















**FIELDTECH**  
**AUTOMATION CO.,LTD**



DESIGN  
AND

ISO 9001 : 2015 MANUFACTURING

-  *Electrical & Electronics Fundamental*
-  *Electrical Installation*
-  *Refrigeration & Air Conditioning*
-  *Electrical Machine*
-  *Power Electronics & Drive Technology*
-  *Instrumentation & Control Technology*
-  *Pneumatic Technology*
-  *Hydraulic technology*
-  *Automotive Technology*
-  *Software Simulation*
-  *Machine*
-  *Lab Furniture With Power Supply*









Fieldtech Automation Co., Ltd. was founded in 1976 by 2539 experienced events team for more than 20 years, is a basic and advanced technology products used in industry and management. The company also sells accessories from abroad that are not sold in the country to sell and grow your business.

Because our company has been manufacturing quality products, which make domestic customers satisfaction is dramatically, allowing us to target the new product to export to foreign countries. Recently, our company has added furniture products for testing laboratories and laboratories, to meet the needs of our customers, especially for specific production equipment. Over the years, Fieldtech Automation Co., Ltd. can adapt and add a variety of sales and services to meet the changing needs at any time, with technicians and engineers in mecha-tronic engineering, electronics and other electronic and every one of our employees and strive to provide quality service and customer satisfaction, as a result, we are ISO 9001-standard products: 2015.

## PRODUCT

- Electrical & Electronics Technology
- Electrical Installation
- Refrigeration & Air Conditioning
- Electrical Machines
- Power Electronics & Drive
- Instrument & Control Technology
- Pneumatic Technology
- Hydraulic Technology
- Automotive
- Software
- Machine
- Operating Table



# Short Form catalogue

## Electrical & Electronic Fundamental

### ชุดทดลองวงจรไฟฟ้าและอิเล็กทรอนิกส์เบื้องต้น

#### ชุดทดลองวงจรไฟฟ้าเบื้องต้น (แบบ Grid)/ชุดทดลองวงจรอิเล็กทรอนิกส์เบื้องต้น (แบบ Plug In)

- ชุดฝึกวิชาวงจรไฟฟ้า ----- A.01
- ชุดฝึกวิชาวงจรอิเล็กทรอนิกส์ ----- A.01
- ชุดฝึกวิชาวงจรพัลส์และลอจิก ----- A.01
- ชุดฝึกวิชาวงจรอนาล็อก ----- A.01
- ชุดฝึกวิชาวงจรดิจิทัล ----- A.01
- ชุดฝึกวิชาวงจรอิเล็กทรอนิกส์อุตสาหกรรม ----- A.01

### ชุดทดลองไมโครคอนโทรลเลอร์

- ชุดกระเป๋าคอมพิวเตอร์ ----- A.02

## Electrical Installation

### Protective Measures

- ชุดสาธิตระบบป้องกันทางไฟฟ้า ----- B.01

### Lamp & Domestic

- ชุดฝึกวงจรไฟฟ้าแสงสว่าง (Lamp & domestic) ----- B.02

### Electrical Installation

- ชุดฝึกการติดตั้งไฟฟ้าในอาคาร ----- B.02

### Building Security

- ชุดสาธิตระบบเตือนภัยในอาคาร ----- B.03
- ชุดฝึกตู้สวิตช์บอร์ด ----- B.03

### Power Factor Correction

- ชุดทดลองการแก้ตัวประกอบกำลัง ----- B.03

### Substation & Distribution

- Substation and distribution Training ----- B.04

### Power System Protection

- ชุดทดลองระบบสายส่งไฟฟ้าและการป้องกัน ----- B.04

## Refrigeration & Air Conditioning

### Basic Refrigeration

- ชุดทดลองระบบทำความเย็น ----- C.01

### Basic Airconditioning

- ชุดฝึกระบบปรับอากาศแบบ Inverter ----- C.01
- ชุดฝึกปรับอากาศรถยนต์แบบใช้มอเตอร์ขับเคลื่อน ----- C.02
- ชุดฝึกปรับอากาศรถยนต์แบบใช้เครื่องยนต์ขับเคลื่อน ----- C.02

## Electrical Machines

### Transformer System

- ชุดสาธิตหม้อแปลงไฟฟ้า ----- D.01



# Short Form catalogue

## Electrical Machines

### DC Electrical Machine

- ชุดสาธิตเครื่องกลไฟฟ้ากระแสตรง ----- D.02

### AC Electrical Machine

- ชุดสาธิตเครื่องกลไฟฟ้ากระแสสลับ ----- D.02

### DC & AC Electrical Machine

- ชุดสาธิตเครื่องกลไฟฟ้ากระแสตรงกระแสสลับ ----- D.03

### Power Generator

- ชุดทดลองเครื่องกำเนิดไฟฟ้าและ AVR ----- D.03

### PV Simulator Power Supply ----- D.04

### Solar Energy

- ชุดทดลองระบบโซลาร์เซลล์ ----- D.04

### Renewable Power Generator

- ชุดทดลองระบบกังหันลม ----- D.05
- ชุดทดลองเครื่องกำเนิดไฟฟ้าพลังงานทดแทน ----- D.05

## Power Electronics & Drive

### Static Converter

- ชุดสาธิตเพาเวอร์อิเล็กทรอนิกส์ ----- E.01

### Drive Technology

- ชุดสาธิตควบคุมความเร็วด้วยอินเวอร์เตอร์ ----- E.02

### Servo Drive Control

- ชุดสาธิตเซอร์โวและสเตปเปอร์มอเตอร์ ----- E.03
- ชุดทดลองการขับเคลื่อนด้วยเซอร์โวมอเตอร์ ----- E.03
- ชุดทดลองการขับเคลื่อนด้วยเซอร์โวมอเตอร์ขั้นสูง ----- E.03

### Stepper Drive Control

- ชุดทดลองการขับเคลื่อนด้วยสเตปเปอร์มอเตอร์ ----- E.04
- ชุดทดลองการขับเคลื่อนด้วยสเตปเปอร์มอเตอร์ขั้นสูง ----- E.04

## Instrumentation & Control Technology

### Demonstration Instrumentation

- ชุดสาธิตเครื่องวัดค่าทางไฟฟ้า ----- F.01

### Sensor & Transducer

- ชุดสาธิตเซนเซอร์และทรานสดิวเซอร์ ----- F.02

### Sequential Control

- ชุดทดลองการควบคุมเครื่องกลไฟฟ้าด้วย Magnetic ----- F.02-F.03
- ชุดฝึกมอเตอร์ 3 เฟส ----- F.03

### Programmable Logic Control

- ชุดสาธิตพีแอลซี (PLC) พร้อมแผงจำลองสถานการณ์ ----- F.04
- ชุดฝึกพีแอลซี (Siemens) ----- F.04
- ชุดฝึกพีแอลซีพร้อมจอสัมผัส (Siemens) ----- F.04



# Short Form catalogue

## Instrumentation & Control Technology

### Programmable Logic Control

- ชุดฝึกพีแอลซี (Misubishi) -----	F.05
- ชุดฝึกพีแอลซีพร้อมจอสัมผัส (Misubishi) -----	F.05
- ชุดฝึกพีแอลซี (Omron) -----	F.05
- ชุดฝึกพีแอลซีพร้อมจอสัมผัส (Omron) -----	F.06
- ชุดฝึกพีแอลซี (Delta) -----	F.06
- ชุดฝึกพีแอลซีพร้อมจอสัมผัส (Delta) -----	F.06
- ชุดจำลองสถานการณ์ 4 แบบ -----	F.07
- ชุดจำลองสถานการณ์ 5 แบบ -----	F.07
- ชุดจำลองสถานการณ์ 6 แบบ -----	F.07
- ชุดจำลองฝึกควบคุมด้วย PLC Basic And Advance -----	F.08
- ชุดฝึกพีแอลซี -----	F.08

### Control Technology

- ชุดลองควบคุมแบบ Inverter -----	F.09
- ชุดลองควบคุมแบบ MOTION -----	F.09
- PLC และระบบควบคุมเซอร์โวดрайฟ์ด้วย Profinet -----	F.09

### Robot

- Rotrics (Hexbot) -----	F.10
- Collaborative Robotic Arm (Z-Arm) -----	F.10
- Delta Robot Kit -----	F.10
- Ufactory xArm 6 Robotic Arm-----	F.11
- ชุดฝึกเรียนรู้ AI หุ่นยนต์ให้บริการเคลื่อนที่ -----	F.11
- ชุดเรียนรู้ AI หุ่นยนต์อัจฉริยะคล้ายมนุษย์ -----	F.11

### Multi Control System (MCS)

- ชุดเรียนรู้ IOT (Industries IOT) กระบวนการตรวจสอบด้วยกล้องวิชั่น -----	F.12
- ชุด Mechatronics Concepts Station -----	F.13
- WMS (ชุดทดลองระบบจัดเก็บอัตโนมัติขับเคลื่อนด้วย Step Servo) -----	F.13
- ชุดฝึกจัดเก็บและนำจ่ายแบบขั้นวาง 2 คลัง 32 ตำแหน่ง (MPS) -----	F.14
- ชุดทดลองบันไดเลื่อน -----	F.14
- ชุดสาธิตระบบลิฟท์ -----	F.14
- ชุดจำลองการขับเคลื่อนในงานอัตโนมัติ 3 สถานี-----	F.15
- ชุดจำลองการขับเคลื่อนในงานอุตสาหกรรม 4 สถานี (ขนถ่าย) -----	F.15
- ชุดจำลองการขับเคลื่อนในงานอุตสาหกรรม -----	F.16
- ชุดฝึกจำลองระบบบริหารจัดการคลังสินค้าในระบบอัตโนมัติ -----	F.16
- ชุดฝึกจำลองระบบอัตโนมัติในงานอุตสาหกรรมเชื่อมต่อ IOT -----	F.17
- ชุดปฏิบัติการควบคุมระบบอัตโนมัติในงานอุตสาหกรรมผ่านระบบ IOT (FMS) -----	F.18

### Logistics System Simulator ----- F.19

ชุดฝึกควบคุมการทำงานด้วยโปรแกรมเมเบิลลอจิกคอนโทรลเลอร์ผ่านระบบ Internet-----	F.20
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IOT System -----	F.21
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# Short Form catalogue

## Instrumentation & Control Technology

### Process Control

- ชุดฝึกควบคุมกระบวนการความดัน ----- F.22
- ชุดฝึกควบคุมกระบวนการความร้อน ----- F.22
- ชุดฝึกควบคุมกระบวนการวัดอัตราการไหลและระดับ ----- F.23
- ชุดทดลอง Monitoring & SCADA Control ----- F.23

## Pneumatic Technology

### Pneumatic Training Set

- ชุดฝึกระบบนิวแมติกส์เบื้องต้น ----- G.01
- ชุดฝึกระบบนิวแมติกส์ไฟฟ้า ----- G.01
- ชุดฝึกระบบนิวแมติกส์เบื้องต้น (แบบกระเป๋) ----- G.02
- ชุดฝึกระบบนิวแมติกส์ไฟฟ้า (แบบกระเป๋) ----- G.02
- ชุดฝึกระบบนิวแมติกส์ขั้นสูง ----- G.02

## Hydraulic Technology

### Hydraulic Training Set

- ชุดฝึกระบบไฮดรอลิกส์เบื้องต้น ----- H.01
- ชุดฝึกระบบไฮดรอลิกส์ไฟฟ้า ----- H.01
- ชุดฝึกระบบไฮดรอลิกส์ขั้นสูง ----- H.02

## Automotive

### Vehicle Electrical System

- ชุดฝึกระบบไฟฟ้ารถจักรยานยนต์ ----- I.01
- ชุดฝึกระบบส่องสว่างรถยนต์ ----- I.01

### Ignition System

- ชุดฝึกระบบอิเล็กทรอนิกส์ไฟฟ้า EFI ----- I.02
- ชุดฝึกระบบอิเล็กทรอนิกส์ไฟฟ้า VVIT ----- I.02
- ชุดฝึกระบบจุดระเบิดรถยนต์ 3 Type ----- I.02
- ชุดทดลองระบบคอมมอดอเรล ----- I.03

### Brake-Automatic Transmission

- ชุดทดลองระบบเบรก ABS ----- I.03

### Automotive Training Kit

- ชุดฝึกรถยนต์ไฟฟ้า แบบรถจริง ----- I.04
- รถยนต์กระบะบรรทุก ----- I.04
- ชุดฝึกปฏิบัติการรถยนต์ไฟฟ้าแบบสถานี ----- I.05
- ชุดประลองและทดสอบวงจรรถยนต์ไฟฟ้าเบื้องต้นแบบแผงฝึก ----- I.06
- ชุดประลองและทดสอบวงจรรถยนต์ไฟฟ้าพร้อมระบบขับเคลื่อนจริง ----- I.06



# Short Form catalogue

## Automotive

- ชุดฝึกปฏิบัติการมอเตอร์ไซค์ไฟฟ้า ----- I.01
- ชุดทดสอบ ถอดประกอบ วงจรมอเตอร์ไซค์ไฟฟ้า พร้อมระบบขับเคลื่อนจริง----- I.01

## Software

### Software

- Automgen8 Automation Software ----- J.01-J2
- Virtual Universe Pro Software ----- J.03
- Factory I/O Software ----- J.04

## Machine

- Metal Working Machinery -----K.01-K.02

## Lab Furniture With Power Supply

- โต๊ะทดลอง ----- L.01
- โต๊ะปฏิบัติการ ----- L.01
- โต๊ะปฏิบัติการพร้อมโครงติดตั้งแผงทดลอง ----- L.01
- โต๊ะปฏิบัติการทางไฟฟ้า ----- L.02
- โต๊ะปฏิบัติการระบบนิวแมติกส์และไฮดรอลิกส์ ----- L.03

### Accessories

- โครงติดตั้งแผงทดลอง ( 2 หรือ 3 ชั้น) ----- L.04
- ตู้เก็บอุปกรณ์ ----- L.04
- สายไฟสำหรับต่อวงจรในระบบไฟฟ้า ----- L.04



# Electrical & Electronic Fundamental

## Electrical & Electronic Fundamental

BRAND : FIELDTECH

MODEL : F100

### General details

- It is a set of educational materials for learning about Electrical Electronic Fundamental.
- In finding variables, proving, analyzing and comparing experiments to the theory that has been studied.
- Consists of training circuits for direct current, switching circuits, basic knowledge of electrical circuits. electronics industrial electronics Pulse circuits, Op-Amp circuits, Digital circuits, etc.

