



Order Code – 25268466.1.29 echatronics Training Module Industrial Miniature PLC Learning Conveyor Part Detection Electrical Training



System Overview:

A compact, industrial-grade training system simulating a **real-world automated part detection and sorting line**, combining mechanical, pneumatic, and electrical components with PLC programming. Ideal for technical education, vocational training, and mechatronics curriculum integration.

1. Mechanical Structure Applications:

- Material Blanking Mechanism:
 - Constructed using a **biaxial cylinder** and **precision guide slot** for simulated blanking operations.
- Material Transfer Mechanism:
 - Powered by **DC motor** driving a **conveyor belt** to simulate component transport.
- Material Separation Function:
 - Implemented via **cylinders** and **position sensors** to demonstrate automated sorting.

2. Pneumatic Control Components:

- Pneumatic Bus Board for modular air line connections
- Standard Cylinders for actuation tasks

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





Tesca Technologies Pvt. Ltd.

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• Solenoid Valves (single and double) for directional control

• Functionality:

- Directional control
- Speed modulation
- Sequential operations of actuators

3. Electrical Control Components:

- Includes a diverse array of **industrial sensors** for object detection and feedback:
 - Capacitive Sensor
 - Laser Sensor
 - Reflective Sensor
 - Fiber Optic Sensor
 - Inductive Metal Sensor
 - Magnetic Sensor
 - Color Sensor
- Supports control of:
 - Single and double solenoid pneumatic valves
 - Conveyor motor start/stop
 - Indicator lights based on sensor feedback

4. PLC Programming Applications:

- Control Logic Structures:
 - Sequential structure
 - Selective (conditional) structure
 - Loop/cycle control
- Programmable Functions:
 - Cylinder motion via I/O logic

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- Conveyor system activation/deactivation
- Indicator signal output
- Real-time sensor input monitoring and logic response

Educational Objectives:

- · Hands-on experience with real industrial hardware
- Understanding of integrated mechatronic systems
- Sensor-based decision-making and automation logic
- Mastery of PLC-controlled mechanical processes
- Preparation for Industry 4.0 environments

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