



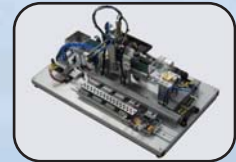
TDS Technology Thailand

# Educational Solutions

Integrity & Dedication



Innovative  
Solutions



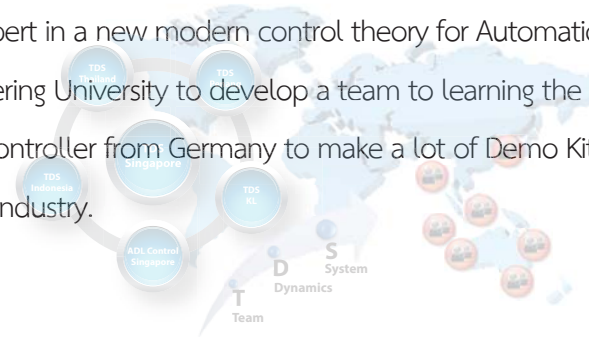
Evolution of  
Automation Technology



# ABOUT TDS THAILAND

## About Us

TDS Technology (Thailand) Company Limited. was a distributor of automation control industry in Thailand. Our people ,our team was a dynamic and expert in a new modern control theory for Automation technology. Our company was collaborate with Engineering University to develop a team to learning the new technology under brand's BECKHOFF who's the best Controller from Germany to make a lot of Demo Kit for learning , teaching and applying to the best benefit for Industry.



## TDS GROUP

**Singapore**



### **Head quarter (Singapore)**

**TDS Technology (S) Pte.,Ltd.**  
64 Sungei Kadut Loop  
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**Thailand**



### **Head office (Thailand)**

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Lamlukka Pratumthani 12150



### **Lampang Branch office (Thailand)**

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Phrahaht Muang  
Lampang 52000

**Malaysia**



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**Indonesia**



**PT TDS Technology**  
Ruko Celebration Boulevard Blok AA9  
No.63 Grand Wisata Bekasi  
West Java 17510

## Ahthorized Distributor

**BECKHOFF**  
New Automation Technology



**Movicon**  
MONITORING VISION AND CONTROL

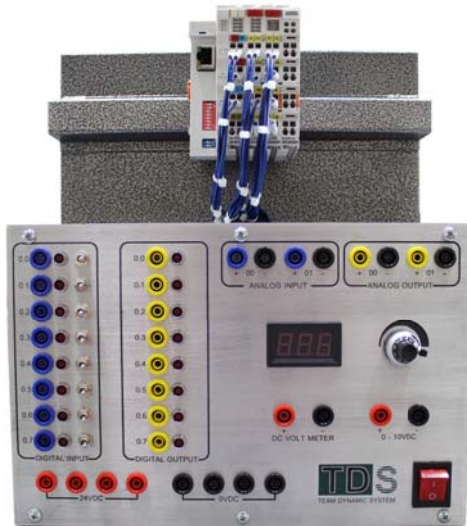
**CONTEC**

**AlecopGroup**  
Knowledge & Technology

**AUBO**  
ROBOTICS

## Mini PLC

( Model : MIP-0808 )



### Learning Topics

1. Elements of automation
2. Basics of PLC programming
3. Programmable Logic Controller ( PLC ) with IEC61131-3 Standard, Design and Troubleshooting
4. Visualizations design for monitoring and control ( HMI : Human Machine Interface )
5. PLC Communication via Ethernet TCP/IP Network

### Technical Data

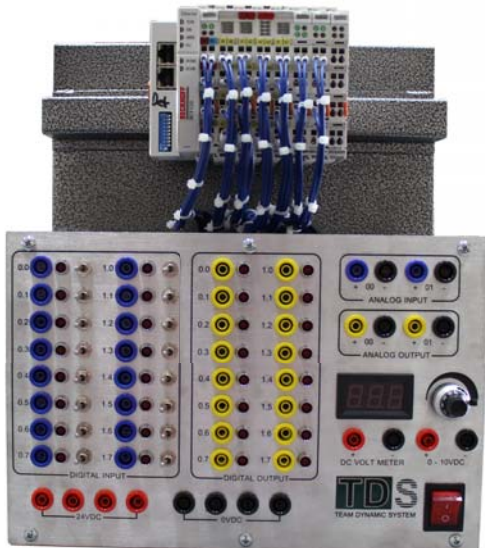
1. The Bus Terminal Controllers
  - 1.1 Program Memory : 48Kbyte
  - 1.2 Data Memory : 32 Kbyte
  - 1.3 PLC Cycle Time : approx. 1.5 ms for 1,000 instructions (without I/O cycle, K-bus)
  - 1.4 Programming languages : IEC 61131-3 (IL, LD, FBD, SFC, ST)
  - 1.5 Number of Bus Terminals : 64 (255 with K-bus extension)
  - 1.6 Digital peripheral signals : 2,040 inputs/outputs
  - 1.7 Analog peripheral signals : 512 inputs/outputs
  - 1.8 Protocol : TwinCAT ADS, Modbus TCP
  - 1.9 Bus interface : 1xRJ 45
  - 1.10 Program : Online change
2. 8-channel digital input terminals
3. 8-channel digital output terminals
4. Set of signal input and output



# DEMO KIT

## Medium PLC

( Model : MEP-1616 )



### Learning Topics

1. Elements of automation
2. Basics of PLC programming
3. Programmable Logic Controller ( PLC ) with IEC61131-3 Standard, Design and Troubleshooting
4. Visualizations design for monitoring and control ( HMI : Human Machine Interface )
5. Programming design for PID Control and Analog Signal
6. PLC Communication via Ethernet TCP/IP Network

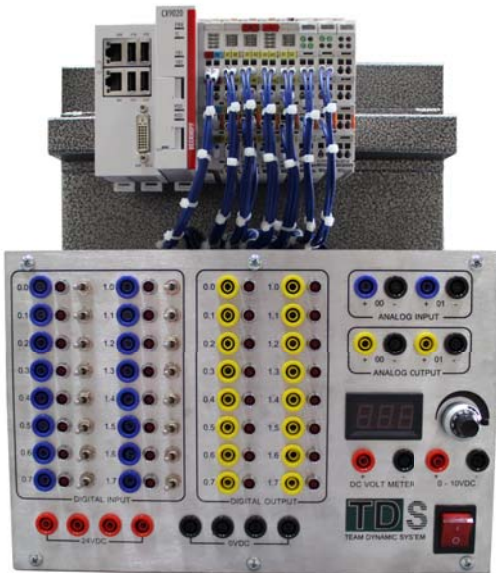
### Technical Data

1. The Bus Terminal Controllers
  - 1.1 Program Memory : 128Kbyte
  - 1.2 Data Memory : 128 Kbyte
  - 1.3 PLC Cycle Time : approx. 1ms for 1,000 instructions (without I/O cycle, K-bus)
  - 1.4 Programming languages : IEC 61131-3 (IL, LD, FBD, SFC, ST)
  - 1.5 Number of Bus Terminals : 64 (255 with K-bus extension)
  - 1.6 Digital peripheral signals : 2,040 inputs/outputs
  - 1.7 Analog peripheral signals : 512 inputs/outputs
  - 1.8 Protocol : TwinCAT ADS, Modbus TCP
  - 1.9 Bus interface : 2 x RJ 45
  - 1.10 Program : Online change
2. 16 - channel digital input terminals
3. 16 - channel digital output terminals
4. 2-channel analog input terminals
5. 2-channel analog output terminals
6. Set of signal input and output



