range	0–10V or 4–20mA
Resolution	12-bit or higher
Purpose	Real-time analog signal acquisition and control

Pneumatic Module

Item	Specification
Actuators	Single and double-acting cylinders
Valves	5/2-way solenoid valve (24VDC)
Pressure Regulator	Adjustable with gauge
Air Supply	0.4 – 0.7 MPa
Fittings and Tubes	Quick-connect type
Operation Mode	Manual / Automatic (via PLC)

Motor and Inverter Control

Item	Specification
Motor Type	Induction Motor
Power Rating	0.2–0.4 kW
Inverter Type	Variable Frequency Drive (VFD)
Control Method	Speed and direction control via PLC
Feedback	Tachometer or encoder feedback for speed monitoring

Sensors and Input Devices

Item	Specification
Sensors	Photoelectric, proximity, and limit switches

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Item	Specification
Signal Type	NPN/PNP, 24VDC
Display	LED indication for ON/OFF state
Application	Object detection, positioning, and safety monitoring

Panel and Wiring

Item	Specification
Control Panel	Integrated with safety fuses, emergency stop, and indicator lights
Wiring	2mm insulated flexible wires with terminal connectors
Switches	Start, Stop, Reset, and Selector switches
Indicators	Power, Operation, Fault LEDs

Software & Interface

Item	Specification
Interface	PC connectivity via USB/Ethernet
Software Function	Programming, simulation, and real-time monitoring
Supported Protocols	Modbus TCP, RS232/485, Ethernet/IP
Optional Add-On	SCADA interface for monitoring and data logging

Accessories and Components

Item	Specification
Cables and Connectors	Power and communication cables included
Instruction Manual	Operation, wiring, and experiment guidebook
Experiment Modules	Up to 10 standard exercises on automation control
Power Cord	220V AC compatible
USB/RS485 Converter	Provided for PC interfacing

Safety and Standards

Item	Specification
Safety Devices	Emergency stop, fuse protection, overload protection

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Export Sales: +91-9829132777
India Sales: +91-9588842361

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension, Jaipur-302022, India.

info@tesca.in
www.tescaglobal.com

CIN: U29309RJ2011PTC035213
GSTIN: 08AADCT8576E1ZZ

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Item	Specification
Compliance	Meets CE/ISO standards for electrical and educational equipment
Environment	Operating temperature: 0°C – 40°C; Humidity: ≤ 80% RH

Applications

- Industrial automation training and research.

- Vocational and technical education institutes.

- PLC, sensor, and actuator programming practice.

- Process control, sequencing, and signal analysis experiments.

- Real-time production automation simulation for smart factory learning.

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