



## About Hytech Automation

Hytech Group, established in the year 1992 is a technology oriented manufacturing industry based in Pune, Maharashtra, India. Hytech group started as Hytech Hydraulics catering to hydraulics automation requirement for process industries. Now, there are Today, Hytech Group owns four verticals broadly classified as under -

- Hytech Automation
- Hytech Automation – Didactic Solutions
- Hytech Hydraulics
- Hytech Distribution

### Hytech Automation

Hytech Automation is one of the channel partners for the integration of Fanuc Industrial Robots. Core activity of Hytech Automation is automation related solutions. This is a project oriented division that caters to industrial robotics integration as well as application oriented process integration. Few top clients include Maruti Suzuki, Indian Railways, LG India, etc.

Hytech Automation also manufactures special purpose machines required for technologically advanced applications. One of the most successful product is Laser assisted CNC Turning machine which was developed in collaboration with DRDO – INDIA and LZH – Germany. This specially designed CNC turning machine can machine components up to 78 HRC.

### Hytech Automation – Didactic Solutions

Hytech Automation – Didactic Solutions mostly deals with the Automation and Application Engineering related Educational Solutions. These Didactic Solutions involve manufacturing of training kits as well as services such as ‘Syllabus Designing’ and ‘Train the Trainer Program’. There are four verticals in this division namely, CIM – Computer Integrated Manufacturing, Mechatronics, CNC Machines and Robotics.

With more than 20 years’ experience in the field of technological solutions, Hytech Automation – Didactic has acquired necessary expertise to provide industry oriented educational solutions which are relevant almost all over the world.

Hytech Automation is authorized channel partner for Fanuc Robots as well as Fanuc CNC related products. With client base in more than 25 countries, ‘Hytech Automation – Didactic Solution’ has more than 3000 active customers in educational as well as industrial sector. Few of the reputed customers include Maruti Suzuki - India, Bosch – India, Indian Navy, Mahindra and Mahindra, Myanmar Navy, Singapore Polytechnic, Khartoum University - Sudan, Palestine Technical University, etc.

### Hytech Hydraulics

Hytech Hydraulics is the oldest vertical under Hytech umbrella. It caters to the hydraulic related automation as well as project requirements in process industry. Few top clients include Thyssen Krupp, Wonder Cement, Ambuja Cement, Dalmia Cement, etc. Hytech Hydraulics has supplied more than 300 kiln thrusters operating in 4 different continents. Few of the kiln thrusters are operational 24 x 7 for more than 22 years.

Hytech Hydraulics has designed and patented a fine flow control valve which is considered as a monopolistic product in the cement industry. More than 2000 such valves are operational in various cement plants all across the globe.

### Hytech Distribution

Hytech Distribution is the trading arm of Hytech Group. Over the years, Hytech Group has established collaborations with few reputed manufacturers as well as service providers from all over the world. Hytech holds distributorship of BobCAD – CAM, Fanuc NC Guide, Fanuc Roboguide, Fanuc Simulator, Visual Components, IRAI – Automgen, etc.





## Models

### PLC - HMI TRAINING KIT - BASIC



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### PLC - HMI TRAINING KIT - ADVANCE



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## Hytech – PLC and HMI Training Kits

- Hytech PLC – HMI training kits are designed to provide hands on experience on PLC and HMI starting from Novice level reaching up to Expert level.
- Basic level training kits focus on the basic PLC operations such as communication protocols, Ladder design and Upload, Basic PLC – HMI integrated operations, etc.
- Advanced level kits focus on industrial applications with PLC and HMI integration. Applications include Servo Motor Operation, Encoder Operation, Stepper Motor Operation, AC Motor – VFD Operation, Temperature control Operation, etc.
- Industrial Application Units are designed ergonomically with few of the most popular industrial components which provides hands on experience to participants on latest industrial automation practices.
- Hytech PLC – HMI training kits are designed in a way that participants can understand and utilise maximum functions available in any PLC and HMI
- Customers can select industrial application modules depending on their requirement. Few of the industrial application modules which are considered as necessary for kit operation are provided along with training kits. Industrial Automation modules are designed in a way that participants can get necessary experience on various PLC functions such as digital inputs – digital outputs, Analog inputs – analog outputs.
- Each Automation component is connected to Field input and Field output modules through a separate connector which makes it very easy for replacement as well as maintenance.
- PLC inputs and outputs are connected to PLC input and output modules which makes it easier to for users to connect desired PLC input / output with the desired field input / output
- Basic training kits are table mounted training kits whereas the floor mounted training kits are provided with breakable castor wheels which makes it mobile.