## Embedded PLC

( Model : EMP-1616 )



### Learning Topics

1. Elements of automation
2. Basics of PLC programming
3. Programmable Logic Controller ( PLC ) with IEC61131-3 Standard, Design and Troubleshooting
4. Visualizations design for monitoring and control ( HMI : Human Machine Interface )
5. Programming design for PID Control and Analog Signal
6. Programming design for Motion Control by TwinCAT NC PTP
7. Programming design for Embedded PC Communication via Ads Protocol
8. PLC Communication via Ethernet TCP/IP Network

### Technical Data

- |                                   |   |   |
|-----------------------------------|---|---|
| 1. Processor                      | : | ARM 32 bit, 1 GHz   |
| 2. Flash memory                   | : | 512 MB microSD  |
| 3. Internal Main Memory           | : | 1 GB DDR3 RAM   |
| 4. Protocol                       | : | real-time Ethernet, ADS TCP, Modbus TCP, TCP/IP, UDP/IP, EAP (EtherCAT Automation Protocol)     |
| 5. Control Software               | : | TwinCAT PLC   |
| 6. Programming languages          | : | IEC 61131-3   |
| 7. Interface                      | : | 2 x RJ45 (Ethernet, internal switch), 10/100 Mbit/s, DVI-D, 4 x USB 2.0, 1 x optional interface |
| 8. I/O connection                 | : | E-bus (EtherCAT Terminals), K-bus (Bus Terminals)   |
| 9. Operating System               | : | Microsoft Windows CE 6  |
| 10. Operating/storage temperature | : | 0...+55 °C/-25...+85 °C   |
| 11. Protection class              | : | IP 20   |
| 12. Approvals                     | : | CE, UL  |



# DEMO KIT

## TOUCH SCREEN

( Model : TSK-1070 )



### General Feature

1. Demo Touch Screen Desktop can be link with PLC for Monitoring and Control
2. Easy to Connect with Power supply source 110 - 230 VAC



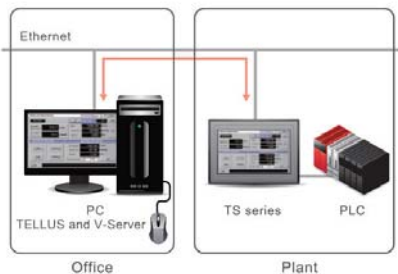
### Technical Data

1. Display 7 inch.
2. Resolution 800x480 point
3. Color 65536
4. Internal main memory 10.5MB
5. External main memory 128 MB
6. Interface 2 x D-sub 9-Pin , COM1:RS-422/485,COM2:RS-422/485,RS-232S choose Dip Switch
  - 6.1 D-sub 9-Pin 2 port  
COM1 can communication to RS-422/485  
COM2 can communication to RS-422/485 or RS-232C ( Dip Switch )
  - 6.2 LAN 100BASE-TX/10BASE-T
  - 6.3 USB Slave (Type mini B)
  - 6.4 USB Master (Type A)



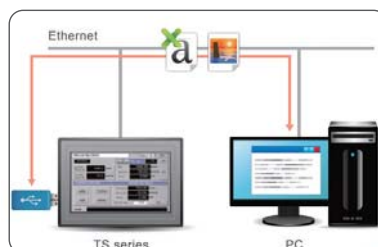
### 01 Remote Maintenance i series only

Data in a TS panel can be monitored and controlled from a remote office at low cost.



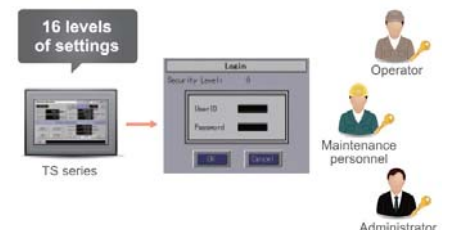
### 02 FTP Server i series only

Data in the USB thumb drive fitted to the TS panel can be read or written from/to the PC via FTP client tool.



### 03 Security Function

By setting a function limit according to the user level, a high-security environment can be established.



## Pneumatic

( Model : PNE-0001 )



### Learning Topics

1. Elements of pneumatic.
2. The symbol of pneumatic.
3. The principle of pneumatic valve.
4. Basic control systems in pneumatic.
5. Learn pneumatic diagrams.
6. The design of the pneumatic control.
7. Troubleshooting of the pneumatic.

## Hydraulic

( Model : HYD-0001 )