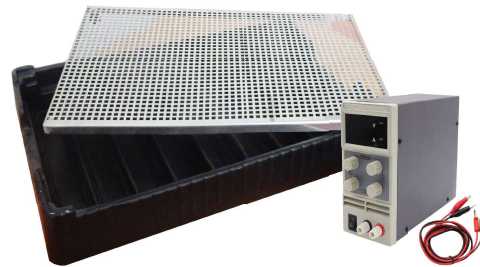
## Basic Electrical Circuit Training Set (Grid Type)

### Experimental subject

### P/N

- Electric Circuit
- Electronics Circuit
- Pulse and Logic Circuit
- Analog Circuit
- Digital Circuit
- Industrial Electronic Circuit

F32110  
F32120  
F32130  
F32140  
F32150  
F32160



### Experimental Equipment



### Plastic Storage



### Equipment Fixing Grid



### Bridging Plug & Connecting Leads



## Basic Electronics Circuit Training Set (Plug In Type)



### General details

- There is also a panel for installing a voltage source and a plug-in circuit connector. Insulating material 5 mm thick, laminated on both sides homogeneously with the material. Smooth surface, non-reflective, light gray color
- The connection point is a Plug-In Socket with a diameter of 4 mm.
- The box is made of good quality gray injection molded plastic, etc.

### Experimental Equipment



### Bridging Plug & Connecting Leads

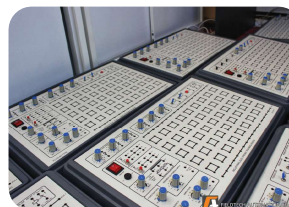


### Experimental subject

### P/N

- Electric Circuit
- Electronics Circuit
- Pulse and Logic Circuit
- Analog Circuit
- Digital Circuit
- Industrial Electronic Circuit

F33110  
F33120  
F33130  
F33140  
F33150  
F33160





# Electrical Machines

## Microcontroller Training Kit

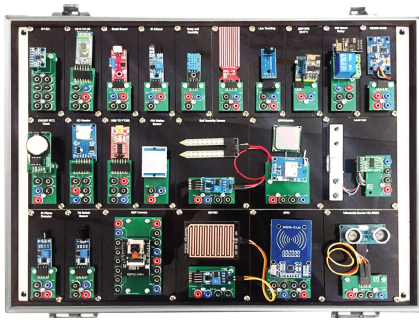
BRAND : FIELDTECH

MODEL : F30801

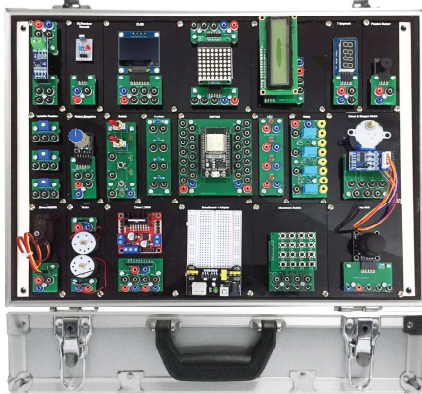
### General details

Innovation teaching and learning practice set Coding STEM IoT Technology is a practice set to understand the basics. Microcontroller structure and architecture Including applications in designing, coding, writing instructions or computer programs in code form. to develop invention that integrates or integrates both (STEM) Science, Technology, Engineering and Mathematics knowledge and design to work in the IOT network or send information to each other with the Internet

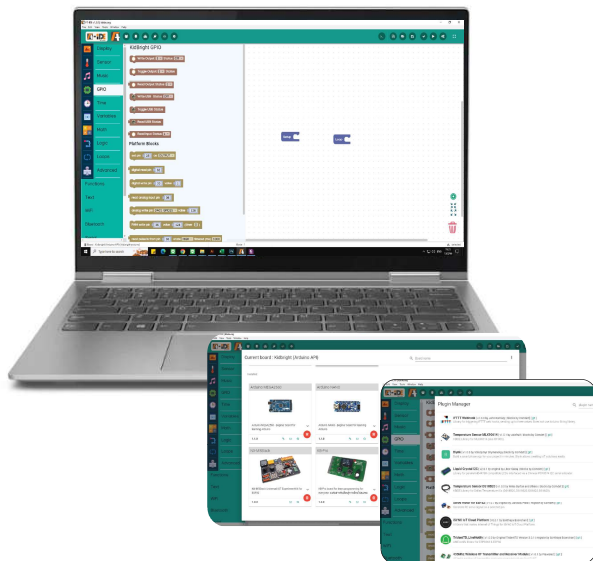
Top cover



Bottom cover



### FT-IDE SOFTWARE



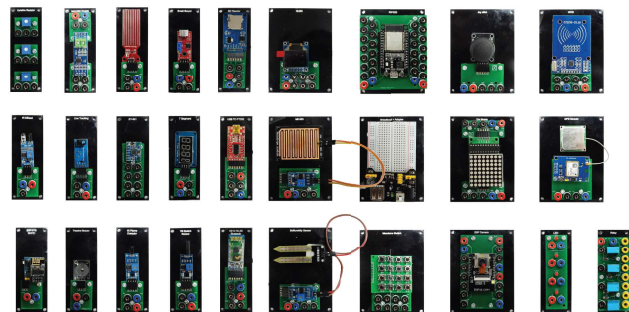
### Technical details

Microcontroller Training Bag Set Size not less than 32x42x18 cm. The internal components are made of aluminum, padded with black foam and laminated with a thickness of not less than 5 mm. On the front are grooved letters and symbols for installing training equipment inside the bag. to make it easy to carry The details are as follows:

#### Contains the following test boards:

- Board MAX485 RS485, Board IR Receiver Remote
- Board OLED Display, Board LED Dot Matrix, Board LCD 1602 Module, Board 7 Segment
- Board Passive Buzzer Module
- Board Variable Resistor, Board Rotary Encoders, Board Switch, Board Resistor
- Board MCU ESP32S, Board Driver & Stepper Motor, Board Breadboard + Adapter
- Board Servo Motor, Board DC Motor, Board Motor Driver Module
- Board Membrane Switch, Board Joy Stick
- Board Gyro Module, Board Bluetooth Module, Board Small Sound Sensor
- Board IR Infrared Sensor, Board Water Level, Board Line Tracking Sensor
- Board Smart Temperature & Humidity Sensor, Board Temp & Humidity Sensor, Board WiFi Smart Relay Module, Board RS485 SH20
- Board Real Time Clock Module, Board SD Card Module, Board Adapter Module USB To FT232
- Board PIR Motion Sensor, Board Soil Humidity Sensor, Board GPS Module
- Board Load Cell Weight Sensor
- Board IR Flame Detector Module, Board Tilt Switch Sensor Module
- Board ESP Camera Module, Board Raindrop Sensor Module, Board RFID Module
- Board Ultrasonic Sensor etc.

### Test board





# Electrical Installation

## Protective Measures

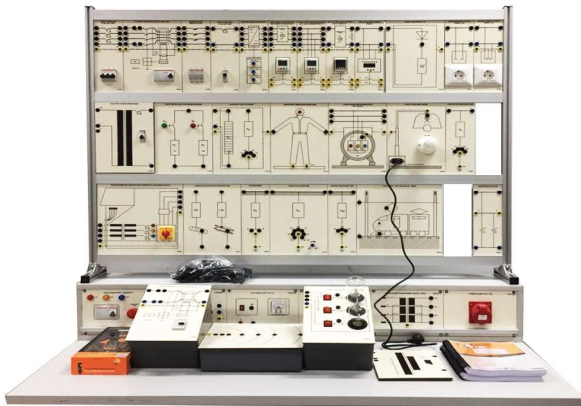
**BRAND : FIELDTECH**

**MODEL : F210**

### General details

- It is a training package for leakage current protection in low voltage systems.
- The characteristics of the training set are Panel, Module and Compact.
- Panels are made of insulating materials. Both sides are homogeneously coated with a smooth, non-reflective material.
- The front of the demonstration panel is clearly marked with device symbols. able to withstand trials very well
- Socket is Safety 2 class type according to DIN.
- All equipment of the demonstration set can be assembled properly. Error with automatic cut-off unit

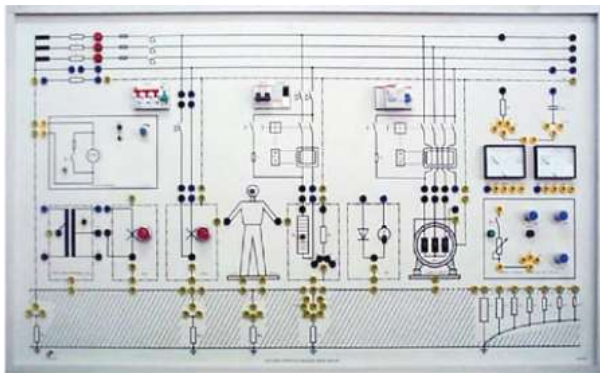
### P/N F10210 (Electrical Protection Measur Training Set)



### The panel consists of the following parts:

- **Transformer and service line connection**  
It is a simulation that shows power from a voltage transformer to a low voltage through a fuse protected system and a circuit breaker. The impedance of RL and RN transmission lines is simulated and the signal lamps are shown.
- **Single phase transformer 220 V/ 42 - 220Vac**  
It is a single-phase voltage supply by simulating the voltage change from the transformer in the low voltage system in residential houses.
- **Secondary side to see How to prevent danger from electric current by using a separate winding transformer**
- **Load three phase motor simulator**  
It is a simulation of a 3-phase motor by using an LED to indicate when there is a leakage current at the motor frame etc.

### P/N F36210 (Electrical Protection Measur Training Set)



### The compact consists of the following parts:

- **Transformer and service line connection**  
It is a simulation that shows power from a voltage transformer to a low voltage through a fuse protected system and a circuit breaker. The impedance of RL and RN transmission lines is simulated and the signal lamps are shown.
- **Single phase transformer 220 V/ 42 - 220Vac**  
It is a single-phase voltage supply by simulating the voltage change from the transformer in the low voltage system in residential houses.
- **Secondary side to see How to prevent danger from electric current by using a separate winding transformer**
- **Load three phase motor simulator**  
It is a simulation of a 3-phase motor by using an LED to indicate when there is a leakage current at the motor frame etc.

### Experimental subject

- Basic information
  - Electrical system, types of faults, meaning of parameters
  - Technical details of the circuit board
- Danger of touching electrical wires.
- Danger of touching electrically conductive enclosures.
- Hazardous protection with extra low voltage.
- Overcurrent protection in the electrical system by using a circuit breaker.
- Use of FI Circuit Breaker (ELCB) to protect from leakage current.
- Protective Earthing, etc.





# Electrical Installation

## Lamp & Domestic

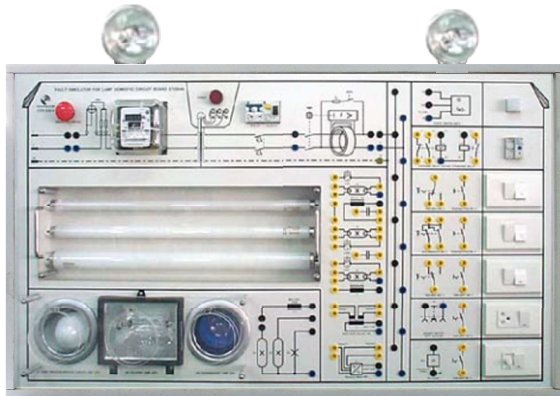
**BRAND : FIELDTECH**

**MODEL : F220**

### General details

It is a training set for finding faults and fixing in at least 10 different types of lighting circuits. The electric bulbs are products that meet European, American or Japanese standards. There is a protection system for danger from misuse. Trial installation on a compact system operating table

**P/N F36220 (Light Circuit Training Set)**



The compact consists of the following parts:

- 18 watt fluorescent lamp circuit
- 500 watt iodine lamp circuit
- 160 watt direct connection moonlight circuit
- 125 watt ballast fluorescent lamp circuit
- Light dimmer circuit for incandescent lamp
- Photo switch circuit
- kilowatt hour meter 1 phase 220V
- stair switch circuit
- Automatic cut-off circuit when a short circuit or current leakage occurs
- cross switch circuit
- Impulse switch control circuit, etc.

## Electrical Installation

**BRAND : FIELDTECH**

**MODEL : F230**

### General details

It is a training set created for education, especially the materials used in the training set and various measuring tools. The training equipment must be of standard quality and the training equipment must have a protection system for error experiments that may harm the training equipment and students. can be assembled with the training set appropriately



Experimental equipment



**S/N F20230 (Electrical Installation Training Kit)**

**Electrical Installation Training Kit (Floating) S/N F20231**

Floating mounting accessories include:

- 1 Pole 1 Way SPST Switch, 1 Pole 1 Way SPDT Switch
- Switch 2 SPST 1 pole 1 way double type
- Push button switch
- DPDT switch, 2 pole, 2 way, etc.