## Hytech PLC - HMI Training Kit Models

# PLC - HMI Training

## Basic

Table Top Training Kit

Basic Level PLC and HMI

Basic Industrial Automation Modules

## Advance

Floor Mounted Kit (Mobile)

Advance PLC and HMI

Advance Industrial Automation Modules





## PLC and HMI Training Kits (PH BASIC)

- PH Basic is a table mounted model of Hytech PLC and HMI training Kit.
- This model is generally suitable for entry level PLCs such as Siemens S7 200 Smart or Mitsubishi FX Series. HMI provided with the kit is again an entry level HMI such as Siemens KTP 700 Basic or Mitsubishi GS Series.
- PH Basic model does not come with a workstation but all necessary licenses / softwares are provided along with the kit. Basic kit can be easily lifted and taken to a classroom to conduct demonstrations.
- Necessary operational accessories such as Ethernet switch, lifting handles, patch cord hanger etc are provided to make sure that the kit can be used efficiently for a batch size of at least 8 participants.





## PLC and HMI Training Kits (PH ADVANCE)

- PH Advance is a floor mounted model of Hytech PLC and HMI training Kit.
- This model is generally suitable for advance level PLCs such as Siemens S7 1500 or Mitsubishi Q Series. HMI provided with the kit is again an advance level HMI such as Siemens KTP 900 or Mitsubishi GOT Series.
- PH Advance model is equipped with a workstation which is provides with all necessary licenses.
- PH Advance is designed in a way that 3 students can work on this kit at a time. Ethernet switch is provided which enables the kit to be connected to 7 other workstations at a time making this kit efficient for a batch size of 10 / 16.
- PH Advance model can be equipped with any industrial automation module as per user's requirement.





## Industrial Automation Modules

- Industrial Automation modules are provided to make sure that participants have hands on experience on PLC – HMI applications with advanced industrial application engineering and automation.
- Hytech PLC – HMI kits are designed to make sure that participants can explore the complete operational features as well as various advantageous functions of PLC and HMI and not only end up using PLC as just a smart relay.
- Every PLC – HMI kit (PH Basic and PH Advance) is equipped with few industrial automation modules which come along with the kit. Users can select few of the advanced industrial automation modules which are optional
- Necessary inputs as well as outputs of each automation module required for effective operation are connected with Field input and output modules which makes it easier for user to program as well as operate.





## Industrial Automation Modules for PH Basic

Following Automation modules are supplied along with the PH Advance model irrespective of the make and model of PLC / HMI. These automation modules are ergonomically mounted to make sure that participants can carry out the programming / execution easily.

- **Sensor Module**
- **Switchgear Module**
- **Pneumatic Solenoid Module with Pneumatic Cylinders**

User can select from following mentioned automation modules which can either be mounted on the kit or can be provided individually which can be integrated with the kit:

- **Automation Module (Analog Input):**  
Pneumatic Digital Pressure Switch (with Analog o/p) with Pneumatic Cylinder (For Analog Applications)
- **Automation Module (Analog Output):**  
Variable Frequency Drive (VFD) with AC Motor (For Analog Applications)