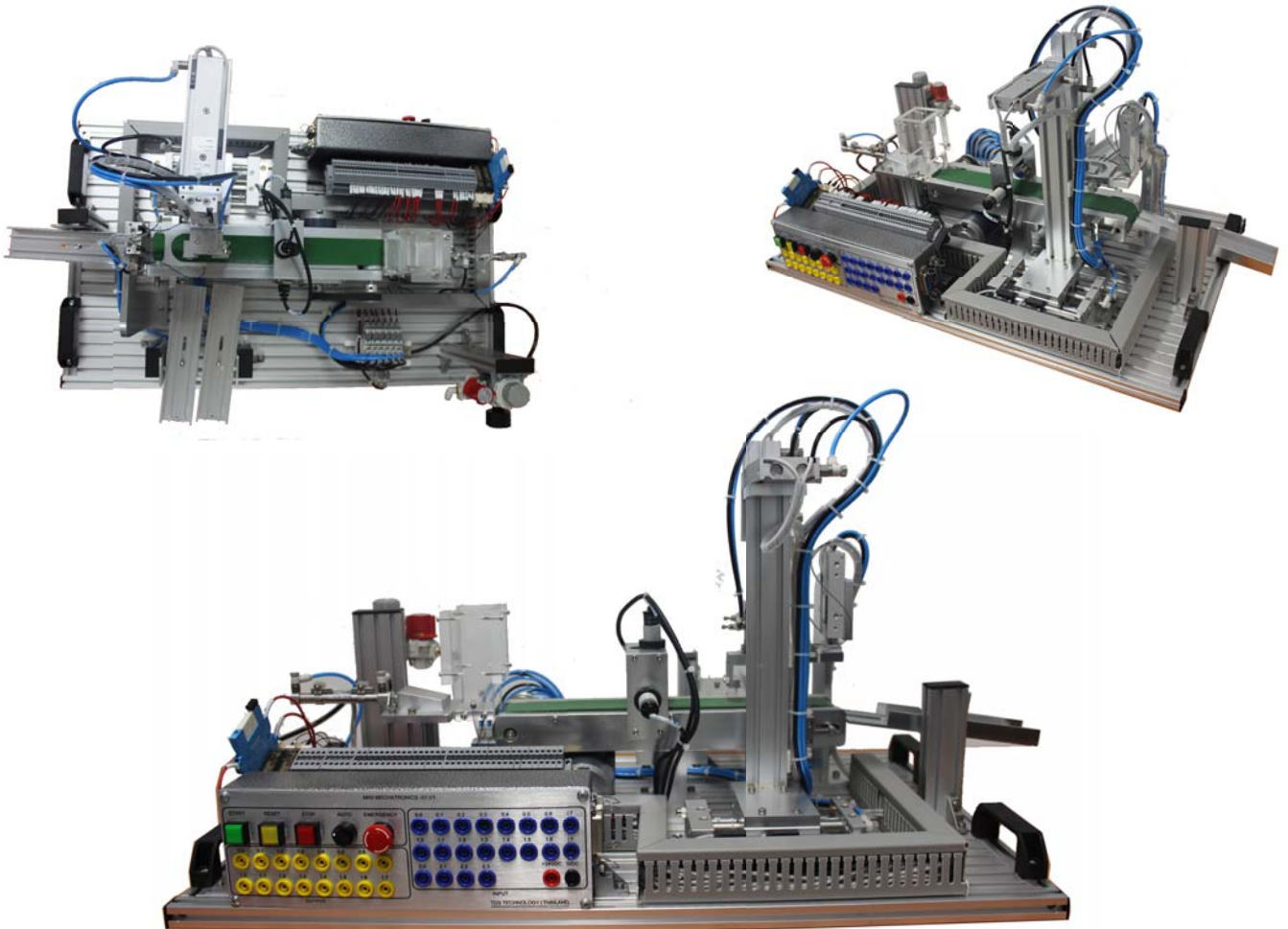
### Learning Topics

1. Elements of hydraulic.
2. The symbol of hydraulic.
3. The principle of hydraulic valve.
4. Basic control systems in hydraulic.
5. Learn hydraulic diagrams.
6. The design of the hydraulic control.
7. Troubleshooting of the hydraulic.

# DEMO KIT

## Mini Mechatronic

( Model : MIM-1620 )



### Learning Topics

1. Elements of automatic control systems.
2. The basic Electrical pneumatic control.
3. Programmable Logic Controller ( PLC ) with IEC61131-3 Standard, Design and Troubleshooting
4. Mechanical Troubleshooting.
6. Applied to Industrial Sensor.
7. Sequential Control.
8. DC gear motor and conveyor control system.
9. Visualizations design for monitoring and control  
( HMI : Human Machine Interface ).
10. PLC Communication via Ethernet TCP/IP Network.



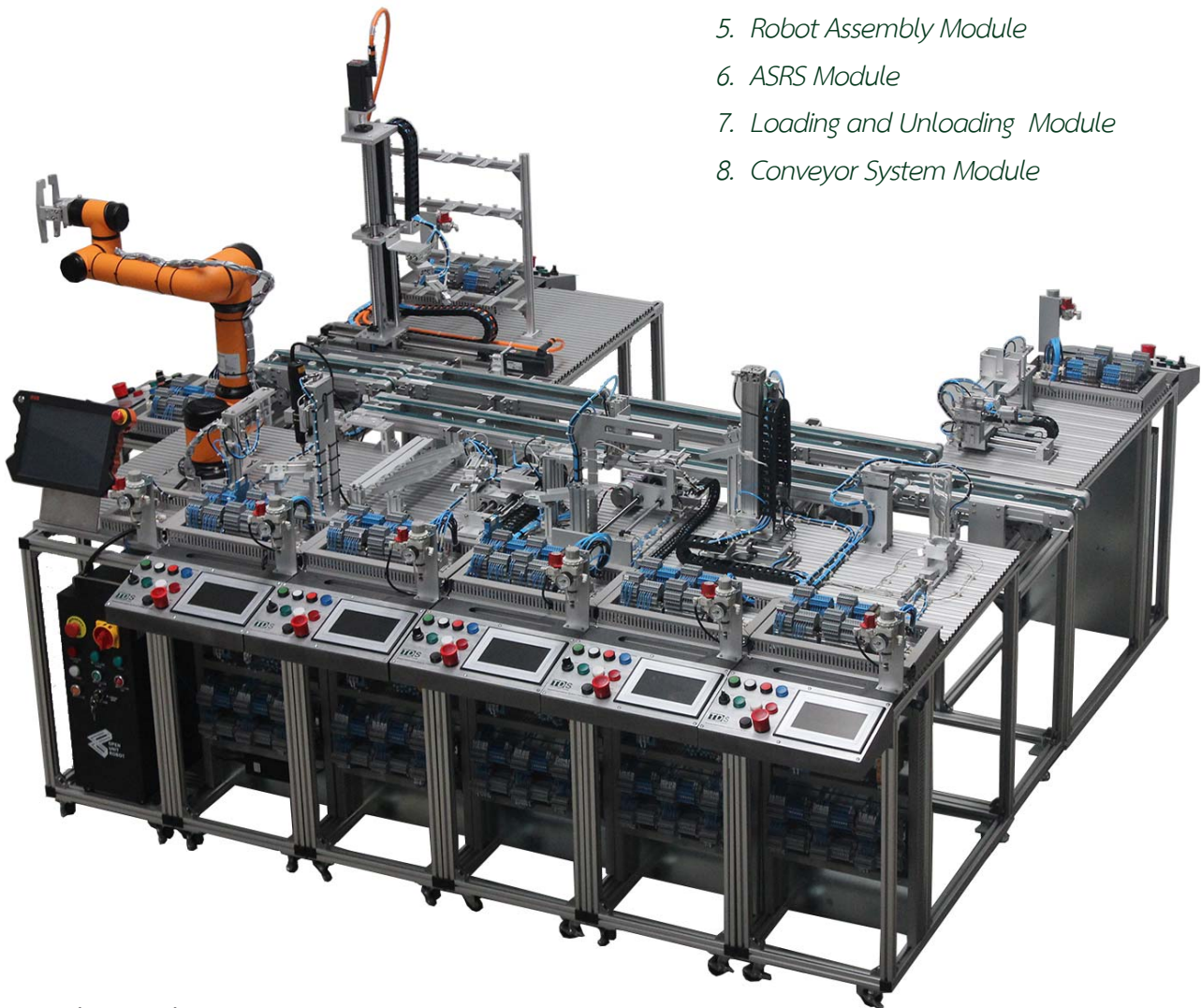
## Module Automation System Training with IoT : MAST IoT

( Model : MAST-08 )

MAST IoT is a simulation for industrial production . Using and applying the latest digital industrial technologies of Industrial 4.0 and offering a specific qualification program.

