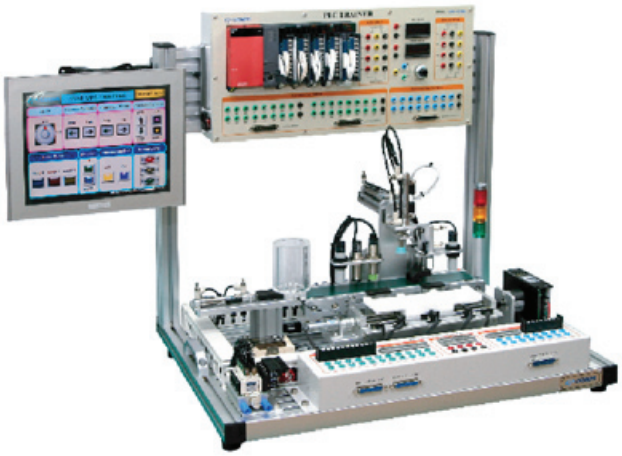
CPS-AT3450U

Mini Automation Multiprogramming Trainer



FEATURES

- Miniaturizes the real-life automated production line and enables realistic simulation
- Covers programming, system design, PLC control, PC-based control, MICOM control and test drive
- Comes with PC software for theoretical knowledge and professional technical expertise

EXPERIMENTAL CONTENTS

- Understanding automation process: supply, transfer, inspection, stopper, classification and warehousing
- Principles of PC based control system
- PLC interface and Bus interface
- PLC programming practices

SPECIFICATIONS

PLC Control Unit

- Composition: Touch panel and PLC trainer on the aluminum profile structure
- Touch panel (XP70-TTA)
  - Realistic expression by 65,636 colors
  - Various graphic formats such as BMP, JPG, GIF, WMF
  - Simple animation effect through animation GIF
  - Equipped with 10/100 Base-T Ethernet
- PLC trainer
  - Type of PLC: LS, Mitsubishi and etc.
  - Digital input: 32 points
  - Digital output: 16 points
  - A/D input: 4 channels
  - D/A output: 4 channels
  - A/D input variable resistance: 10-turn variable resistor (x 1ea)
  - Digital voltmeter: 2ea

Supply Process (Feeding section)

- After the work pieces are loaded in the circular feeding tube, they will be supplied to the conveyor process by the supply cylinder
- Composition: Supply cylinder, feeding tube, and supply block
- Supply button
  - To push forward the work piece by the supply cylinder and return to the starting point
- Optical fiber sensor
  - To check whether there is a work piece inside the feeding tube
- Work piece
  - Plastic: 2ea
  - Aluminum: 3ea

Transfer Process (Conveyor section)

- This process transfers the work piece received from the supply section. The sensor of the inspection section classifies metal, non-metal and colored objects (black & white). In case of detecting a metal object, the stopper will not operate and the work piece will be transferred to the ejection outlet.
- Composition: Conveyor belt, driving motor, round belt and round belt pulley
- DC motor
  - Power source: DC 24V
  - Decelerator: Gear ratio 300
- Ball bearing: 4ea
  - Inner diameter: 6ø
  - Outer diameter: 17ø

Inspection Process (Sensor section)

- The work piece from the supply process will be transferred to the sensor section through the conveyor belt. Inspection of the work piece will be carried out by the high-frequency oscillation proximity sensor and the capacitive proximity sensor.
- Composition
- Proximity sensor
  - Diameter: 18ø
  - Sensing distance: 8mm
  - Detectable objects: Metal and non-metallic objects
  - Power source: DC 12V ~ 24V
  - Response frequency: 200Hz
  - Output type: NPN open collector
- Photo sensor
  - Type: Direct reflection type
  - Diameter: 18ø
  - Sensing distance: 100mm
  - Detectable objects: Opaque, translucent and transparent objects
  - Power source: DC 12V ~ 24V
  - Response frequency: 1000Hz
  - Output type: NPN open collector

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Stopper Section
- The work piece, which is being carried on the conveyor, will be tightened by the stopper.
- Composition: High-frequency oscillation proximity sensor, capacitive proximity sensor, stopper bracket, stopper cylinder, linear bush, and guide shaft
- Stopper cylinder
  - Tube inner diameter: 12ø
  - Stroke: above 20mm
  - Load voltage (cylinder sensor): DC 24V
  - Load current: 5mA ~ 40mA
  - Red colored LED: "Non-contact" indicator
  - Speed controller: Mounted for the purpose of flow control
  - Linear bush unit: Spin prevention
- Proximity sensor
  - Diameter: 18ø
  - Detectable distance: 8mm
  - Detectable objects: Metal and non-metallic objects
  - Power source: DC 24V
  - Response frequency: 200Hz
  - Output type: NPN open collector

Classification Process (Absorption transfer section)
- In this process, the work piece which was tightened by the stopper will be transferred to the loading section.
- Composition: X-axis cylinder, Y-axis cylinder, linear bush, cylinder bracket and vacuum pad
- Horizontal transfer cylinder
  - Tube inner diameter: 10ø
  - Stroke: above 100mm
  - Load voltage (cylinder sensor): DC 24V
  - Load current: 5mA ~ 40mA
  - Red colored LED: "Non-contact" indicator
  - Speed controller: Mounted for the purpose of flow control
  - Linear bush unit: spin prevention
- Vertical transfer cylinder
  - Tube inner diameter: 6ø
  - Stroke: above 15mm
  - Load voltage (cylinder sensor): DC 24V
  - Load current: 5mA ~ 40mA
  - Red colored LED: "Non-contact" indicator
  - Speed controller: Mounted for the purpose of flow control
- Vacuum generator
  - Air-ejection type using the Principle of Venturi
  - In use of single solenoid valve for operational control

Warehousing Process (Loading section)
- The loading process will load the carrying box with work pieces
- Composition: Driving motor, TM screw, transfer plate, carrying box, guide shaft, limit switch and encoder
- DC motor
  - Power: DC 24V
  - Revolution: 90 RPM
- TM screw
  - Ball Bearing: 2ea (inner diameter: Φ6, outer diameter: 17Φ)
  - Coupling: Φ16*24mm
  - Built-in photo sensor and cam (hole: 4ea)
- Limit switch: Micro sensor
- Loading palette: 3ea

Control Terminal Panel
- Type: Three types of control terminal in different colors
- Composition: One-touch type terminal block, spring-type terminal block and 4ø insulated connection cables
- PLC: Connect a port of COM terminal to use a programmable logic controller

* 4ø I/O terminal block (black color) = 0V
* PLC Input COM = +24V
* PLC Output COM = 0V (GND)

Base Plate
- Material: Aluminum profile (slot interval - 25mm)
- Dimension: 580(W) x 360(D) x 30(H) mm
- Built-in SMPS: 24V 1A, 5V 2A

STANDARD ACCESSORIES
- AC cord: 1ea
- Connection cable: 1set
- PC program software CD: 1ea
- User's guide manual: 1ea

OPTIONS
- MiCOM trainer
- Touch panel