The didactic package designed to study and explore the mid-range, industrial grade, modular PLC. This package enables the learner to identify the various PLC modules, program the PLC and HMI using various programming languages. It should be designed to achieve learning objectives:

Features
- To program and configure PLC
- Learn various programming languages.
- To configure the display unit.
- To understand and configure various communication protocols.
- To learn wire between PLC and electrical switchgear external input/ output connection blocks

Detailed Technical Specifications:
The PLC-HMI equipment to include:
- Back-plane rack – 1 nos
- CPU with profinet/ profibus/ Modbus etherenet – 1 nos
- Standard isolated 24V dc power supply – 1 nos
- Module digital input (16i 24vdc sink – 1 nos or push buttons and selector switch)
- Module digital outputs (16q relays – 1 nos or indicator lamps)
- Analog io module - 2 inputs/2 outputs – 1 nos,
- Analog input voltage (0-10v), Touch screen panel, 7'' wide TFT + ethernet – 1 nos
- PLC should also have an expandable analog current module to communicate with analog sensors with output current 4mA-20 mA
- Programming cable, 1.8meters – 1 nos
- Power cord cable with socket- 2.5m – 1 nos
- Fault selection with possibility of activating 16 different faults

Note: Specifications are subject to change.

- External input/output connection blocks for digital and analog input and output point
- All ports and panel are properly labelled.

Programming Softwares:
- PLC programming software - team license of 10
- Operator Terminal Expert: HMI programming software

Electrical Characteristics:
- Supply Voltage: 230V (± 10%)
- Frequency: 50/60 Hz ± 5%

- The equipment could be support with relevant technical and practical manuals. Following Applications to be taught using the training kit:
- Structure text programming in PLC could be included.
- Analog sensors like temperature sensor, pressure sensor, distance sensor, luminance sensor could be included in the list of sensors with Analog output voltage (0-10) V/ Analogue output current (4mA-20mA)

Temperature Sensor

- The sensors could be powered up with the same voltage rating as that of the PLC device. Also, the sensors could be well adaptive to all types of PLC devices.
- One application related to an industry involving both analog and digital sensors could be included.
- Application that simulates the continuous variation of water level with continuous display of quantity of water filled in the tank. The control valve application may be included describing a scenario of more than one tank. The automatic switching off/on of PUMP as required.
- Servo drive application depicting a real time industry need including optical encoder should be included.

Servo Drive