MAST IoT consist 8 stations by the following:

1. *Distributing Module*
2. *Testing Module*
3. *Assembling Module*
4. *Sorting Module*
5. *Robot Assembly Module*
6. *ASRS Module*
7. *Loading and Unloading Module*
8. *Conveyor System Module*

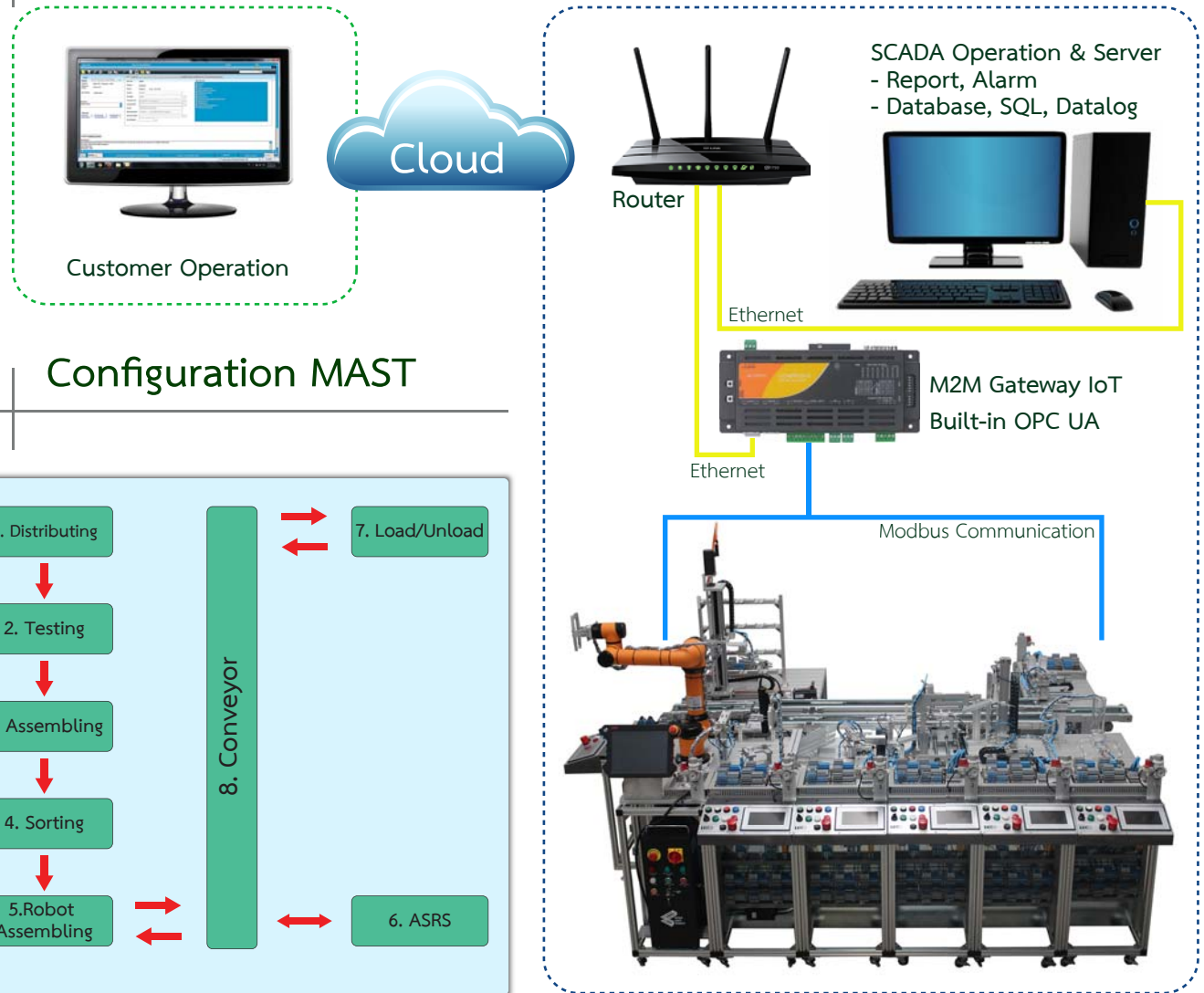


### Learning Topics

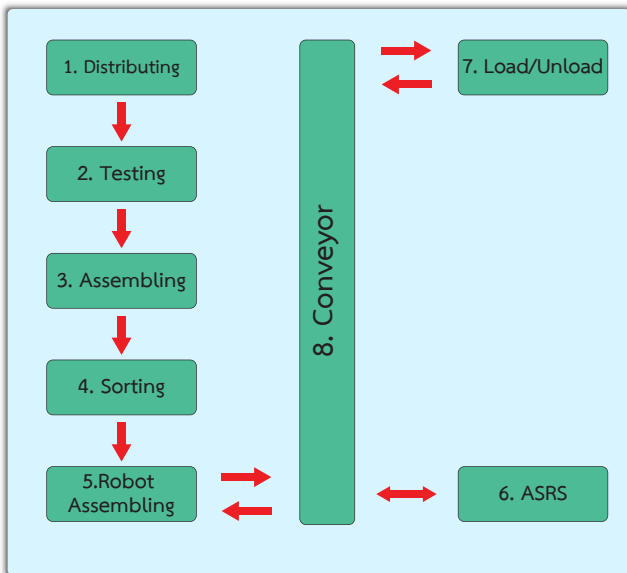
1. Basic PLC IEC61131-3
2. Sensor and Vision checking
3. Data Communication Ethernet Network
4. Controller Communication
5. Sequence Control Programing
6. Industrial Robot
7. HMI Local Touch Screen
8. Protocol Interface Modbus RTU, Modbus TCP, Ads
9. SCADA Monitoring And Database
10. IoT Data logging and HMI Monitoring

# DEMO KIT

## System with IoT

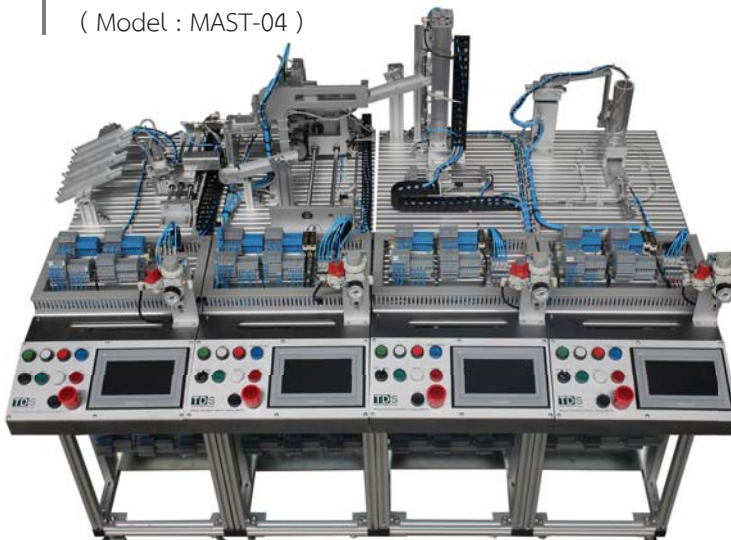


## Configuration MAST



## Mini Module Automation System Training : Mini MAST

( Model : MAST-04 )



