

DESCRIPTION

The Mechatronics Training Lab is a collection of multiple modules for training in the basics of Mechatronics and PLC applications. Modular design of the equipment helps customise that matches individual training needs and budget. It is a plug and play system hence it can be upgraded easily at any point of time. The equipment is specially designed to help the students understand the basic principles of logic control, enable them to write their own programmes and verify it on different real-life applications.

On this system trainees can get good experience of PLC applications in the process industry and machine tool industry. The equipment is a handy tool to be used in projects for the final year students.

MECHATRONICS TRAINING LAB CONSISTING OF FOLLOWING MODULES

- **PLC MODULE, MCTR16-A**

PLC Module is the basic building block of the equipment. Without this module you cannot use the equipment. One or more of these modules can be supplied. This module consisting of,

- a. PLC
 - Open Digital inputs: 12 nos.
 - Digital outputs: 7 nos
 - Analog outputs: 1 no.
 - Analog input: 2 nos.
 - Ethernet Communication with PLC

Other PLC available on demand

- b. Simulator, 1 no. consisting of,
 - Toggle switches, 8 nos.
 - Push button switches, 5 nos.
 - Limit switch, 1 no.
 - LED's, 7
 - Buzzer, 1 no.
 - DC motor, 1 no.
 - Pilot lamp
 - Relay
- c. PC based Ladder programming
- d. Pre-defined Ladder programs
- e. NiYoLink cable

- **DIGITAL SENSOR MODULE, MCTR16-B**

Digital Sensor Module can be interfaced with the PLC module. The sensors can be wired as different input to the PLC. Different types of commonly used sensors are included in this module. This module consists of,

- a. IR sensor
- b. Capacitive Proximity Sensor, 1 no
- c. Inductive Proximity Sensor, 1 no
- d. Magnetic Sensor, 1 no
- e. Fire Sensor, 1 no
- f. Thumbwheel Switch, 1 no.
- g. NiYoLink cable



- **ANALOG SENSOR MODULE, MCTR16-C**

This Analog Sensor Module can be interfaced with the PLC module. This module consists of,

- Temperature Sensor and transmitter, 1 no
- Level Sensor and transmitter, 1 no
- Analog input source, 1 no.
- Digital analog output indicator, 1 no.
- NiYoLink cable

- **ADVANCED ANALOG SENSOR MODULE, MCTR16-D**

This Analog Sensor Module can be interfaced with the PLC module. This module consists of sensors as well as facility to vary the parameter like pressure and flow.

- Pressure Sensor
- Pressure gauge
- Flow Sensor
- Pneumatic pressure source
- Sump tank, pump, valves, and piping for water flow generation
- NiYoLink cable



- **WATER LEVEL CONTROL MODULE, MCTR16-E**

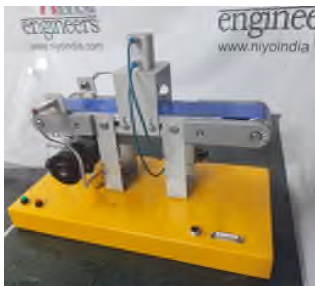
Water Level Control Module can be interfaced with the PLC module. This module consists of,

- Sump Tank
- Level Tank
- Level switch, 3 nos.
- Pump
- Piping and valves
- Solenoid valve
- Power supply cable and NiYoLink cable

- **LINEAR CONVEYOR MODULE, MCTR16-F**

Linear Conveyor Module can be interfaced with the PLC module. It has a facility to reverse direction. This module consists of,

- Linear conveyor, reversible direction
- Work pieces, 4 nos
- IR sensor, 1 no.
- Proximity sensor, 1 no.
- Power supply, signal conditioner and NiYoLink cable



- **STAMPING MODULE, MCTR16-G**

Stamping Module can be interfaced with the PLC module. This module consists of,

- Linear conveyor
- Proximity Sensor
- IR Sensor
- Work pieces, 4 nos
- Buzzer
- DC motors
- Stamping system
- Power supply, signal conditioner and NiYoLink cable

- **STEPPER MOTOR MODULE, MCTR16-H**



Stepper Motor Module can be interfaced with the PLC module. This module consists of,

- Stepper motor
- Thumbwheel switch
- Power supply, signal conditioner and NiYoLink cable

- **BOTTLE FILLING MODULE, MCTR16-I**

Bottle Filling Module is a bottle filling plant that can be interfaced with the PLC module. This module consists of,

- Rotary indexing table with five bottle holder
- Liquid tank
- Liquid dispenser
- Glass bottles, 6 nos.
- Power supply, signal conditioner and NiYoLink cable



- **ELEVATOR CONTROL MODULE, MCTR16-J**

Elevator Control Module is a three storied working model of an elevator that can be interfaced with the PLC module. This module consists of,

- Table-top elevator cage
- Elevator cabin
- Electrical motor
- Proximity sensor/limit switches
- Cabin Operating Panel (COP)
- Call button panel
- Power supply and NiYoLink cable

- **STAR DELTA & DOL STARTER SIMULATOR MODULE, MCTR16-K**

Star Delta and DOL Starter Module has a three phase motor and set of contactors and switches. This module can be interfaced with PLC. PLC program can be executed and electrical motor can be started and changeover can be observed.