**Electrical Installation Training Kit (Embedded) S/N F20232**

- Earth leakage circuit breaker 2 pole 25 A IF 30 mA
- Circuit breaker 1 pole 6A or 10A
- 1 pole 1 way switch, 1 pole 2 way switch
- Double type 1-pole 1-way switch, 2-pole 2-way switch
- Push button switch
- Dimmer switch
- Current pulse switches, etc.

**Electrical Installation Training Kit (Power Type) S/N F20233**

- Timer relay
- Auto fuse
- Switch type Push button 22 mm.
- Toggle switch 250V 15 A
- Pilot lamp 22 mm.
- Limit switches, etc.



# Electrical Installation

## Building Security

**BRAND : FIELDTECH**

**MODEL : F240**

### General details

It is a experimental kit that can learn the operation of each type of alarm system and can practice on topics such as the function of doorbells, buzzer alarms, door openers, sirens, electromechanical, smoke detector devices, gas detector, temperature detector Also learn how to connect the circuits in the control system to the detectors in the alarm system.

S/N F10240 (Building Alarm Training Set)



### The panel consists of the following parts:

- Push Button Emergency Switch has a rating of 220 VAC 5 A.
- Bell Push Button Switch is rated 220 VAC 10 A.
- Incandescent Lamp Signal Lamp
- Alarm Bell Size 12 VDC
- 1 Pole Miniature Circuit Breaker
- 3 Pole Miniature Circuit Breaker
- Earth Leakage Circuit Breaker 2 Pole
- Ionization Smoke Detector 12 VDC
- Photo Electronic Smoke Detector 12 VDC
- Fire Alarm Controller
- Table and Frame 2 level etc.

S/N F39240 (Switch Broad Control Training Kit)



### General details

is a switchboard built for education Training on equipment installation and wiring easily inside the cabinet Assembly equipment or tools are the standard of the unit reliable work.

### Technical details

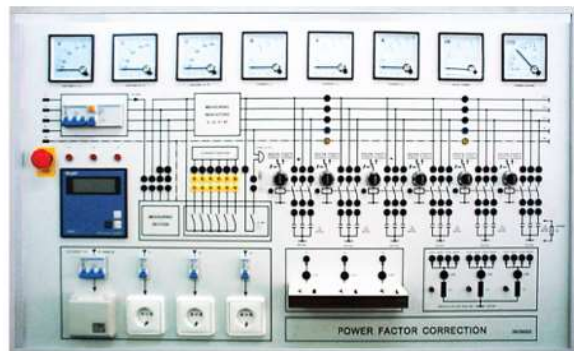
- switchboard
- equipment or assembly
  - The circuit breaker is a molded case with coil tripping.
  - bimetal sheet used with 3P 380 V 50 Hz, size 15 AT, 50 AF and size 50 AT, 50 AF 2.3 meters and measuring instru

## Power Factor Correction

**BRAND : FIELDTECH**

**MODEL : F250**

S/N F36250 (power factor correction training set)



### General details

- Power factor correction controller
- Pointer type power factor meter
- Pointer type wattmeter
- Ammeter
- Volt meter
- Load pack, etc.
  - It is an inductive type load, can be used in both single-phase and 3-phase balanced load
  - The magnitude or rating of the load can affect the power factor of the system. can have an INDUCTIVE POWER FACTOR ranging from 0.7 to 0.8 at least 3 levels
  - Protection kit as CIRCUIT BREAKER or as AMPERE TRIP in relation to the size of the load



# Electrical Installation

## Substation & Distribution

**BRAND : FIELDTECH**

**MODEL : F280**

### General details

Demonstration of simulation of power station control equipment and power distribution system. The demo kit designed specifically for educational use includes: electrical demonstration kit Strength related equipment and installations durable and safe

S/N F39280 (Substation And Distribution Training Set)



### Technical details

- Indoor medium voltage electrical switchboard enclosure rated at least 3.3 kV 25 kVA
  - 3-phase electrical system
  - Voltmeter AC 110 V/3.3 KV, Ammeter AC 10A
  - Voltmeter Selector Switch, Ammeter Selector Switch
  - Phase display lamp (Pilot lamp)
  - Free Gwenzimeter
- A simulated connection cable for the input and output of the transformer.
- 3-phase power transformer with an input voltage of 3.3 kV.
- Low-voltage side switchboard cabinet
  - Output electrical system: 3 phases, 4 wires, voltage 380/220 V, 25 kVA 50 Hz, with breakers, 3 phases, 400 V, 60 A, 10 kA, controlling the power supply short circuit protection
  - AC Voltmeter, AC Ammeter, Voltmeter Selector Switch, Ammeter selector switch, pilot lamp
- Personal equipment for use in electrical system maintenance.
  - high voltage protective rubber gloves
  - high voltage protective shoes
  - Helmet, safety goggles
- Digital Insulation Tester

## Power System Protection

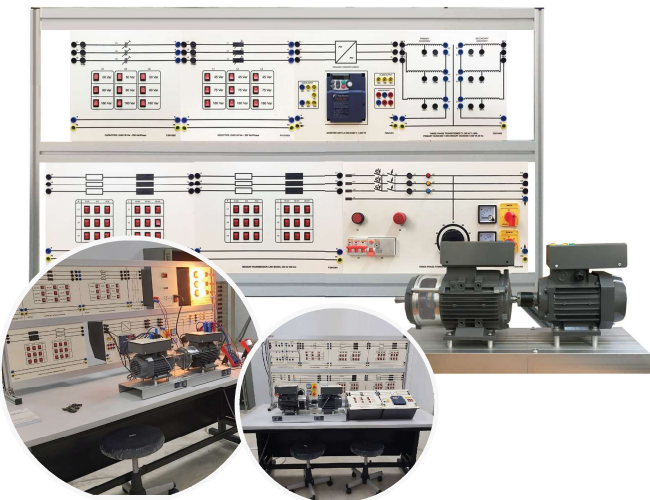
**BRAND : FIELDTECH**

**MODEL : F290**

### General details

It is a series of experiments designed for teaching and learning topics. about high voltage power transmission systems It is designed as a Line Model simulation system using real parameters in the design and voltage ratio adjustment to suit the experimental voltage level of 220V / 380V 50Hz. The transmission line can be used in short, medium and long distances. RLC loader with a sufficient and well-sized toolkit for experimentation.

S/N F10290 (Transmission Line and Protection Training Set)



### Technical details

- It is an experimental set designed for teaching and learning on the topic of transmission Distribution of electrical power systems with high-voltage transmission lines, with details covered covered in Power Generation and Distribution topic
- The experimental set was designed in the form of a line model simulation system by use actual parameters to design and optimize the pressure ratio with the voltage level used in the experiment is 220V/380V 50Hz
- Designed according to the standard voltage level 500kV, 230kV and 115kV.
- Be able to conduct experiments to study Generator features synchronous reverse current in a power system, the relation ship between voltage and currents of short, medium and long-term transmission systems control of the transmission of electricity to the destination load
- There are various experimental equipment such as Feed transformers in the transmission line system, a transmission line model that can be connected in short and medium distances and long-term synchronous alternator set R-L-C loader sets, etc.



# Refrigeration & Air Conditioning

## Basic Refrigeration

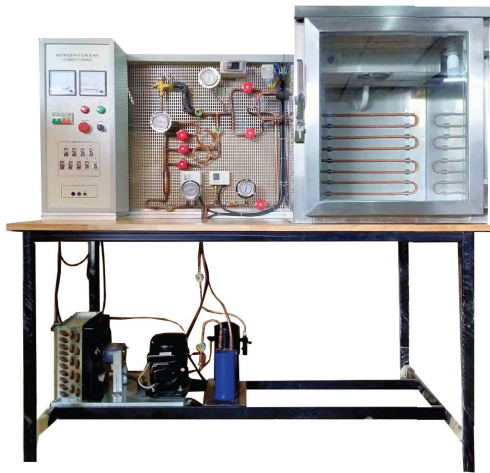
**BRAND : FIELDTECH**

**MODEL : F310**

### General details

It is a training package that demonstrates the working principles of refrigeration systems. by various devices Assembled as a set to install on the same table. Some equipment that can be mounted on the trainer can be assembled without problems. There is a system to prevent errors in training or experimentation.

S/N F39310 Rrefrigeration Training Set



### Technical details

- Refrigerant pressure control equipment consists of
  - Cap Tube has different sizes.
  - Thermostatic Expansion Valve
- Mechanical accessories consist of
  - High Pressure Control, Low Pressure Control
  - High Pressure Gauge, Low Pressure Gauge
  - Sight Glass
  - Accumulator
  - Dial thermometers, etc.
- Equipment used to install in the electrical circuit consists of
  - AC Voltmeter measuring range 0 – 300 V
  - AC Ammeter measuring range 0 – 10 A
  - MCB. 2 Pole 16A
  - E.L.C.B 2 Pole 25 A; 30 mA
  - Pilot lamp 22 mm., Emergency switch
  - Door switch & Lamp etc.

## Basic Airconditioning

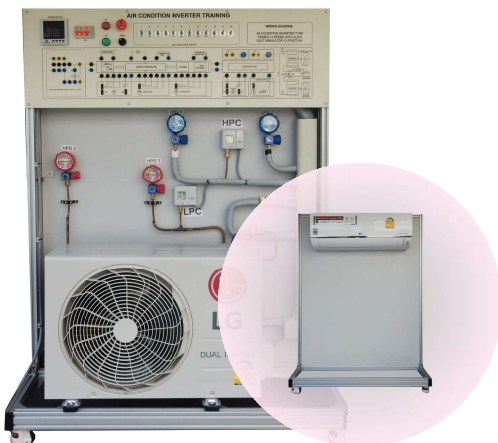
**BRAND : FIELDTECH**

**MODEL : F340**

### General details

It is a laboratory used for teaching and learning. And work in refrigeration subjects and air conditioning subjects and subjects in air conditioning, vocational level, vocational level, that can show work in different parts of refrigeration and air conditioning systems such as Compressor, Evaporator, Condenser, Oil Separator, Receiver Tank, Drier, Sight glass, Accumulayor, Pressure-Control, Temperature Control, Electric Control, etc.

S/N F39340 Air Conditioner training Set (INVERTER)



### Technical details

- Electrical circuit boards must be equipped with the following devices:
  - Power meter displayed in numbers V, A, W
  - Power meter shows frequency (Hz)
  - MCB.2 Pole 20 A
  - E.L.C.B 2 Pole 25A ; 30mA
  - Pilot Lamp 22 mm.
  - Emergency switch
  - Safety socket output Voltage 220V-L/N/PE
  - Safety socket with Control box symbol
  - Safety socket with Compressor symbol
  - Safety socket with Fan motor symbol
  - Safety socket with Blower motor symbol
- Condensing Unit
- Fan coil Unit is a wall type.
- Equipment used for installation in mechanical systems, etc.



# Refrigeration & Air Conditioning

## General details

It is a training package for testing basic cooling system operation. Using R-134a refrigerant to operate with key switch The compressor can be driven by a motor or engine. Study the operation of the equipment in the ready-to-assemble refrigeration system. installed on the same table Some of the equipment is mounted on the training board, there is protection against training or experimental errors. This will be dangerous for the trainer and trainer. All equipment is mounted in a real wheel housing. Easy to move

S/N F38341 (Car Air Conditioning Training Set) (Motor)



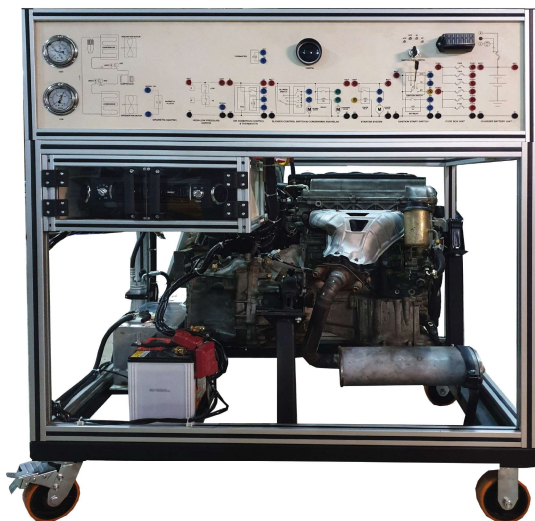
## Technical details

- Electric motor for driving the compressor, not less than 3 HP. AC. 220 V. 50 Hz with motor speed control device
- Rotary compressor. with belt and belt protection cover
- Cooling condenser panel with cooling fan
- Dirt and moisture filter device.
- Cooling air quality control unit consists of
  - Evaporator set
  - thermostat set electronic control
  - Cooling fan set
  - Refrigerant mist control valve set
- Refrigerant pipes beautifully installed
- Circuit board for installation of automobile air conditioning system control equipment. made of hard material The surface is smooth, does not reflect light, is an electrical insulator, prepares the circuit with a good screening method along with the name of the device and the symbol polarity are as follows:
  - Circuit protection fuses
  - key switch control circuit
  - motor speed control unit with a display showing the working cycle
  - Circuit control relay set
  - A set of lamps to show the operation of the system.
  - Control units for the operation of equipment in automotive air conditioning systems, etc.

S/N F38349 (Car Air Conditioning Training Set)(Engine)

## General details

It is a training set for education. air conditioning in passenger cars It uses R-134a refrigerant with an engine driving the compressor. There is a evaporator set consisting of a mechanical circuit that is safe for users. Various devices are installed with a strong steel frame, equipped with a swivel wheel base, easy to move.