1. Distributing Module
2. Testing Module
3. Assembling Module
4. Sorting Module

## 1. Distributing Module

( Model : DIM-01 )

### Feature

Source material magazine, Distribution with a rotary cylinder



### Learning Topics

- Ejecting Double Action Cylinder with Reed Sensor
- Rotary Cylinder with Reed Sensor
- Parallel Gripper with Reed Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color

## 2. Testing Module

( Model : TEM-01 )

### Feature

Sensor test module, Lift module with cylinder, Slide module for transfer

### Learning Topics

- Transfer Double Action Rod less Cylinder with Reed Sensor
- Lifting Double Action Rod less Cylinder with Reed Sensor
- Ejecting Double Action Rod less Cylinder with Reed Sensor
- Testing Double Action Guide Cylinder with Reed Sensor
- Double and Single Solenoid Valve
- Capacitive sensor, Inductive Sensor, Optical Sensor ,  
Linear Transducer
- Embedded Controller PLC IEC61131-3
- Analog input Potentiometer measurement
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color



## 3. Assembling Module

( Model : ASM-01 )

### Feature

Mechanical learning material assembly



### Learning Topics

- Linear Transfer DC GearBox Motor
- Magazine And Eject Double Action Cylinder
- Clamping Double Action Cylinder with Lead Sensor
- Parallel Gripper with Reed Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color

## 4. Sorting Module

( Model : SOM-01 )

### Feature

Sorting Module pick up assembled workpiece and sort by type reject the defective workpiece.

### Learning Topics

- Ejecting Double Action Cylinder with Reed Sensor
- Rotary Cylinder with Reed Sensor
- Parallel Gripper with Reed Sensor
- Transfer Double Action Rod less Cylinder with 4 position Lead Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color



## 5. Robot Assembly Module

( Model : RAM-01 )

### Feature

6-axis robot, Pneumatic gripper module, Assembly module



### Learning Topics

- Collaborative Robot Arm 6 DOF
- Rotary Cylinder with Reed Sensor
- Clamping Double Action Rod less Cylinder with Reed Sensor
- Screw Driver Double Action Guild Cylinder with Reed Sensor
- M8 Screw storage
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color

## 6. ASRS Module

( Model : ARM-01 )

### Feature

This station stores the finished products

### Learning Topics

- AC Servomotor OCT 2 Axis ( X,Y Aixs)
- Linear Ball Screw
- Rotary Cylinder with Reed Sensor
- Z Axis Double Action Guild Cylinder with Reed Sensor
- Parallel Gripper with Reed Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- EtherCat Terminal Servo Drive 50VDC 5A
- Ethernet and EtherCAT Interface
- TwinCAT2 NC PTP Motion Control
- HMI Monitouch 7inc Full Color



## 7. Loading and Unloading Module

( Model : LUM-01 )

### Feature

Loading and Unloading Module after user pick up workpiece, the assembly base and automatic return



### Learning Topics

- Ejecting Double Action Cylinder with Lead Sensor
- Rotary Cylinder with Lead Sensor
- Parallel Gripper with Lead Sensor
- Transfer Double Action Rod less Cylinder with Lead Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color

## 8. Conveyor Module

( Model : COM-01 )

### Feature

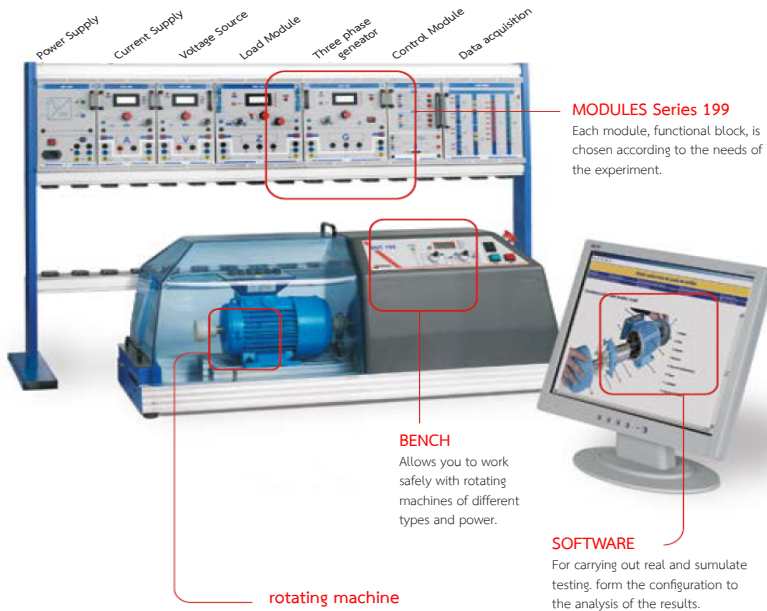
This is a conveyor system through on stations which the assembly base and workpiece circulate around the stations.

### Learning Topics

- 4 DC MOTOR
- 4 point Stopper
- Stopper Cylinder with Lead Sensor
- Optical Sensor detecting
- 2 Transfer Double Action Rod less Cylinder with Lead Sensor
- Double and Single Solenoid Valve
- Embedded Controller PLC IEC61131-3
- Ethernet and EtherCAT Interface
- HMI Monitouch 7inc Full Color



## Independent bench for testing rotating Electrical Machine



**MODULES Series 199**  
Each module, functional block, is chosen according to the needs of the experiment.

**BENCH**  
Allows you to work safely with rotating machines of different types and power.

**SOFTWARE**  
For carrying out real and simulate testing, from the configuration to the analysis of the results.

rotating machine

Power, speed and torque exerted on the shaft of the bench, signals available on the external connector can be seen at all times.

In the face of any malfunction on the bench (high or insufficient voltage, excessive torque applied, high speed, etc) the protection activated is indicated by the display.

The bench absorbs energy from the single phase power supply when operating as traction motor and returns power to the grid when operating as a brake.

### Classroom work



#### Manual

Testing with the modules and the bench. Fieldwork. Manual demonstrations.



#### Mixed

Combines the use computer to prepare exercises and sending the manual application, to the machine bench.



#### Simulation

Enables the entire work process to be carried out through the software. The library has the most significant test activities to achieve global learning.

### Configuration

Students in the class are kept active thus avoiding, as far as possible, waiting times. Classroom connectivity completes the work



#### Simple

non-networked, students work individually on their computers and run the test manually or from the teacher's computer.



#### In network

Having a local area network enables tests to be carried out from any computer and enables the DIANA monitoring options.



#### Internet

If Internet is added, the users who are not physically in the classroom, may access the test bench thus facilitating distance learning.

## A.C. / D.C. Electrical machines

The machines are designed to work under safety standards, and can work coupled with other machines or independently.

