



Industry 4.0 Series

Multi PLC Workbench has following features

- An integrated workbench consisting of instrument panel and working table suitable for students to learn and perform various experiments of PLC Workbench (9 Different Brands of PLC).
- Measuring Instruments are fitted in the panel such that necessary interfaces are easily accessible to user.
- PLC interfacing with different application modules.
- Structure of workbench made up of 1.5 mm-2mm thick CRC Epoxy coated pipes with top made up of good quality 19 mm-22mm thick plywood and covered with 1.8 mm-02 mm off white color mica.
- The bench working area are covered by 2 mm – 2.5 m thick antistatic mat which help students to controls static discharge as static cause interference or damage to students, equipment and circuitry

Workbench structure specifications

- The basic structure is made up of minimum 38 x 38 x 1.5 mm CRC Epoxy coated pipes for sturdiness.
- The dimensions of Wooden base are Width: 1200-1300 mm; Depth: 762-850 mm
- M.S. drawers 03 -04 numbers with lock

Features

- Nine PLC's from different makes - Siemens, Mitsubishi, Fatek, Delta, ABB, Allen Bradley, Omron, Schneider Electric, and Wecon.
- Open platform to explore a wide range of PLC applications.
- Industrial look and feel.
- PC based programming.
- Rich applications, Learn both basic and advanced applications using powerful PLC's.
- Several sample ladder programs.
- Extremely easy and student friendly software to develop different programs.
- PLC interfacing with different application modules.
- Easy downloading of programs.
- Practice troubleshooting skills.
- Robust construction.
- Experiments configurable through patch board.
- MCB provided with AC supply for safety purpose.
- The ergonomically designed WorkBench systems provide the perfect training environment for training in automation technology.
- Drawers for patch cords, module, and other accessories for storage, easy identification and access.
- Academic and vocational study for process control engineers and plant technicians.
- Castor wheels (with Locking mechanism).
- Online Product Tutorial.
- PC/Laptop (optional).

Note : For PLC Programming PC/Laptop is required.

Scope of Learning

- Exposure to technology of Programmable Logic Controller (PLC) and understanding the importance of automation in industries.
- Learners will be familiarized with a variety of ladder logic instruction to create complete PLC program from scratch.
- Study the difference between digital and analog signals and how to bring them into a PLC, process them and send them back out.

PLC hardware

- PLC configuration.
- Source and sink concept.
- PLC history.
- Input/output configuration.
- Installation.
- Switches and sensor interfacing.
- Actuator interfacing.

PLC operation

- Sequence of operation.
- Program scans cycle.
- Addressing example.
- Upload/download/monitoring.

Installation

- Wiring and connection.
- Communication setup.
- Programming devices connection.

Program operation

- NO (normally open) and NC (normally closed) instruction.
- Types of logic gates.
- Set and reset bit.
- Types of timers.
- Types of counter.
- Types of compare instruction.
- Types of math function.
- Mov instruction.

Technical Specifications

Programmable Logic Controller

PLC- 01

PLC	: Schneider Electric
Digital input	: 14-16 nos.
Digital output	: 10-14 nos.
Programming software	: Schneider TM200/ Eco Struxure
Programming cable	: USB

PLC- 02

PLC	: Mitsubishi
Digital input	: 16-18 nos.
Digital output	: 16-18nos.
Programming Software	: GOC Tool kit
Communication	: Ethernet

PLC- 03

PLC	: Fatek
Digital input	: 8-10 nos.
Digital output	: 6-10 nos. (relay)
Programming Software	: WinProladder
Communication	: USB

PLC- 04

PLC	: Delta
Digital input	: 24-28nos.
Digital output	: 16-18 nos. (relay)
Programming Software	: ISPSOFT
Programming cable	: USB

PLC- 05

PLC	: ABB
Digital inputs	: 6-10 nos.
Digital output	: 4-09nos.
Analog Input	: 2 nos
Analog output	: 1 no.
Programming software	: ABB automation builder
Programming cable	: Ethernet

PLC- 06

PLC	: Omron
Digital input	: 18-21 nos.
Digital output	: 12-18 nos. (relay)
Programming software	: CX-One
Programming cable	: USB

PLC- 07

PLC	: Allen Bradley
Digital input	: 8-12 nos.
Digital output	: 07-11 nos. (relay)
Analog input	: 04-9 nos.
Analog output	: 01-05 no.
Programming software	: Connected component Workbench
Communication	: Ethernet