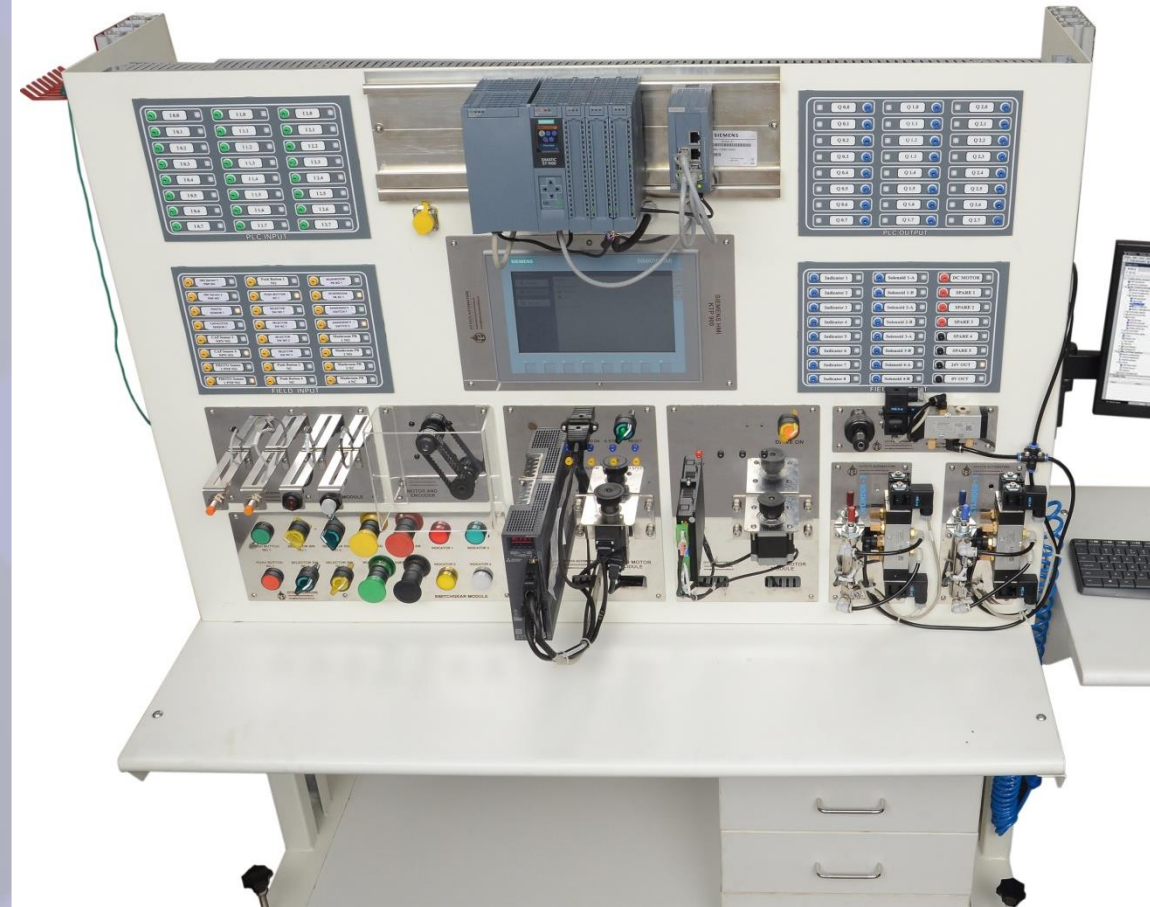
## Industrial Automation Modules for PH Advance

Following Automation modules are supplied along with the PH Advance model irrespective of the make and model of PLC / HMI. These automation modules are ergonomically mounted to make sure that participants can carry out the programming / execution easily.

- **Sensor Module**
- **Switchgear Module**
- **Pneumatic Solenoid Module with Pneumatic Cylinders**

Users can select from following mentioned automation modules which can either be mounted on the kit or can be provided individually which can be integrated with the kit:

- **Servo Motor Module**
- **Stepper Motor Module**
- **AC Motor and Encoder Module**
- **Pneumatic Pressure Switch Application**
- **AC Motor Speed Control through VFD and PLC using HMI**
- **Temperature Control Application Module**





## Industrial Automation Module - Sensor Module

This module consists of different types of sensors. Generally, capacitive, inductive and photo sensors are provided with NO and NC connections.