To prevent user access to moving parts, the machine has built-in protectors in both axis outputs.

The handling of the protectors is defined in the manual of each machine. They also incorporate a printed terminal block with safety terminals.



All electric machines are mounted on an aluminum bench with hooks at their ends so they can be quickly and easily fitted together without tools.



### Electrical machines without winding

The number of machines is available in 0.5 CV version without winding. Mechanical assemblies are provided (housing, rotor, bearings, etc ...) for the implementation and testing of electrical machines. They have the same power features, speed, etc. than machines.



### DESCRIPTION

- Single-phase motor winding Kit
- Three-phase motor winding Kit
- Three-phase motor winding Kit AL-306 / 0.5 CV.
- Three-phase synchronous machine kit for winding AL406 /0.5 C.V.
- Separately excited DC machine Kit AL506 /0.5 CV.
- Separately excited DC machine Kit AL-606/0.5CV
- Separately excited compound machine Kit AL1006 /0.5 C.V.
- Three-phase motor winding Kit AL1106 / 1 CV.
- Three phase synchronous training motor assembly AL-1106-D / 50Hz
- Three phase synchronous training motor assembly AL-1106-D / 60Hz



## Power electronics Training Module

### BRANCH OF BIPOLAR TRANSISTORS

These modules allow configuring of the powerblocks of any type of transistorised converter, each of them forming one of the branches of the converter. The number of modules to use depends on the type of circuit which will be implemented (two for DC/DC converters and three for DC/AC converters).



Each module includes two power transistors as well as base DRIVER circuits required for control purposes.

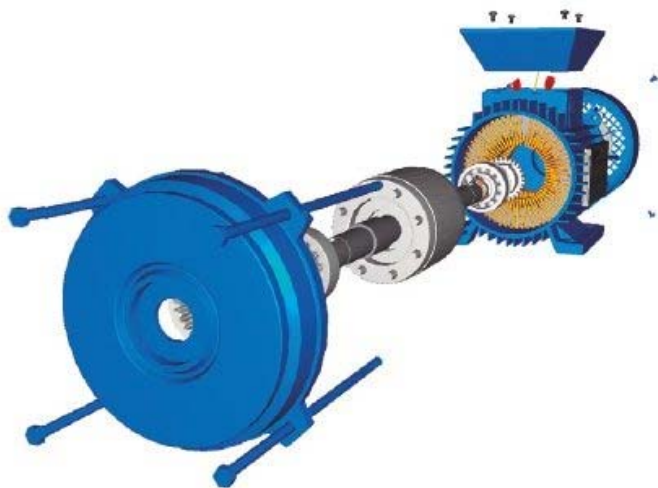
It includes a JACK-type connector where the control signals from the SEG-200 module are received. These signals are optocoupled allowing a complete separation of the circuits from the power circuits.

Inside the module, a logic processor has been integrated which is responsible for detecting any

error in the RAM operation. If an error occurs, the processor blocks automatically and remains inoperative. The factors why the protection system lock the operation of the module are:

- *Instantaneous intensity by transistors greater than 25 A with a longer duration than 4 msec.*
- *BUS voltage below 120 V.*
- *Network supply failure.*
- *Internal defects of circuit.*

## VIRTOOL VirMaq

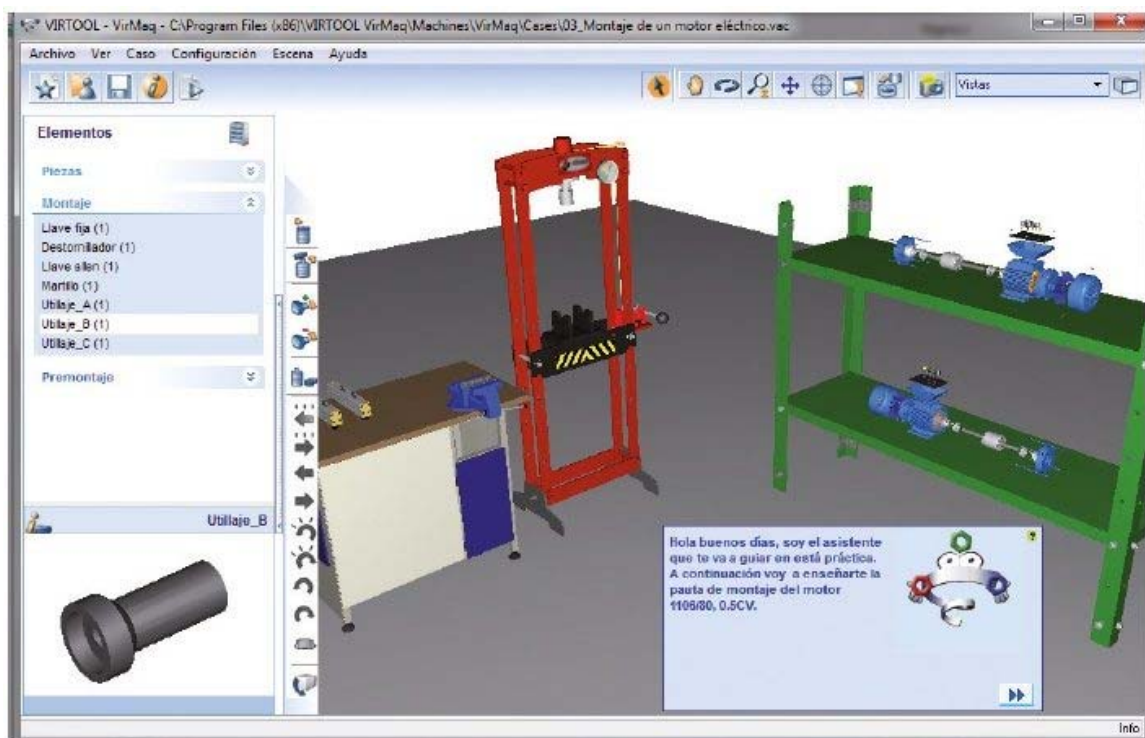


### Interactive 3D system for electric machine analysis and assembly

VIRTOOL VirMaq is a software application developed for users to identify the different parts of a three-phase asynchronous motor and assemble its entire structure.

**Interaction** The simulator enables the following:

- Component selection and identification
- Assembling and mounting the different machine parts
- Dismantling components
- Assembly, bolting or fixing of components with bolts, studs, washers, etc.
- Using hand tools or machines that function as in real life



## Automotive engineering

### WORKSHOP

Here, we create an educational structure around the world of the car industry in which we could find all the systems of a real vehicle (the EAU SERIE), as well as practising with real car components.



### electromechanics

Auxiliary mechanic equipment, frame, steering alignment system, balancing machines, dismantle tyres, etc.

### bodywork

Painting and drying cabins. Preparation areas, mounting support, meters, several tools, cleaning cabins, protection equipment.

### laboratory

Diagnosis instruments, tests bank, fumes extractor.