PLC- 08

PLC	: Siemens
Digital input	: 8-11 nos.
Analog input	: 4-8 nos.
Analog output	: 02-6 nos.
Digital output	: 02-6 nos.
Programming Software	: LOGO Soft Comfort
Communication	: Ethernet

PLC- 09

PLC	: Wecon
Digital input	: 8-11 nos.
Digital output	: 6-11 nos. (relay)
Programming Software	: Wecon PLC Editor
Programming cable	: USB

General Specification

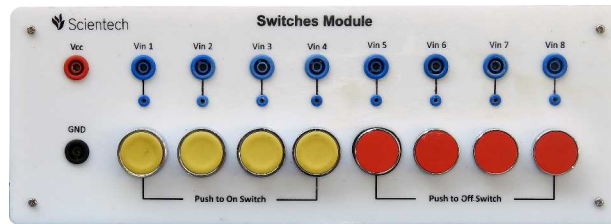
AC Power Supply

Single Phase MCB	: 1 no.
Three Phase MCB	: 1 no.

DC Power Supply

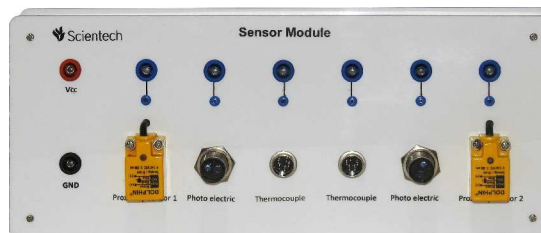
	: +24VDC (6.5A)
	+12VDC (1A)
	+5VDC (3A)
Potentiometer	: 2 nos.

Application modules



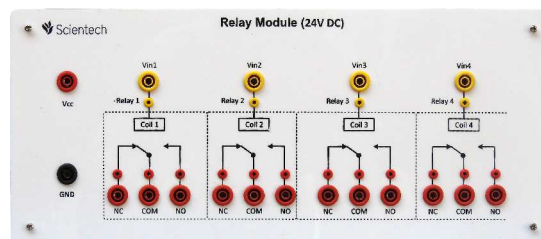
Switches module

Pushbutton switch	:	4 -6nos.
Push on push off switch	:	4 -6 nos.
PLC connection	:	4mm sockets



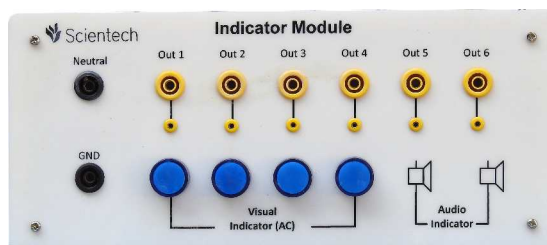
Sensor module

Proximity sensor	:	2 nos.
Photo sensor	:	2 nos.
RTD	:	2 nos.
PLC connection	:	4mm sockets



Relay control module

Double pole/through relay	:	4 -6nos.
Relay operating voltage	:	24VDC
PLC connection	:	4mm sockets



Indicators module

Visual indicator	:	4-6 nos.
Operating voltage	:	24VDC
Audio indicator	:	2 -4nos.
Operating voltage	:	+5V/+12VDC
PLC connection	:	4mm sockets



PLC Interactive Learning Software Technical Specifications:

1. The learning module covers following topics:

- Industrial Automation and tools like PLC, SCADA, HMI, DCS.
- Role of PLC in Automation
- History of PLC
- Types of PLC like Mini, Micro & Rack
- Block diagram of PLC
- Working of PLC
- Sinking and Sourcing Concept
- PLC Program Cycle

2. Input Devices:

- Switches, Introduction, Switch State, Basic Switch Configuration, Toggle Switch, Slide Switch, Pushbutton, Rocker Switch, DIP Switch, Reed Switch, Limit Switch.
- Sensors, Actuators, State Relay
- Induction Motor
- Programming Concept: Normally Open and Normally, Close Contact, Set and Reset, Memory Bit, Types of Logic Gates, Timer, Counter, PWM, Compare, ADC, DAC Example Ladder Program
- Variable Frequency Drive (VFD)
- Introduction of HMI
- Introduction of SCADA