## Technical details

- Swap plate or rotary compressors use R-134a refrigerant.
- Condenser is air cooled.
- There is an electric fan to cool the condenser.
- Evaporator is a hanging cabinet type or a built-in cabinet type in the front with 4 air ducts distributed to 4 air vents, which are installed in suitable positions.
- Receiver Dryer
- Refrigerant pipes
  - The inner tube is Teflon type. Used for R-134a refrigerant. especially
  - Aluminum pipe is a thick type.
- Gasoline engine Not less than 1,400 cc, 4-cylinder with radiator cooling (new radiator)
- There is an automatic engine acceleration system. when the compressor is working
- The battery has a capacity of not less than 70 amps/hours.
- There is a switch to control the operation of the engine or motor.
- An electric circuit that charges the battery to supply the air conditioning system.
- Fuel tank size not less than 15 liters



# Electrical Machines

## Transformer System

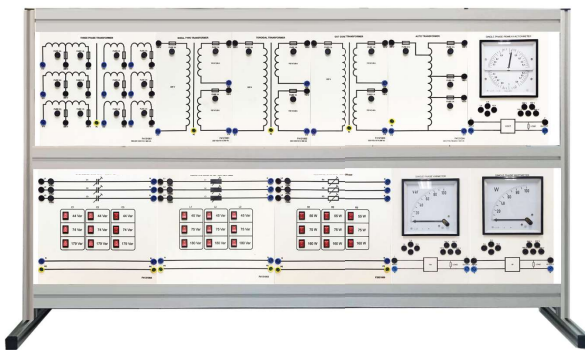
**BRAND : FIELDTECH**

**MODEL : F410**

### General details

It is a set created specifically for studying transformers. It can be used with no less than 10 worksheets. There is a manual for trial worksheets. The experimentally shielded power supply, package and transformer are well contained within the device. load unit connector And the windings of the transformer must be clearly marked. There is a set of measuring tools that can read the measured value in detail. When experimenting with all worksheets

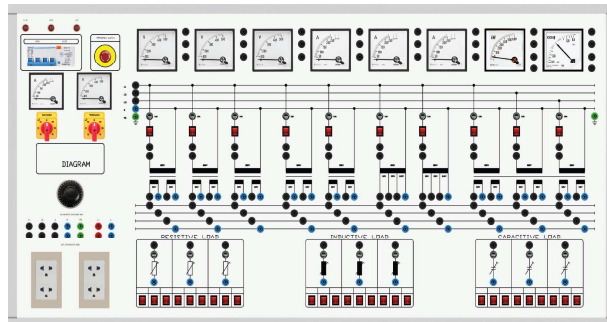
S/N F10410 (Transformer Training Set)



### Technical details

- A set of single-phase electric transformers, size 200 VA, packed inside a box metal or covered with thermoformed plastic with symbols together with
  - Shell Type Transformer
  - Teroidal transformer
  - Cut Core Transformer
  - Auto transformer
  - 3-phase electric transformer 380-220/2 x 110 volts/phase, size 900 VA Contained within a metal box or covered with thermo-formed plasticwith symbol
- The load set must be able to test both 1-phase and 3-phase loads not less than the rated rating of the transformer, can be adjusted in 7 Step/Phase by press the selector switch with protective equipment, etc.

S/N F36410 (Transformer Training Set)



### Technical details

- A set of single-phase electric transformers, size 200 VA, packed inside a box metal or covered with thermoformed plastic with symbols together with
  - Shell Type Transformer
  - Teroidal transformer
  - Cut Core Transformer
  - Auto transformer
- The experimental load set can be tested in both 1 phase and 3 phases, consisting of
  - Resistive Load
  - Inductive Load
  - Capacitive Load etc.

### Experimental subject

- Testing for various parameters. in a transformer
  - Determination of the rated voltage of each series of windings.
  - Finding the voltage and current rating of each pole
  - Resistance measurement in the circuit of each coil



- Current Ratio Test
  - Finding the relationship between current ratio and voltage ratio
  - Determination of the current ratio the reciprocal of pressure ratio
  - Determination of the saturation of the iron core (Core saturation), etc.
- Saturation effect in the iron core of the transformer.
  - Solving the problem of saturation of the iron core of the transformer.
  - Finding parameters in the equivalent circuit of a transformer
  - Open circuit test, short circuit test, etc.
- Determination of power factor in the transformer circuit
  - power loss in steel core, power loss in conductor wire, etc.
- Paralleling of transformers, finding vector groups for 3-phase transformers
  - Delta-Star Vector Group
  - Star vector group - Star, etc.



# Electrical Machines

## Electrical Machine

BRAND : FIELDTECH

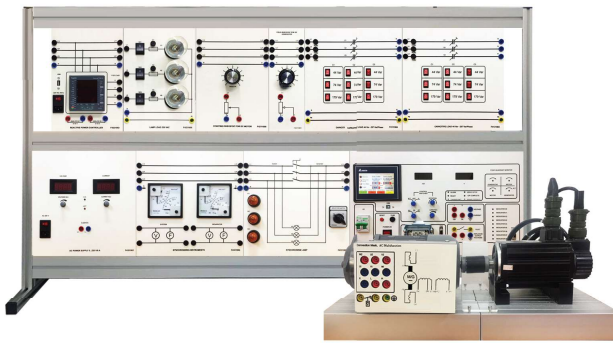
MODEL : F400

### General details

- It is a DC AC electromechanical experimental kit designed for teaching.
- Be able to conduct mechanical experiments with direct current and alternating current.
- Accessories works without problem
- It is a test set for determining torque characteristics and electrical quantities when using electric motors and generators.
- The rotary electromechanical unit is mounted on an aluminum base.
- The connection point is a Safety Socket 4 mm. with a safety test cable.

## DC Electrical Machine

S/N F10420 (DC Electrical Machine Training Set)



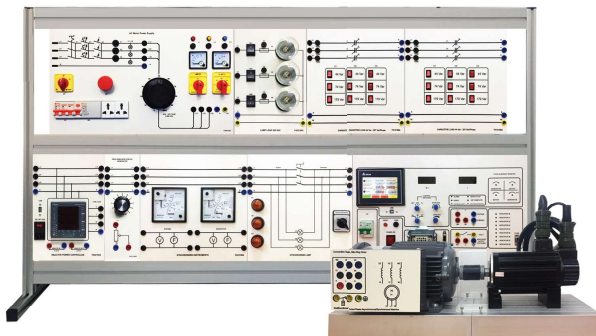
### Technical details

The electromechanical experimental set is designed for students to practice their skills, learn, study and analyze experimental results such as

- DC Multifunction machine
- starter kit
- Field regulators for motors and generator
- Lamp Load set
- Three phase Inductive Load
- Three phase Capacitive Load
- DC Power Supply
- Digital Multi-function meter
- Control Unit and Display (Control Unit) and Servo Control, etc.

## AC Electrical Machine

S/N F10430 (AC Electrical Machine Training Set)



### Technical details

The electromechanical experimental set is designed for students to practice their skills, learn, study and analyze experimental results such as

- AC Multifunction machine, Slip-ring motor, Split phase Motor, Capacitor start & run Motor, Induction Motor etc.
- Starter for Slip-ring motor
- Lamp Load set
- Three phase Inductive Load
- Three phase Capacitive Load
- Synchronizing switch with Three Lamps
- Digital Multi-function meter
- Three Phase Power Supply
- Control Unit and Display (Control Unit) and Servo Control, etc.



Worksheets to learn the principle of working of electrical machines, direct current, alternating

- DC Electrical Machine
  - Parallel electric motors
  - Hybrid DC electric motors
  - Serial electric motors
  - Parallel DC Generators
  - Hybrid DC Generator
  - Serial DC Generator
- AC Electrical Machine
  - 3-phase induction motor, star/delta connection
  - Synchronous alternator
  - Sizing a 3-phase alternator
  - Single-phase induction motor with capacitor run
  - single-phase induction motor, capacitor type Center Start
  - 3-phase reluctance motor, star/delta connection
  - 3-phase induction motor, slip-ring rotor, etc.



# Electrical Machines

## DC&AC Electrical Machine

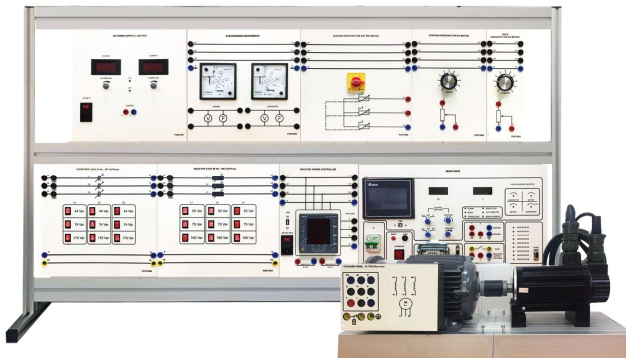
BRAND : FIELDTECH

MODEL : F450

### General details

- It is an electromechanical experimental kit designed for teaching.
- Able to perform mechanical experiments with direct current and alternating current.
- Accessories works without problem
- It is a test set for determining torque characteristics and electrical quantities when using electric motors and generators.
- The rotary electromechanical unit is mounted on an aluminum base.
- The connection point is a Safety Socket 4 mm. with a safety test cable.

S/N F10450 (DC/AC Electrical Machine Training Set)



### Technical details

The electromechanical experimental kit is designed for use by students to practice skills to learn, study and analyze experimental results

### Experimental subject

- There is a worksheet to learn the principles of working to find the characteristics of electrical machines direct current, alternating current as follows
  - DC electromechanical
  - Motors and Generators in Parallel (Shunt)
  - Compound DC motors and generators
  - Motors and Generators in Series (Series)
  - 3 phase induction motor with star, delta connection
  - Synchronous alternator
  - Sizing a 3-phase alternator
  - Single-phase induction motor with capacitor run capacitor starter
  - 3-phase reluctance motor with star, delta connection
  - 3-phase induction motor, slip-ring rotor, etc.

## Power Generator

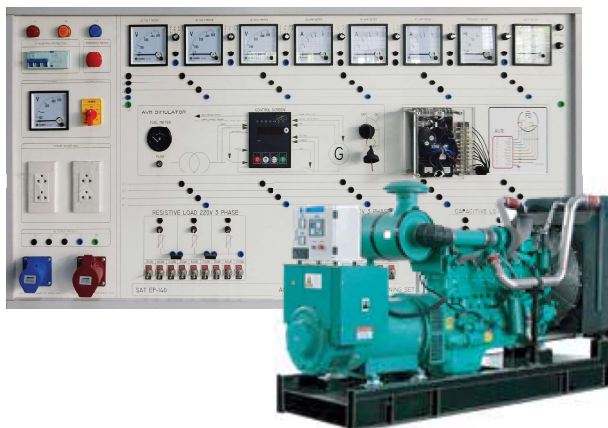
BRAND : FIELDTECH

MODEL : F470

### General details

- It is an experimental set to study the working principle of Automatic Voltage Regulator or AVR.
- Experimental kits to be installed on compact systems.
- The power supply unit can be easily installed on the workbench. strong and beautiful

S/N F36470 (AVR (Generator with AVR Training Set)



### Technical details

- The driving engine is mounted on the same base as the generator.
  - It is a 4-stroke diesel engine with direct injection system. cooling with water or air
  - Number of cylinders, 2 cylinders, total volume not less than 900 CC
  - Horse power not less than 20 horsepower
  - Start the engine with the key, etc.
- The generator is mounted on the same base as the engine.
- Voltage regulator (AVR)
- A set of measuring instruments to display electrical values installed on the panel of the experimental equipment.
- Load simulator (Load) for testing.
  - It is a simulated load for the generator.
  - The total power is R-L-C load, not less than 900 VA.
  - Use 1-phase 220 V and 3-phase 380 V electrical systems, etc.

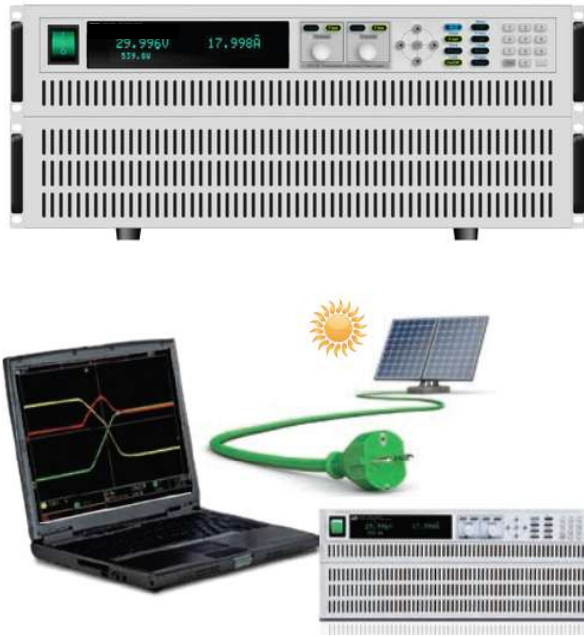


# Electrical Machines

## PV Simulator Power Supply

### General details

Use a power test solution. With fast response, these DC power supplies offer users a new level of power supply efficiency. From 800W to 30 kW, the whole series has more than 100 models. The maximum output voltage and current are up to 1000V and 1200A respectively with auto-ranging capability. It also has super wide range of voltage and current applications. Users can choose a power supply that perfectly suits their test needs.