### CLASSROOM

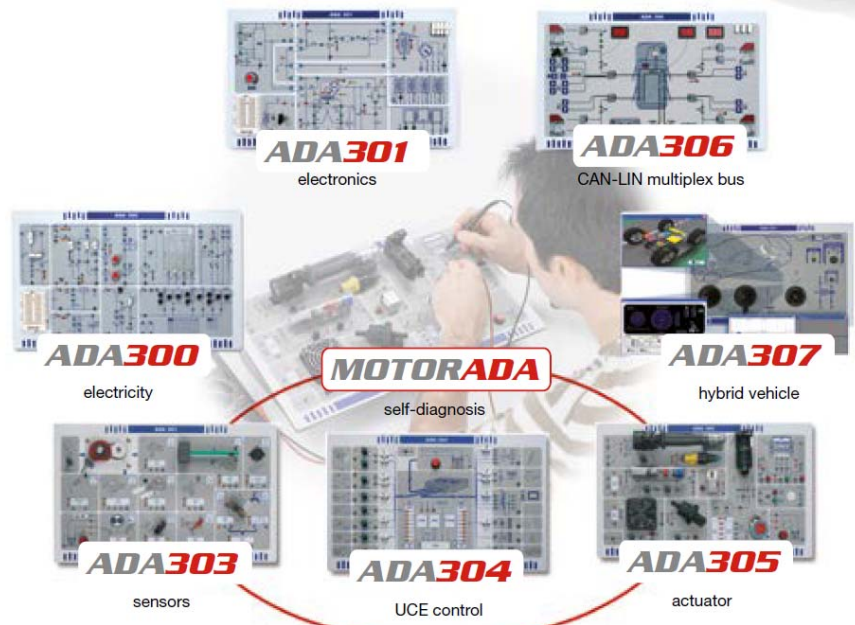
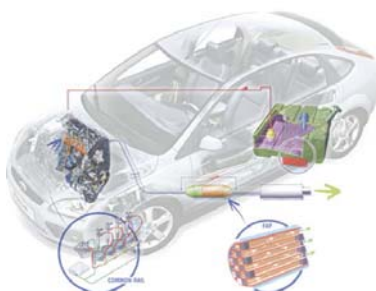
We introduce the elements that constitute a study classroom. Here, we will pass on basic concepts of electricity and electronics applied to the car. The student will exercise with equipments of the ADA SERIE.

### polyvalent classrooms

Furniture, spotlights, multimedia blackboard, cupboards, etc.

### workshops

Working benches, engines support, weldins equipment, several tools



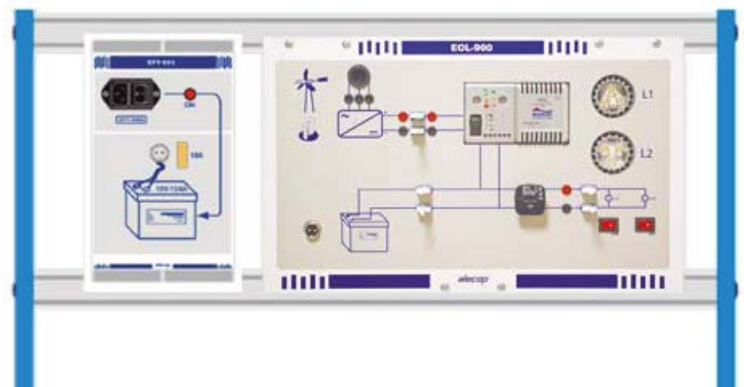
## Wind power training system

### Wind power training system

Simulates an autonomous wind power system with real and educational components



- Allows the analysis and study of the elements involved in the production, storage and transformation of wind power with wind simulation independent of the external climatic conditions.
- Activities can be performed using conventional instrumentation or virtual instrumentation on connection to the PC.
- Includes a data acquisition system and a LabView software application for measurement and control of the system from the PC.
- The software application its automatic setup features, make simple working with the different activities supplied with the equipment.



### Virtual instrumentation and control software

Virtual instrumentation software application developed in LabView, enabling monitoring and control the wind power system from the PC.

*The application includes the following functions:*

- **Activities**

The activities window helps the students to carry out the activities in the manual. When the student accesses a specific activity, the diagram of the activity is shown with its associated virtual instrumentation.

- **Measurements**

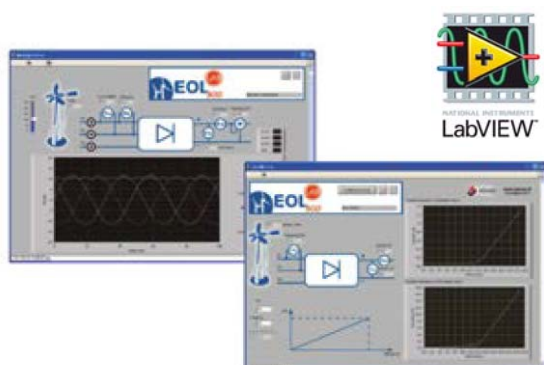
For measuring variables in the different components or points on the circuit. The variables are presented in numerical and graphic format.

- **Control**

For controlling the training device's internal relays via virtual buttons for opening and closing the different points on the circuit. For configuring the training panel from the PC.

- **Tests**

They include configuration functions for the signals to be received and testing times, results analysis functions, exporting data, printing and saving images, creating X-Y graphs, etc.



## Solar photovoltaic training devices

### Solar photovoltaic training devices

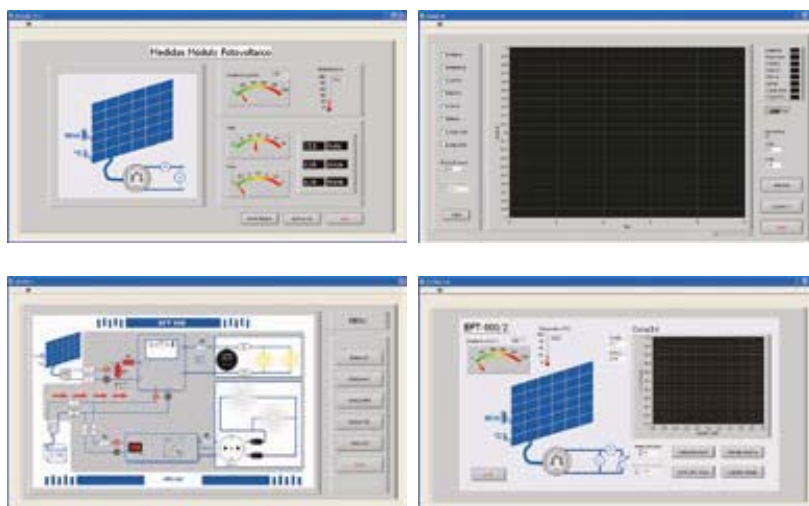
Simulates an autonomous photovoltaic system with real and educational components

This trainer implements a low Eproduction photovoltaic installation. Allows the analysis and study of the elements and components production, storage and transformation of energy. The system includes:

- A training panel with all the elements that take part in electric energy transformation process.
- Solar panel.
- Battery on training support and with battery charging circuit.
- LabView virtual instrumentation software application.
- Includes a data acquisition system for measuring solar radiance, temperature and electric variables (voltage, current and power) at the different points of the circuit from a PC.