This module provides hands on experience on one of the most commonly used industrial automation components, sensors.

### What exactly this module provides:

- Exposure to proximity sensor
- Exposure to capacitive sensor
- Exposure to Photosensor
- Understanding the difference between different types of sensors
- Application of NO as well as NC sensors





## Industrial Automation Module - Switchgear Module

This module consists of various types of switchgears. Various types of switches such as Selector Switches, Push Buttons, Emergency Switches, Mushroom Head switches etc act as an input to PLC. Indicators act as an output. All of the switches / indicators operate on 24V DC.

This module provides hands on experience on one of the most commonly used industrial switchgear components and their effective use in collaboration with PLC and HMI.

### What exactly this module provides:

- Use of NO and NC input switches
- Exposure to various types of input switchgear components
- Effective use as well as understanding of timer and counter functions





## Industrial Automation Module - Pneumatic Solenoid Module with Pneumatic Cylinders

This module is included as a mandatory module in PH Basic as well as PH Advance raining kits. Basic concept of this module is to provide hands on experience on Solenoid and pneumatic cylinder operations with reed switch feedback from PLC and HMI.

Students can carry out various sequencing, time as well as counter based applications with this module. Solenoid valves are one of the most popular as well as commonly used industrial automation devices.

Necessary pneumatic accessories such as pneumatic junction box, PU tube, push pull connectors as well as necessary spares are provided along with the kit.

### What exactly this module provides:

- Exposure to Double acting as well as Single acting solenoids
- Solenoid Operation from PLC
- Exposure to magnetic reed switches
- Operation of Double acting cylinders as well as Pneumatic motor in combination from PLC and HMI
- Sequencing, counter and timer applications from PLC and HMI





## Industrial Automation Module - Servo Motor Module

This module consists of a Servo Motor, Servo Drive, Encoder cable and power cable. Servo motor provided is a low inertia motor which runs on 230V AC supply.

This module can also be used as a separate module for Servo motor training.

Generally, this module is mounted on a PLC kit for the ease of use as well as operation.

High speed inputs are required to operate this module which are provided and indicated on PLC o/p module.

### What exactly this module provides:

- Exposure to Servo Motor and Drive
- Servo Drive and Servo Motor Connections
- Operation of Servo Motor from PLC and HMI
- Representation of Servo Motor AU in HMI in circular as well as linear
- Use and interpretation of Servo Motor marking pulse



## Industrial Automation Module - Stepper Motor Module

This module consists of a Servo Motor, Servo Drive, Encoder cable and power cable. Servo motor provided is a low inertia motor which runs on 230V AC supply.

This module can also be used as a separate module for Servo motor training.

Generally, this module is mounted on a PLC kit for the ease of use as well as operation.

High speed inputs are required to operate this module which are provided and indicated on PLC o/p module.

### What exactly this module provides:

- Exposure to Stepper Motor and Drive
- Stepper Drive and Stepper Motor Connections
- Operation of Stepper Motor from PLC and HMI
- Representation of Stepper Motor AU in HMI in circular as well as linear mode



## **Industrial Automation Module - AC Motor and Encoder Module**

This module is designed to provide hands on experience on External encoder with feedback to PLC and HMI.

Participants can determine the RPM of motor and represent the same on HMI. Three high speed outputs from External encoder are to be connected to high speed inputs of PLC.

AC Motor is provided which is operated on 230V AC +/- 10%. Gear box (In line) is provided along with AC Motor to reduce the speed.

This module can be integrated with PH Basic as well as PH Advance models.

### **What exactly this module provides:**

- Exposure to External Encoder
- Encoder O/p connections
- Operation of AC Motor from PLC
- Representation of RPM on HMI with Encoder feedback





# Thank You!

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[sales@hytechautomation.in](mailto:sales@hytechautomation.in)

[www.hytechautomation.in](http://www.hytechautomation.in)