### Technical details

- Intelligent fan control system. low noise
- Sink with power supply unit
- Two-quadrant current output.
- Rise/fall time < 3 ms
- List of programming modes.
- Setting the swing rate.
- Accurate reading of reverse current and voltage.
- CV/CC/CP mode
- Variable output impedance.
- Solar panel IV curve simulation function.
- remote sense
- Master/Slave mode for additional units in parallel.
- Comprehensive coverage
- High accuracy and resolution.

### Connection:

- LAN, RS-232, RS-484, USB, CAN and GPIB
- Analog control interface, SCPI instruction set.

## Solar Energy

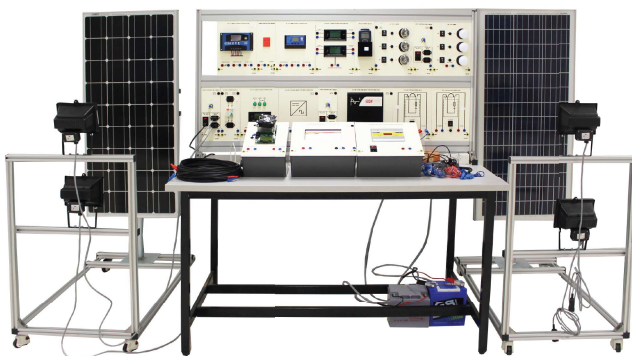
BRAND : FIELDTECH

MODEL : F480

### General details

It is a renewable energy lab that can experiment on renewable energy. that is applied to control devices and adjust different values to create skills and safety in training with a set of real devices that are used in industry and general use And can be further developed for production in real industries or for better use in daily life

S/N F10480 (Solar cell Training Set)



### It consists of the following parts:

- Chola shell panel set. Poly-Crystalline
- A set of solar cells. Mono-Crystalline
- SOLAR CELL SYSTEM has a point that can receive values from device detectors.
  - The value of solar energy that can be installed on the solar panel.
- There are 3 types of inverters that can switch to use: Square Wave, Modified Sine Wave and Pure Sine Wave with a set of LCD display
- CHARGER SYSTEM battery charging system
  - There is a battery charging unit that can be switched to use for At least three types of experiments are available: Fixed, PWM, and MPPT.
  - Less than 600 W with LCD display unit
- LEAD ACID BATTERY, rated size not less than 40Ah at 12 V voltage
- DRY BATTERY, dry type, rated capacity not less than 40Ah at 12 V voltage
- AC LAMP LOAD and DC LAMP LOAD
- Artificial lighting set instead of sunlight, etc.



# Electrical Machines

## Renewable Power Generator

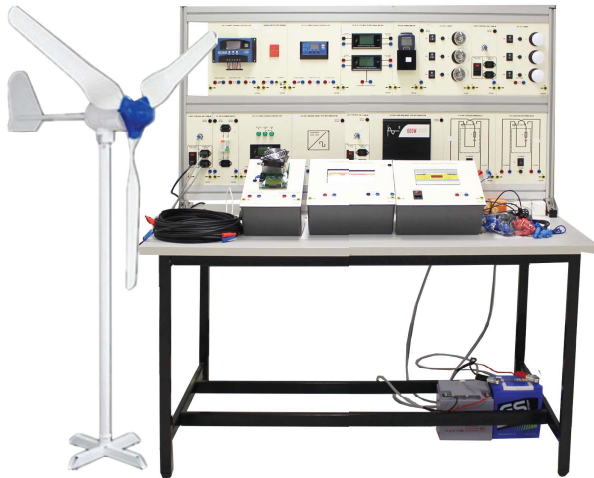
BRAND : FIELDTECH

MODEL : F490

### General details

Demo pack designed for educational use. By learning the principles of using renewable energy in various systems such as solar cells and wind turbines that produce solar and wind energy. along with the design of the demonstration set to have suitable equipment There are clear symbols on the circuit board. which can be used for testing easily and safely

### S/N F10490 (Wind Turbine Training Set)



### General details

Wind turbines convert wind energy into mechanical energy to drive generators. Therefore, it can be used as electrical energy, and used in conjunction with various value control and adjustment devices. To make the skills and safety of learning possible.

### Technical details

The training set is a panel type consisting of the following parts:

- Wind Turbine
- There are 3 types of inverters that can switch to use: Square Wave, Modified Sine Wave and Pure Sine Wave with a set of LCD display
- CHARGER SYSTEM battery charging system
  - There is a battery charging unit that can be switched to use for Try at least three modes: Fixed, PWM, MPPT.
- LEAD ACID BATTERY, rated size not less than 40Ah at 12 V voltage
- DRY BATTERY, dry type, rated capacity not less than 40Ah at 12 V voltage
- AC LAMP LOAD and DC LAMP LOAD

### S/N F10491 (Renewable Energy Generator Training Set)

### General details

It is a renewable energy lab that can experiment on renewable energy. that is applied to control devices and adjust different values to create skills and safety in training with a set of real devices that are used in industry and general use and can be further developed for production in real industries or for better use in daily life



### Technical details

- Chola Shell Panel Set Poly-Crystalline
- Solar panel kit Mono-Crystalline
- Wind Turbine
- ON GRID INVERTER SYSTEM
  - There is a set of inverters that can be used for experients on the power system from renewable energy sources together with electricity sources
- HYBRID CHARGER CONTROLLER
- SOLAR CELL SYSTEM has a point that can receive values from device detectors.
  - The value of solar energy that can be installed on the solar panel.
  - There are 3 types of inverters that can be switched: Square Wave, Modified Sine Wave and Pure Sine Wave with a set of LCD display
- Battery charging system CHARGER SYSTEM
- LEAD ACID BATTERY and DRY BATTERY dry type at 12 V voltage





# Power Electronics & Drive

## Static Converter

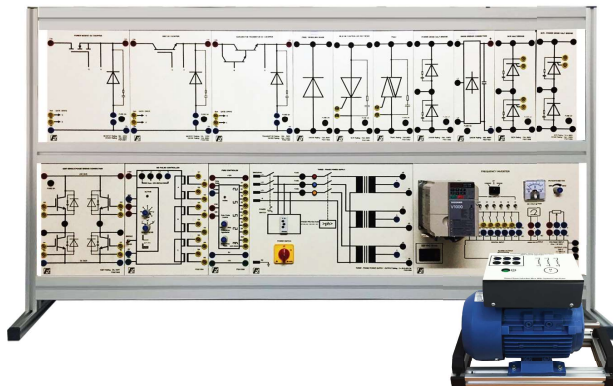
BRAND : FIELDTECH

MODEL : F510

### General details

It is an experimental set designed and built for theoretical and practical training that covers the contents of the properties of power electronic devices such as DIODE, SCR, TRIAC, BJT, MOSFET, IGBT, etc., and can be connected to the operation of power electronic circuits. such as AC to DC, AC to AC, DC to DC, DC to AC, Three phase power control , Three phase control rectifier, Three phase inverter, etc.

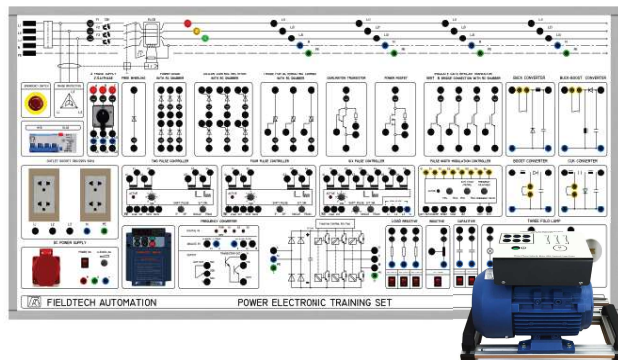
S/N F10510 (Power Electronics & Drive)



### Technical details

- Test panel for Power Diode, SCR, TRIAC
- Free-Wheel Diode Test Panel
- Trial panel SCR-Power Diode Half Bridge, SCR Half Bridge
- Trial Panel Power Diode Half Bridge
- Diode Bridge Connection test panel
- Frequency Converter Compact test panel
- Test panel Two Pulse Controller, Six Pulse controller
- PWM Controller test panel
- Test Panel Resistive Load, Inductive Load
- Test panel DC Power Supply  $\pm 15V$
- Trial panel Three-phase power supply
- Motor type 3-phase 4-pole induction motor, etc.

S/N F36510 (Power Electronics & Drive)



### Technical details

- Power Diode, SCR, TRIAC circuits
- Free-Wheel Diode circuit
- Circuit SCR-Power Diode Half Bridge, SCR Half Bridge
- Power Diode Half Bridge circuit
- Diode Bridge Connection circuit
- Frequency Converter Compact circuit
- Circuit Two Pulse Controller, Six Pulse controller
- PWM Controller circuit
- Resistive Load, Inductive Load circuit
- DC Power Supply Circuit  $\pm 15V$
- Three-Phase power supply circuit
- Motor Induction Motor type 3 phase 4 pole etc.

### Experimental subject

- V-I characteristic of power diode in AC circuit
- Single-Phase half wave rectifier circuit
- Single Phase bridge rectifier circuit
- Three-Phase half wave rectifier circuit
- Three-Phase full wave rectifier circuit
- V-I Characteristic of SCR in AC circuit
- Single-Phase half wave controlled rectifier circuit
- V-I Characteristic of TRIAC in AC circuit
- Single-Phase Uni-Direction control circuit
- Single-Phase Bi-Direction control circuit
- Three-Phase Uni-Direction control star connection circuit
- Three-Phase Bi-Direction control star connection circuit
- Darlington Transistor Chopper circuit
- Power MOSFET Chopper circuit
- IGBT Chopper circuit
- Single-Phase Bridge Inverter
- Three-Phase PWM Inverter
- Frequency Converter



## Drive Technology

BRAND : FIELDTECH

MODEL : F540

### General details

It is an experimental set that teaches and learns using various devices. The training set is used together with an electric motor and a generator. The speed control unit of the frequency inverter panel is The experimental set has a label or Block Diagram with connections to check both input and output signals.

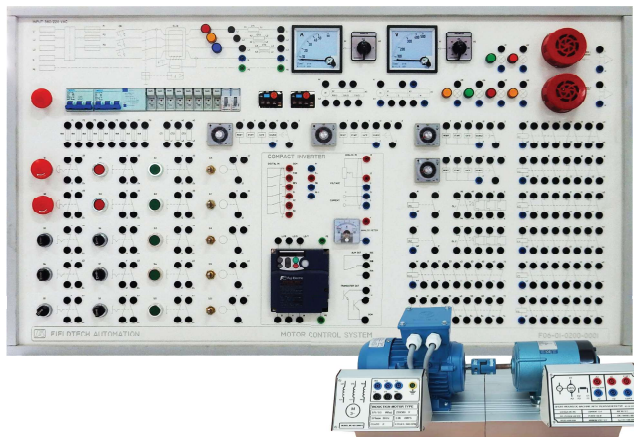
S/N F10540 (Inverter Speed Control Training Set)



### Technical details

- Inverter test panel
  - Have a size of not less than 1/2 HP
  - The control system is PWM or other type.
  - Numerical display on LCD or LED
  - The output side is a 3-phase electrical system, 0-380 V, frequency 1-320 Hz.
  - Use with 3-phase power supply, 380 V, frequency 50 Hz.
  - Can the TORQUE BOOST control be adjusted?
  - Able to program as AUTO TURNING
- FREQUENCY METER TRIAL PANEL
- Test panel AC AMMETER and AC VOLTMETER
- Test panel DC AMMETER and DC VOLTMETER
- Test panel 3ø WATTMETER
- AC MOTOR, DC GENERATOR, TACHO GENERATOR or ENCODER
- Trial panel, LAMP LOAD, etc.

S/N F36540 (Inverter Speed Control Training Set)



### Technical details

- Power Contactor 3 Pole 2 NO 2 NC
- Auxiliary Contactor 6 NO 2 NC
- Thermal Overload Relay 3 poles
- Pilot Lamp Red, Yellow, Blue
- Time Delay Relay Switch – ON/OFF Delay
- Limit Switch 1 NO/NC
- Latching Relay 220V 1 NO
- Push Button 1 NO 1 NC red, green
- Selector Switch ON-OFF
- AC Voltmeter, AC Ammeter
- Siren signal 220VAC
- Current Transformer 50/5A used in conjunction with AC Ammeter
- Phase Inverter or 3 Phase PWM Controller
- 3-phase electric motors, etc.

### Experimental subject

- Recommendations for voltmeters and ammeters.
- Transmission
- Manual motor control with selected push buttons.
- Automatic motor control system with limit switches.
- Two contactors controlled by spring return push button switches.
- Automatic reversing motor with timer delay relay.
- Starter Motor STAR-DELTA
- Reverse motor with selector switch.
- Motor control with selector and limit switches.
- Phase protection relays, etc.



## Servo Drive Control

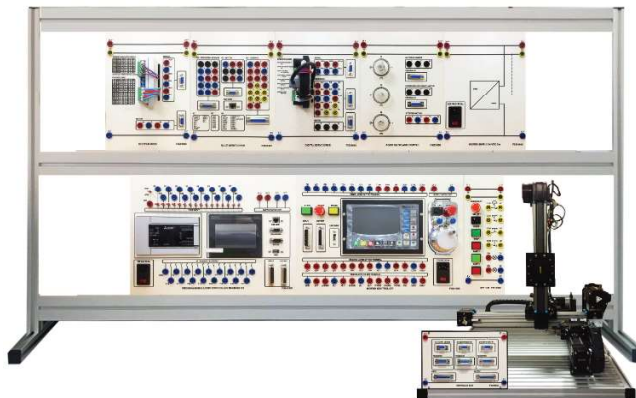
BRAND : FIELDTECH

MODEL : F550

### General details

This experiment is designed to study stepping electric motors. From the basics to control and applications with LEDs indicating the operating position of each motor terminal, digital counter control, frequency signal control. This experimental kit also comes with operating software that can control and display various values. and display real-time operation, which is convenient for teaching.