### LabVIEW virtual instrumentation application



The photovoltaic training devices with virtual instrumentation include a data acquisition system and an application developed in LabView enabling monitoring of the photovoltaic system's main variables via PC and different types of testing to be performed, and control of the installation from the PC.

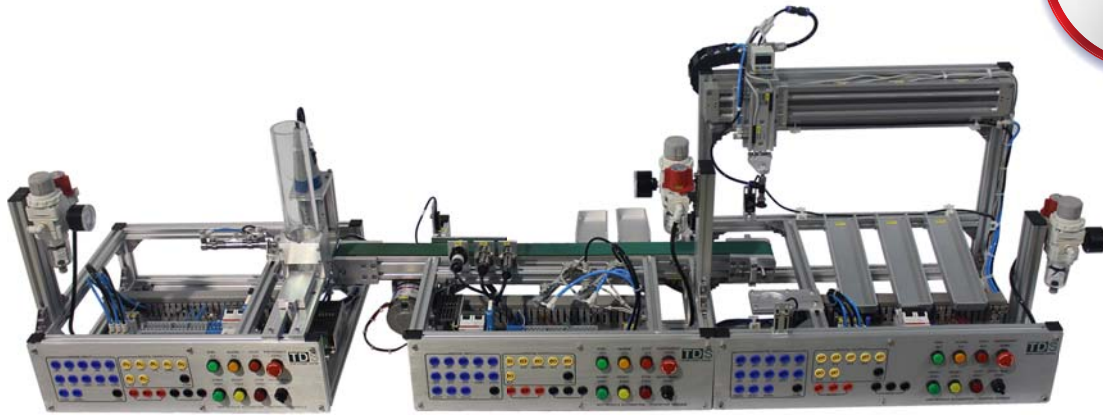
The application includes the following functions:

- "Activities" windows
- "Measurements" windows
- "Tests" windows
- "Control" window
- "Monitors" window

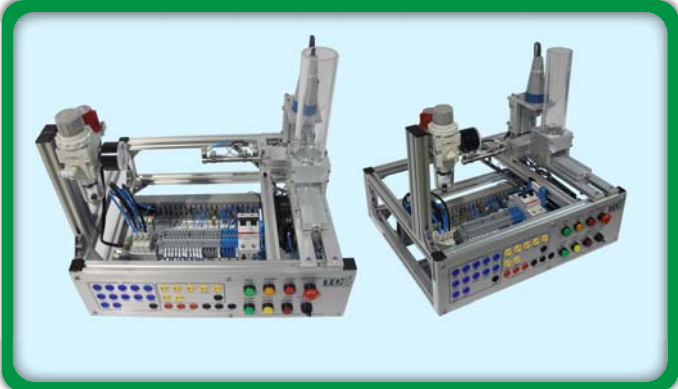


# DEMO KIT

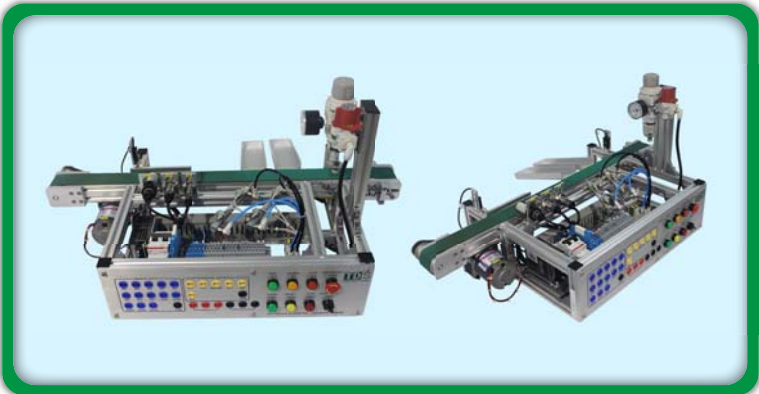
## Mini Module Automation Kit



### 3 Station



*Mini Distributing Module*



*Mini Conveyor Module*



*Mini Sorting Module*

## SCADA MOVICON SOFTWARE DEMO KIT

The Open and Flexible Movicon™ 11 Architecture is the Best Solution for SCADA/HMI with Applicability in All Automation Sectors



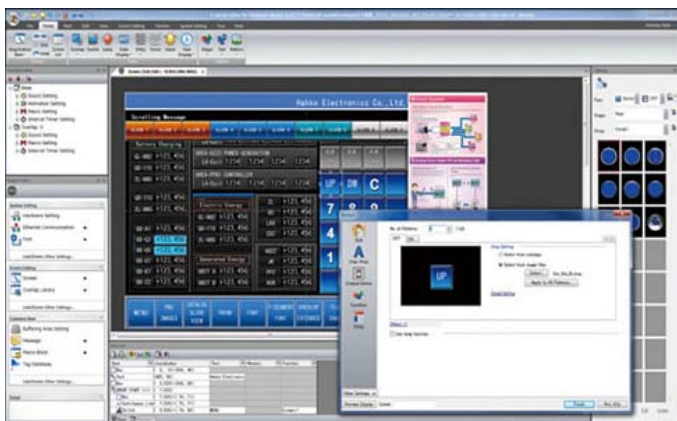
Movicon™ 11 technology embodies the excellence of SCADA/HMI platforms, with unrivalled transparency, simplicity and performances. As the Movicon™ 11 is one of a kind, completely based on XML standards and well established technologies such as Web Services, SVG graphics, OPC, SQL, ODBC, .Net as well as Java technology and APPs for Web Client solutions. Movicon™ 11 is a standard software for all those working in industrial automation, remote control, utilities and building automation. A truly universal Scada/HMI platform, independent from hardware, adaptable and deployable absolutely anywhere. Movicon™ offers an all-in-one platform that can be used at any level whether HMI operator panels and/or mobile devices based on WinCE, or personal computers in large industrial plant systems with client/server redundancy architecture and connectivity to any PLC, network and industrial or civil fieldbus. Your company's success depends on the openness and independence of your applications as well as the time and resources spend in developing them.



**Automotive • Manufacturing • Chemical Food & Beverage • Pharmaceutical  
Utilities & Energy • Oil & Gas • Water&Wastewater • Building Automation**

## MONITOUCH V-SFT SOFTWARE DEMO KIT

- Easy Screen Configuration
- Easy Utilization of Resource
- Simple Setting View
- Batch Change of Addresses/Text
- Authorization by Passwords
- Various "Component Part"



**Simple configuration of beautiful screens**

**V-SFT** *Ver.6*



Education



Automotive



Cement Industry



Energy



Blow Molding



Scada Design



Scada for Power plant



Automation Research & Design