Starting current and running current can be observed on three separate analog indicators supplied.



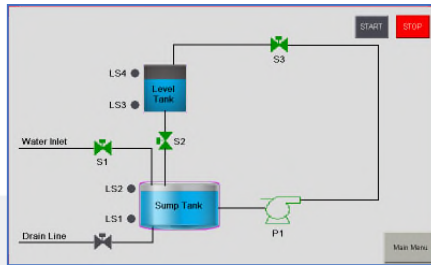
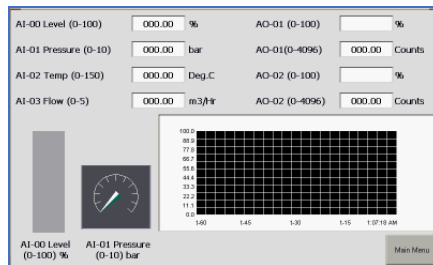
- **TRAFFIC LIGHT CONTROL SIMULATOR MODULE, MCTR16-L**

Traffic Light Control Simulator Module is a mimic diagram with switches and indicators demonstrating principle of basic conventional traffic light control. This module can be interfaced with the PLC module.



- **SCADA MODULE, MCTR16-M**

The SCADA software is compatible with the PLC Module. Depending on the modules selected/ordered, a pre-defined compatible SCADA program/screens are supplied. Trainees can construct their own SCADA screens/programs using the software supplied.



- **HMI MODULE, MCTR16-N**

The HMI Module is compatible with the PLC Module. Depending on the modules selected/ordered, a pre-defined compatible HMI screens are supplied. Trainees can construct their own HMI screens using the software supplied. This module consists of,

- a. Touch screen, color HMI
- b. HMI Programming software
- c. Power supply and cable



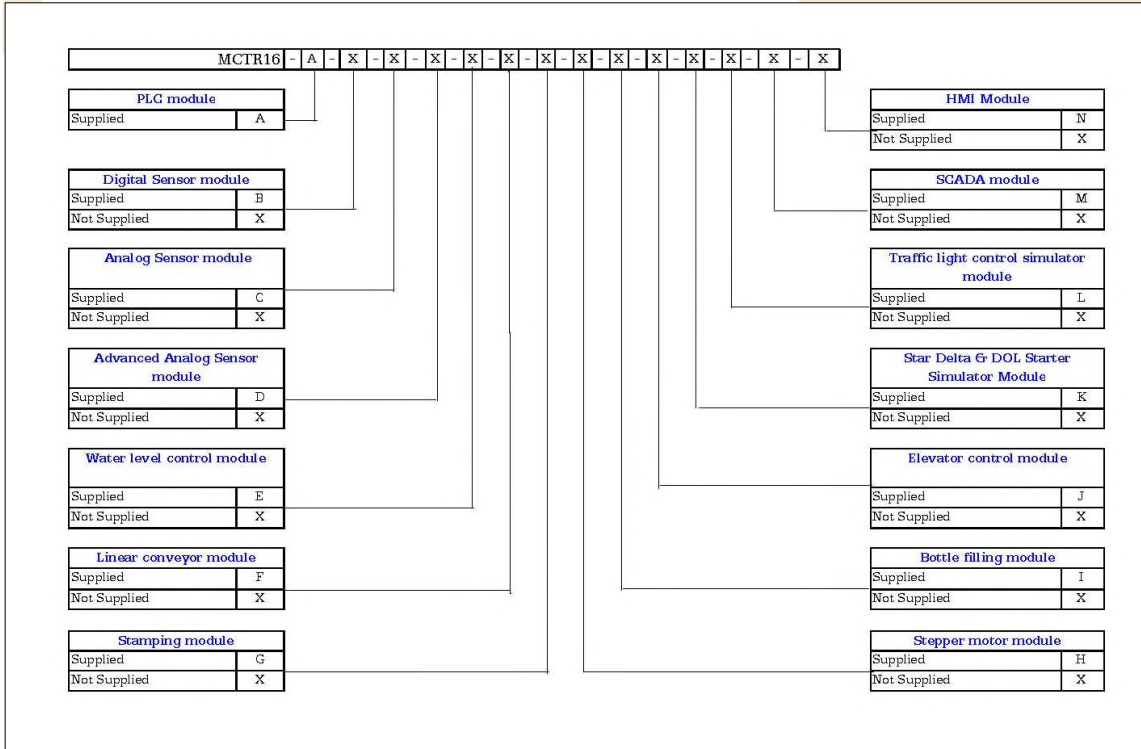
INSTRUCTION MANUAL

Self-explanatory operating manuals are provided with each system. Detailed theory as well as practical exercises are also included in the manual.

SERVICES REQUIRED

- Electric supply 230 V AC, 50 Hz
- Compressed air

MODEL SELECTION CHART



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- Since research and development is an on-going activity, the specifications mentioned herein are subject to change without notice
- Photographs are indicative only.