S/N F10550 (Servo and Stepper Motor Drive Training Set)



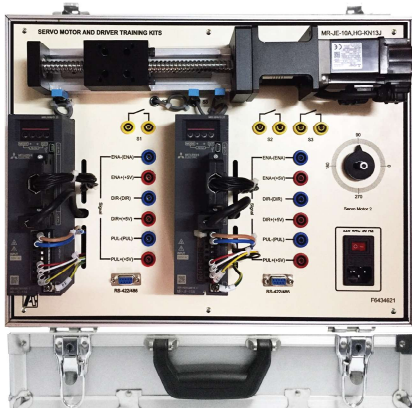
### General details

It is an experimental set of electromechanical control to study about motor control by using industrial drive. The front panel has a symbol of the device clearly displayed. All components of the experiment set can be put together and function properly. And the experimental set has a protection system against danger from misuse with an automatic cut-off set.

### Technical details

- Industrial Drive trial set
- Multi drive can select the control.
- DC Servo Drive size not less than 100w
- Stepper Drive size not less than 3A per phase.
- A set showing the operation of a 3-axis control system.
- Control unit, etc.

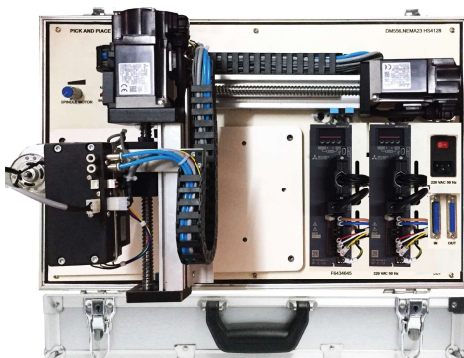
S/N F34551 (Servo Motor Drive Control Training Kit)



### Technical details

- It is a demonstration set of electromechanical control to study motor control in the form of Servo Driver control and motors.
- The front panel has clearly marked device symbols.
- All equipment of the demonstration set can be assembled together properly.
- Safety Socket connection point
- Motor display set
  - with servo motor with lead screw set
  - It is a set showing the degree of the motor.
- Drive servo set, etc.

S/N F34552 (Servo Motor Drive Control Training Kit)



### Technical details

- It is a demonstration set of electromechanical control to study motor control in the form of Servo Driver control and motors.
- The front panel has clearly marked device symbols.
- All equipment of the demonstration set can be assembled together properly.
- Safety Socket connection point
- Motor display set
  - with servo motor with lead screw set
  - It is a set showing the degree of the motor.
- Drive servo set
- X, Y, Z axis drives, etc.



## Stepper Motor Drive

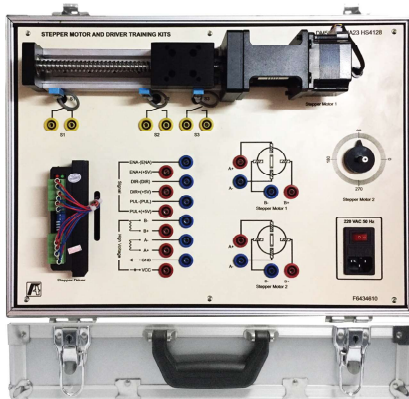
BRAND : FIELDTECH

MODEL : F570

### General details

This set is designed to study stepping motors. From basic principles to controls and applications, there are LED indicators indicating the working position of each motor terminal. Digital pulse counter control frequency signal control

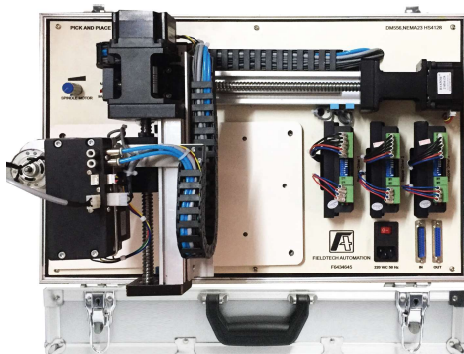
#### S/N F34571 (Stepper Motor Drive Control Training Kit)



#### Technical details

- It is an electrical control demonstration set to study about control. Step Driver control motor and motor
- The front panel has clearly marked device symbols.
- All equipment of the demonstration set can be assembled together. appropriate
- Safety Socket connection point
- Motor display set
  - with step motor with lead screw set
  - It is a set showing the degree of the motor.
- Drive step set, etc.

#### S/N F34572 (Stepper Motor Drive Control Training Kit)



#### Technical details

- It is an electrical control demonstration set to study about control. Step Driver control motor and motor
- The front panel has clearly marked device symbols.
- All equipment of the demonstration set can be assembled together. appropriate
- Safety Socket connection point
- Motor display set
  - with step motor with lead screw set
  - It is a set showing the degree of the motor.
- Drive step set
- X, Y, Z axis drive, etc.

### Experimental subject

- Stepping motor connection with PLC Type 1
- Stepping motor connection with PLC Type 2
- The stepping motor is controlled by a command to set the speed.
- Stepping motor control with initial position command.
- Stepping motor control with enhanced mobile commands.
- Stepping motor controls 3 axes at the same time.
- Connect the servo motor to the type 1 PLC.
- Connect the servo motor to the PLC type 2.
- Control the servo motor by speed command.
- Servo motor with initial position command.
- Servo motor control with enhanced mobile commands, etc.



# Instrumentation & Control Technology

## Demonstration Instrumentation

BRAND : FIELDTECH

MODEL : F610

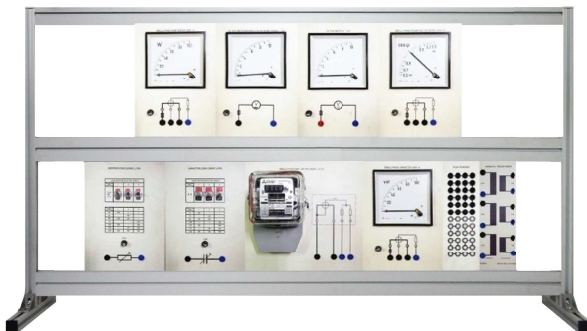
### General details

Electrical testing equipment Designed for trainees to practice skills, learn, study and analyze the results of various experiments in measuring instruments.

Dedicated electric

- The nature of the experimental set is a system to install equipment on the experimental panel (Panel System).
- The materials used to make the experimental panels are made of insulating materials, coated on both sides with a homogeneous smooth non-reflective material.
- The front of the panel has clearly marked device symbols. Can withstand use very well. The socket connector is a type Safety

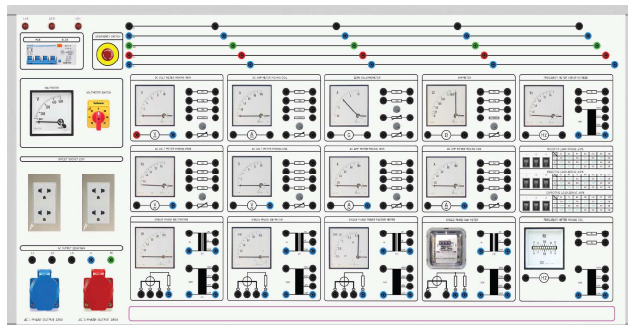
S/N F10610 (Demonstration Electrical Measur Training)



### Technical details

- AC/DC Voltmeter Panel
- AC/DC Ammeter Panel
- Ohmmeter Panel
- Frequency Meter Vibrating Reed Panel
- Resistive, Inductive, Capacitive Load Panel
- Universal Plug-in Board Panel
- Potential Transformer Panel
- Current Transformer Panel
- 2 layers frame, etc.

S/N F36610 (Demonstration Electrical Measur Training)



### Technical details

- Compact set of test panels housed in a wooden case with melamine coating Contains experimental equipment
  - Circuit AC/DC Voltmeter
  - AC/DC Ammeter
  - Ohmmeter, Power factor meter circuit
  - Frequency Meter Vibrating Reed circuit
  - Single Phase Var Meter Circuit
  - Resistive Load Circuits
  - Inductive Load Circuits
  - Capacitive Load Circuits
  - Current Transformer Circuit, etc.

### Experimental subject

- DC Voltmeter
  - Experiment 1 Components of a moving coil type meter
  - Experiment 2 DC Voltage Measurement
- DC Ammeter
  - Experiment 1 The symbol indicates the operation of the DC ammeter.
  - Experiment 2 DC Current Measurement
- AC Voltmeter
  - Experiment 1 AC Voltage Measurement
- AC Ammeter
  - Experiment 1 AC Current Measurement
- Determination of the sensitivity of measuring instruments (Sensitivity of Instrument).
  - Experiment 1 Determination of ammeter sensitivity
- Determination of the internal resistance of an ammeter.
  - Experiment 1 Determination of the internal resistance of the meter by the method Variable Resistance
  - Experiment 2: Determine the internal resistance of the meter by the method



# Instrumentation & Control Technology

## Sensor & Transducer

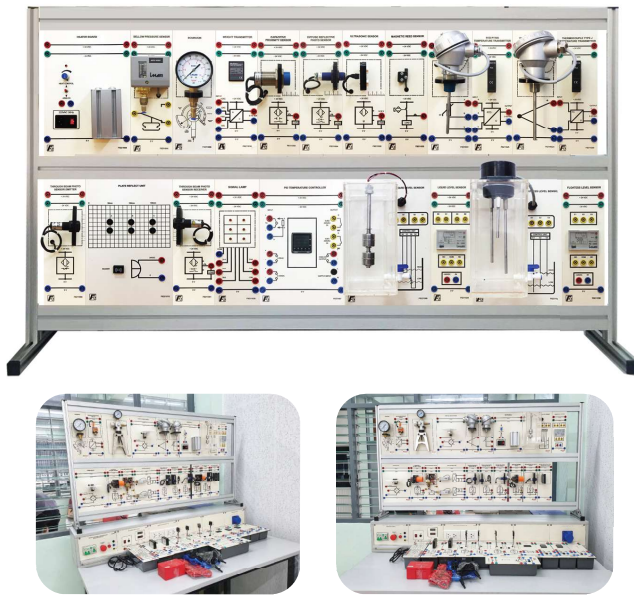
BRAND : FIELDTECH

MODEL : F620

[General details](#)

It is a set of experimental media used for sensor learners. and transducers to experiment, analyze and compare the experimental results with the theoretical principles that have been studied The characteristics of the experimental set are Panel System. The front of the experimental panel is made of non-reflective non-reflective insulating material with the symbol of

S/N F10620 (Sensor and Transducer Training Set)



### Technical details

- Position measuring device using light.
  - THROUGH BEAM PHOTO SENSOR
  - RETRO REFLECTIVE PHOTO SENSOR
- Position detection device using a proximity switch.
  - INDUCTIVE PROXIMITY SENSOR
  - CAPACITIVE PROXIMITY SENSOR
- Pressure measuring device
  - BOURDON PRESSURE SENSOR
- Weight and torque measuring devices
  - LOAD CELL WEIGHT SENSOR
- Light detectors
  - PHOTO RESISTOR SENSOR
  - PHOTO DIODE SENSOR RECEIVER
- Temperature measuring device
- Position measuring device
- Level measuring device
- Transformation experimental set, etc.

## Sequential Control

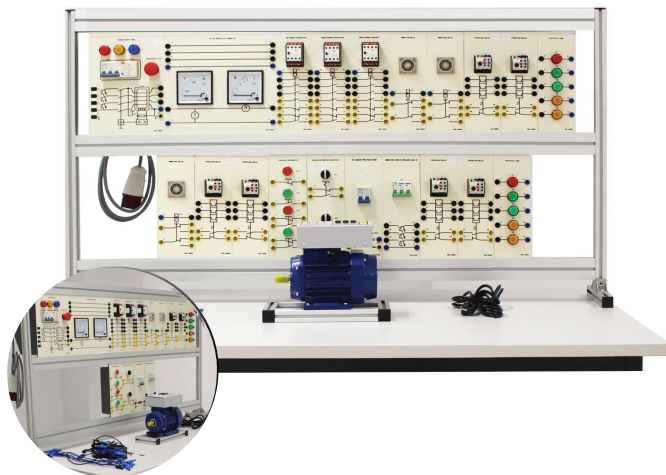
BRAND : FIELDTECH

MODEL : F630

[General details](#)

It is an experimental set about various types of motor control using MAGNETIC such as motor rotation direction reversal, motor starting control, sequential motor control. Manual and automatic control The experimental kit consists of parts such as a power supply unit, measuring instruments, signal lamps, switches and relays.

S/N F10630 (Magnetic Control Training Set)



### Technical details

- THREE PHASE POWER SUPPLY panel
- MAIN CONTACTOR panel
- PANEL THERMAL OVERLOAD RELAY
- TIME DELAY RELAY panel
- PILOT LAMP panel
- PUSH BUTTON panel
- LIMIT SWITCH PANEL
- SELECTOR SWITCH panel has an ON - OFF - ON switch.
- Panel AC VOLTMETER, AC AMMETER
- SIREN panel, siren signal 220 V
- CURRENT TRANSFORMER panel, independent current transformer.
- 3-phase electric motor type DAHLANDER 380V 2/4 poles 1/2 HP
- 3-phase electric motor 380/660V 4 P 1/2 HP etc.



# Instrumentation & Control Technology

## S/N F36630 (Magnetic Control Training Set)

### General details

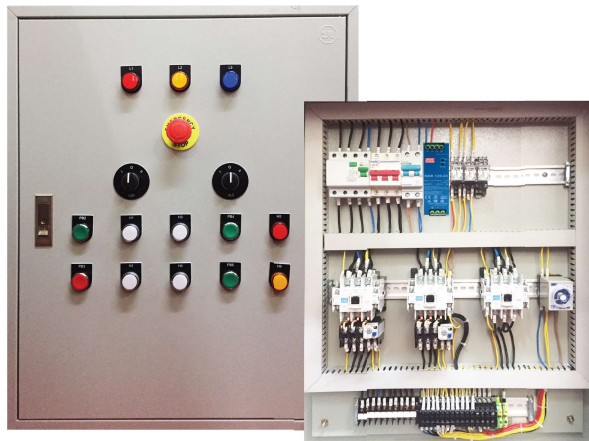
It is an experimental set about various types of motor control using MAGNETIC such as motor rotation direction reversal, motor starting control, sequential motor control. Manual and automatic control The experimental kit consists of parts such as a power supply unit, measuring instruments, signal lamps, switches and relays.



### Technical details

- THREE PHASE POWER SUPPLY
- MAIN CONTACTOR
- THERMAL OVERLOAD RELAY
- TIME DELAY RELAY
- PILOT LAMP
- PUSH BUTTON
- LIMIT SWITCH
- SELECTOR SWITCH has an ON - OFF - ON switch.
- AC VOLTMETER, AC AMMETER
- SIREN Siren signal 220 V
- CURRENT TRANSFORMER, independent current transformer.
- 3-phase electric motor type DAHLANDER 380V 2/4 poles 1/2 HP
- 3-phase electric motor 380/660V 4 P 1/2 HP etc.

## S/N F35630 (3-Phase Motor Training Set)



### Technical details

A 3-phase motor training kit designed for learning industrial automation equipment and can control the work of three-phase alternating current motor (AC Motor)

- Induction Motor 3 phase AC electric motor
- 3 poles circuit breaker with rated current 30A.
- 2-pole circuit breaker, rated current 10A
- 3-way selector switch (Selector Switch)
- Emergency switch, push button switch
- Lamp Voltage 220 V
- Relay Voltage 24 VDC
- Timer control.
- Magnetic contactor
- Overload Relay
- Electrical cabinets for controlling star-delta motors, etc.

### Experiment worksheet topics

- Thermal protection device (OVERLOAD RELAY)
- warning
- Manual control using a single switch.
- Manual control using a spring return push button switch.
- Local control by push buttons on the control box.
- Remote control by two spring return pushbuttons.
- Remote control by multiple spring return pushbuttons.
- Continuous and adjustable remote control.
- Automatic control with limit switches.
- Control of two contactors by spring return pushbutton switches.
- Mix control by spring return push button and limit switch
- Motor control Direct-to-wire type
- JOGGING reverse rotation control
- REVERSING AFTER STOP reversing control
- PLUGGING ROTARY REVERSE CONTROL
- Automatic reversing control with time delay relays.
- Motor starting, star-delta.
- Manual sequence control.
- Motor rotation reversal using a selector switch.
- Mixed control by selector and limit switches.
- Two speed motor control.
- Two-speed motor rotation reversal with Timer, etc.



# Instrumentation & Control Technology

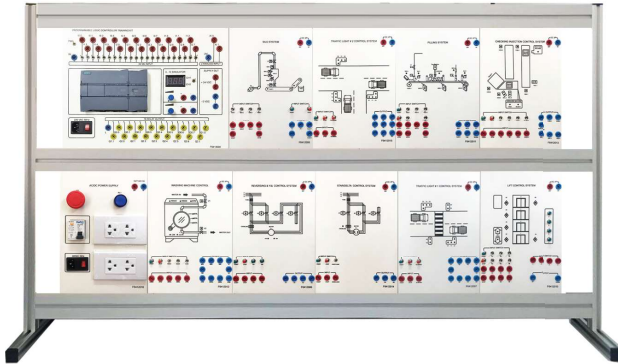
## Programmable Logic Control

BRAND : FIELDTECH  
MODEL : F640

### General details

Programmable Logic Control (PLC) is an experimental set of PLC HMI programming and interfacing with other devices such as sensors. to control the workflow to automate Designed for teaching and learning Easy to use and exceptionally safe. User selectable PLC or other components As needed with proper size, not complicated to use. able to study from elementary to advanced levels

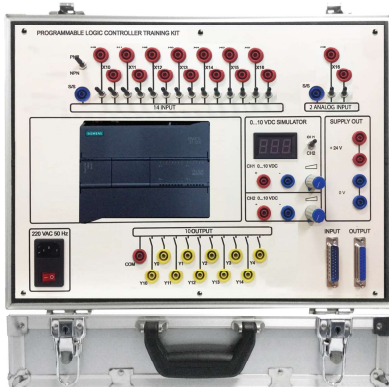
### S/N F10640 (PLC With Simulation Panel Control System)



It consists of the following circuits:

- Programmable logic controller panel
- A set of 11 examples of panel mockups.
  - Reversing Control Panel
  - Star/Delta control
  - Reversing & Star/Delta control panel
  - Traffic light control (1) panel
  - Traffic light control (2) panel
  - Silo system panel
  - 7-Segment panel
  - Lift control system panel
  - Filling system panel
  - Washing machine panel
  - Checking injection system panel
  - Panel AC/DC power supply etc.

### S/N F34641 (PLC Training Kit (Siemens))



#### Technical details

- There are no less than 14 input points with SWITCH simulation. and relay output No less than 10 points
- There are at least 14 input switch points for testing the operation of PLC input
- There are 2 Analog Inputs as 0-10V.
- There is a resolution of the timer clock (Real time Clock) input/output 60 seconds
- There is an input switch. For use in testing the operation of PLC inputs.
- The programmable controller is installed with the experimental panel made of materials the insulated front of the panel has a clearly marked symbol using screening or grooving technology which can withstand scratching as well as being packed in a strong aluminum bag for easy storage

### S/N F34642 (PLC with Touchscreen Training Kit (Siemens))



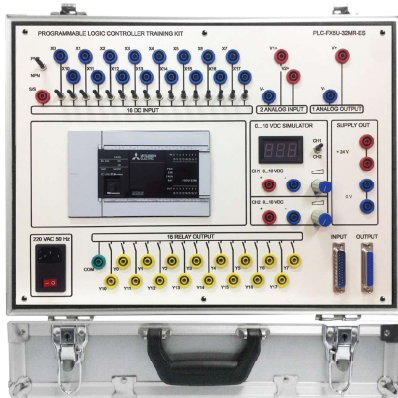
#### Technical details

- There are no less than 14 input points with SWITCH simulation. and relay output No less than 10 points
- There are at least 14 input switch points for testing the operation of PLC input
- There are 2 Analog Inputs as 0-10V.
- There is a screen to control and command the size of not less than 7 "TFT type.
- The display has a resolution of at least 800 x 480 pixels.
- There is an input switch. For use in testing the operation of PLC inputs. The PLC body and the truss screen installed with the panel are made of high quality materials. The front insulator of the panel is clearly marked with symbols using screening or grooving technology which can withstand abrasion as well packed in a strong aluminum bag for easy storage



# Instrumentation & Control Technology / Programmable logic Control (PLC)

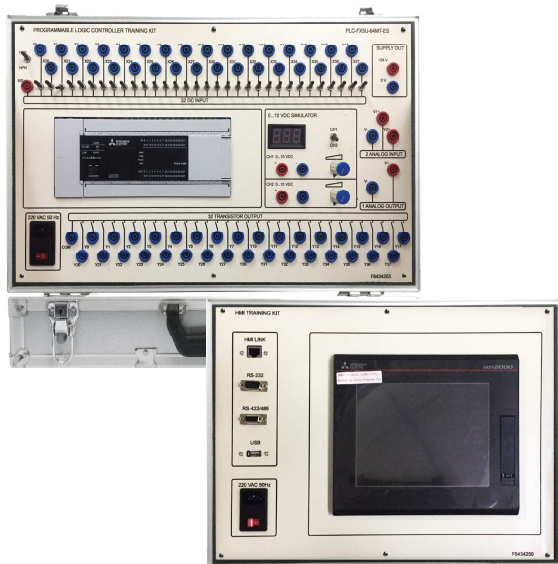
## S/N F34643 (PLC Training Kit (Misubishi))



### Technical details

- There are 16 digital input points.
- There are 16 relay or transistor outputs.
- There are at least 2 analog input points.
- Have at least 1 analog output point.
- Type of input : Sink or Source
- Have a number of timers and counters of at least 1024 points.
- There is a memory in the program 64 k steps.
- There is an input switch. For use in testing the operation of PLC inputs.
- The programmable controller is installed with the experimental panel made of materials.
- The insulated front of the panel has a clearly marked symbol using screening or grooving technology which can withstand scratching as well as being packed in a strong aluminum bag for easy storage

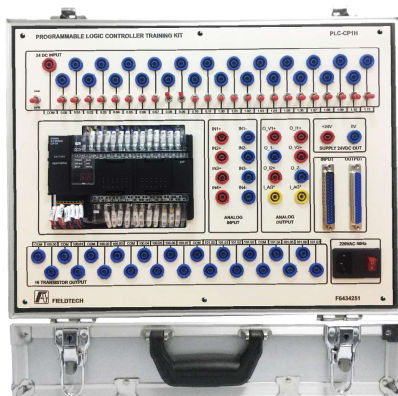
## S/N F34644 (PLC with Touchscreen Training Kit (Misubishi))



### Technical details

- There are 32 digital input points.
- 32 relay or transistor outputs
- There are at least 2 analog input points.
- Have at least 1 analog output point.
- Type of input : Sink or Source
- Have a number of timers and counters of at least 1024 points.
- There is a memory in the program 64 k steps.
- There is an input switch. For use in testing the operation of PLC inputs.
- There is a terminal to connect external devices as a Socket size 4 mm for connecting external devices to the input-output section of the PLC.
- There is a TFT LCD display type touch operation. Screen size not less than 7 inches
- Display resolution of at least 800 x 480 pixels.
- Can communicate via Ethernet channel or RS-422, RS-232 with programmable logic controller, etc.
- The PLC body and the truss screen installed with the panel are made of high quality materials. The front insulator of the panel is clearly marked with symbols using screening or grooving technology which can withstand abrasion as well packed in a strong aluminum bag for easy storage

## S/N F34645 (PLC Training Kit (Omron))



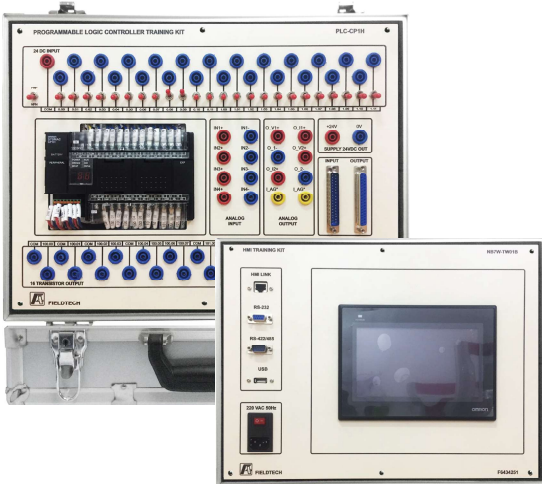
### Technical details

- There are 24 24 V DC input points and 16 output points.
- There is an input switch for testing the operation of the PLC input.
- There is a terminal to connect external devices as a Socket size 4 mm. for connecting external devices to the input/output section of the PLC.
- Program memory of at least 10 kilosteps (kStep).
- There is a memory that can store data (Data Memory) 32 kilowords (Kwords).
- Execution speed for basic instructions is 0.55  $\mu$ s per instruction.
- There are at least 8,190 relays inside that can store conditions during power outages.
- There are no less than 4,095 timers and counters.
- There is an input switch. For use in testing the operation of PLC inputs.
- The programmable controller is installed with the experimental panel made of materials. The insulated front of the panel has a clearly marked symbol. using screening or grooving technology which can withstand scratching as well as being packed in a strong aluminum bag for easy storage



# Instrumentation & Control Technology / Programmable logic Control (PLC)

## S/N F34646 (PLC with Touchscreen Training Kit (Omron))



### Technical details

- There are 24 24 V DC input points and 16 output points.
- There is an input switch for testing the operation of the PLC input.
- There is a terminal to connect external devices as a Socket size 4 mm. For connecting external devices to the input/output section of the PLC.
- Program memory of at least 10 kilosteps (kStep).
- There is a memory that can store data (Data Memory) 32 kilowords (Kwords).
- Execution speed for basic instructions is 0.55  $\mu$ s per instruction.
- There are at least 8,190 relays inside that can store conditions during power outages.
- There are no less than 4,095 timers and counters.
- There is an input switch. For use in testing the operation of PLC inputs.
- There is a 5.6-inch TFT LCD touch screen display.
- Display resolution of at least 320 x 234 pixels.
- Can communicate via Ethernet or RS-422/RS-232 channels.
- The PLC body and the truss screen installed with the panel are made of high quality materials. The front insulator of the panel is clearly marked with symbols using Screening or grooving technology which can withstand abrasion as well packed in a strong aluminum bag for easy storage

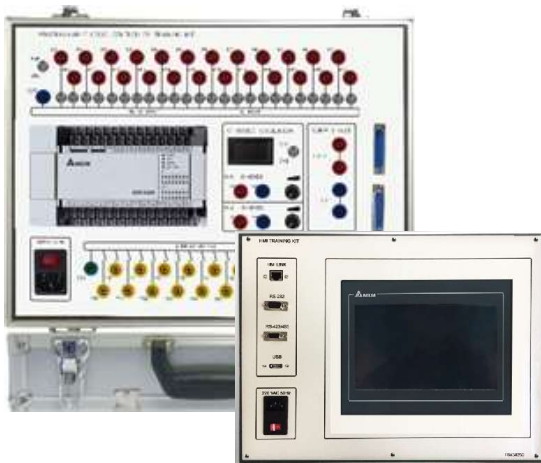
## S/N F34647 (PLC Training Kit (Delta))



### Technical details

- There are 16 24 V input points and 8 output points.
- There is a 4 mm socket external device connector for connection. external device to the input and output ports of the PLC.
- Program memory 16 k steps
- There is a memory that can store data (Data Memory) 10 kilowords (Kwords).
- DeviceNet, PROFIBUS, Ethernet remote I/O communication modules (MODBUS TCP), RS-485 (MODBUS ASCII/RTU)
- There is an input switch. For use in testing the operation of PLC inputs.
- The programmable controller is installed with the experimental panel made of materials. The insulated front of the panel has a clearly marked symbol. using screening or grooving technology which can withstand scratching As well as being packed in a strong aluminum bag for easy storage

## S/N F34648 (PLC with Touchscreen Training Kit (Delta))



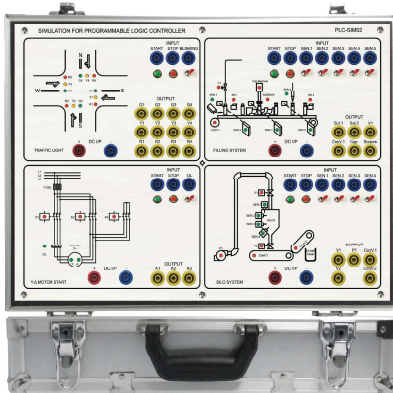
### Technical details

- There are 16 24 V input points and 8 output points.
- There is a 4 mm socket external device connector for connection. external device to the input and output ports of the PLC.
- Program memory 16 k steps
- There is a memory that can store data (Data Memory) 10 kilowords (Kwords).
- DeviceNet, PROFIBUS, Ethernet remote I/O communication modules (MODBUS TCP), RS-485 (MODBUS ASCII/RTU)
- There is an input switch. For use in testing the operation of PLC inputs.
- There is a 7-inch TFT LCD touch screen display.
- Display resolution of at least 7800 x 480 pixels.
- Can communicate via Ethernet or RS-422/RS-232 channels.
- The PLC body and the truss screen installed with the panel are made of high quality materials. The front insulator of the panel is clearly marked with symbols using Screening or grooving technology which can withstand abrasion as well packed in a strong aluminum bag for easy storage



# Instrumentation & Control Technology / Programmable logic Control (PLC)

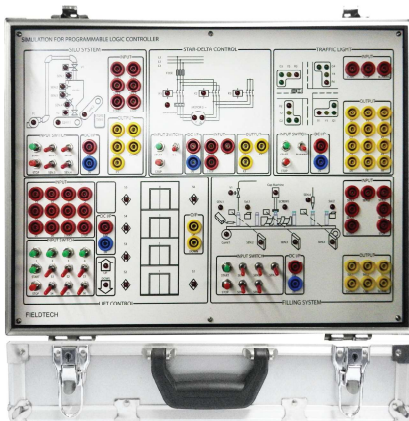
S/N F34681 (Simulation Training Set 4 Examples)



## Technical details

- There are 4 samples of work samples to be installed in the bag.
  - fluid control
  - Controlling traffic lights
  - Packing control
  - Control of injection monitoring system
  - Connection point size 4 mm. Safety socket type
  - There is a LED light to show the operation.
- Compatible with PLC sets, etc.
- The experimental panel is made of insulating material. Clearly displayed symbols using screen or grooving technology which can withstand scratches very well and is packed in an aluminum bag that is strong and easy to store

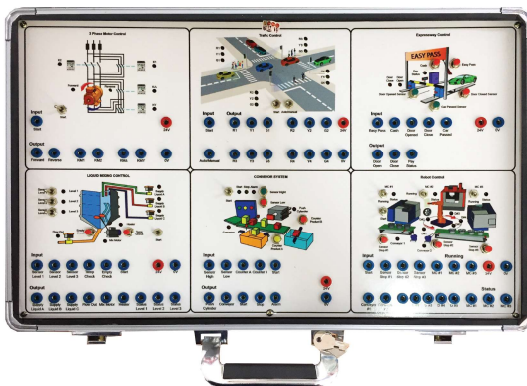
S/N F34682 (Simulation Training Set 5 Examples)



## Technical details

- There are 5 samples of work samples to be installed in the bag.
  - fluid control
  - Controlling traffic lights
  - Packing control
  - Control of injection monitoring system
  - Automatic starting of a 3-phase motor with a star-delta type.
  - Connection point size 4 mm. Safety socket type
  - There is a LED light to show the operation.
- Compatible with PLC sets, etc.
- The experimental panel is made of insulating material. Clearly displayed symbols using screen or grooving technology which can withstand scratches very well and is packed in an aluminum bag that is strong and easy to store

S/N F34683 (Simulation Training Set 6 Examples)



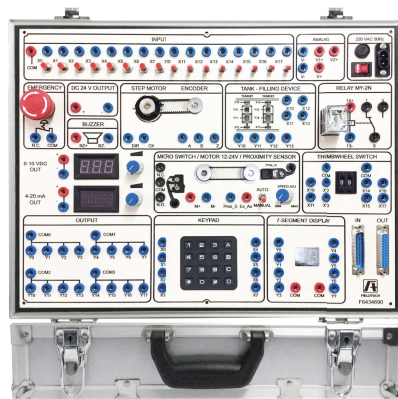
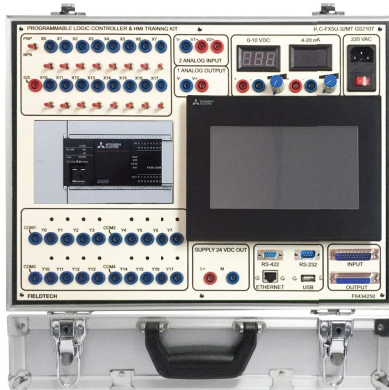
## Technical details

- There are 6 samples of work samples to be installed in the bag.
  - Experimental set to simulate the operation of 3 Phase Motor Control Simulate the connection of a PLC to control the operation of a three-phase motor.
  - Traffic Control simulation experimental set Simulates the operation of a traffic light which has 4 poles.
  - Expressway Control simulation test kit Simulate the work of collecting expressway tolls with the Easy Pass system.
  - Liquid Mixing Control Experiment Kit simulate mixing of 3 types of liquids and mixing them together by motor with To heat when the heat is desired, it will release the solution.
  - Conveyor Control simulation experiment set Simulate the production belt system, there will be 2 types of workpieces, which are small (B) and large (A).
  - Robot control simulation experiment set Simulate a production model using a robot working to pick up wheels from a conveyor belt.
- Compatible with PLC sets, etc.
- Panel body is made of insulating material with the symbol on the front of the panel. That is clearly displayed using screening or grooving technology that can withstand good scratch resistance and packed in a strong aluminum bag.



# Instrumentation & Control Technology / Programmable logic Control (PLC)

S/N F34640 (PLC with Touchscreen with PLC Basic And Advance)



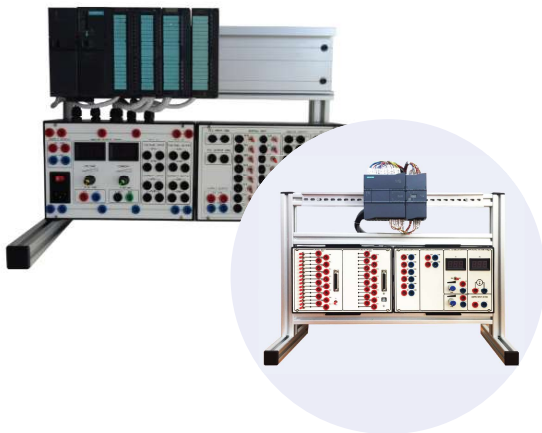
## Technical details

- There are 16 digital input points.
- There are 16 relay or transistor outputs.
- There are at least 2 analog input points.
- Have at least 1 analog output point.
- Type of input : Sink or Source
- Have a number of timers and counters of at least 1024 points.
- There is a memory in the program 64 k steps.
- There is an input switch. For use in testing the operation of PLC inputs.
- There is a TFT LCD display type touch operation. Screen size not less than 7 inches
- Display resolution of at least 800 x 480 pixels.
- Can communicate via Ethernet channel or RS-422, RS-232 with programmable logic controller, etc.

The PLC Basic And Advance training simulator has the following details:

- Input connector to PLC 16 port and Output connector to PLC 16 port
- Connector Analog Input = 2 port and Analog Input = 1 port
- 1 set of 0 ~ 10V voltage simulator and 4 ~ 20mA current simulator
- Push-button, push-off and hold-position switches
- Emergency switch
- Switch keypad, press on, press off 4x4, send signal row 4 bit, column 4 bit
- Switch to convert base 10 to BCD code.
- 16 display lamps
- DC Motor 12V with belt and sensor axis
- Proximity sensor
- Stepper motor with belt and position indicator set installed on the motor
- Encoder ABZ and Drive stopper motor
- 7 Segment Display 2 digits
- Alarm Buzzer and Relay 24Vdc
- DC Voltage Meter and DC Amp Meter
- Power Supply 24 V 4 A
- Working simulator water level and water pump, etc.
- The experimental set is made of insulating material. The front of the panel has a symbol that clearly displayed using screening or grooving technology, which can Resistant to abrasion very well packed in a strong aluminum bag. convenient to store

S/N F38640 (PLC Training Set)



## Technical details

- There are no less than 16 input points.
- 16 relay output points
- There is an LED on the PLC.
- Use 220VAC or 24 VDC, 3 A.
- Main memory in use 192KB
- Able to certify the language Function Block (FC), Data Block (DF) or Leader
- Pluggable memory (MMC) can be loaded up to 8 MB.
- Support for expansion interface modules: Profibus-DP slave (CP 342-5). ASI-master (CP 343-2 (AS-i V 3.0)), Ethernet Modem (TIM 3V-IE)
- There are 16 input switch points for testing the operation of the PLC input
- There is a connection point in the form of a safety socket, size 4 mm.
- The PLC can be installed vertically and horizontally.
- Installed on aluminum profile base, etc.



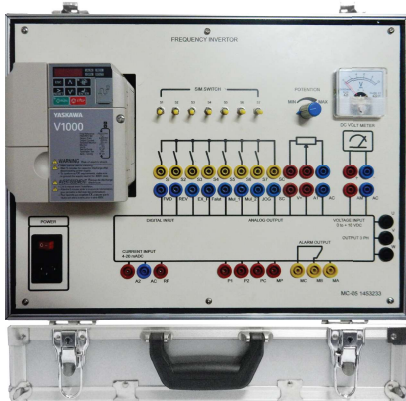
## Control Technology

**BRAND : FIELDTECH**  
**MODEL : F650**

### General details

The processor and instructions to the power unit and the various mechanisms. Can work together with a PLC, for example, can be used to control the simulation of power generation. Control work in the work station system and various applications. machine manufacturing, etc.

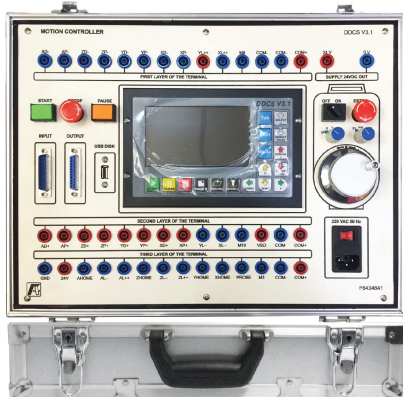
### S/N F34651 (Inverter Control Training Kit)



### Technical details

- Have a size of not less than 1/2 HP
- LCD or LED display numbers
- The output side is a 3-phase electric system, 0-380 V, frequency 1-320 Hz.
- Use with 3-phase power supply, 380 V, frequency 50 Hz.
- TORQUE BOOST control can be adjusted or can be able to program as AUTO TURNING
- There is a short circuit protection system. or over current, over voltage, voltage Under-rated, over-temperature that will harm the speed control unit.
- The experimental set is made of insulating material. The front of the panel has a symbol that clearly displayed using screening or grooving technology, which can Resistant to abrasion very well packed in a strong aluminum bag. convenient to store

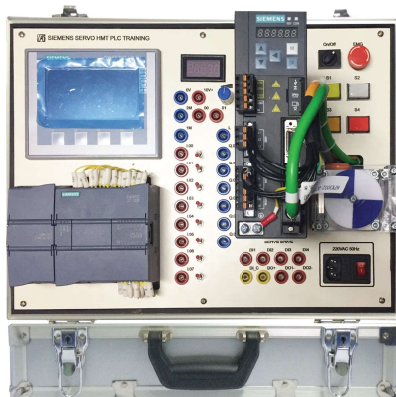
### S/N F34652 (Motion Control Training Kit)



### Technical details

- There are at least 16 input points and at least 3 output points.
- The number of outputs to operate the moving axis is not less than 4 axes.
- 4.3 inch TFT control screen
- There is an input switch. For use in testing input functionality.
- Have at least 17 key keypads
- Supports U-disk and supports commands G-CODE, M-CODE.
- Memory can store at least 5 kbytes of data.
- Controlling the output frequency up to 500k, etc.
- The experimental set is made of insulating material. The front of the panel has a symbol that clearly displayed using screening or grooving technology, which can Resistant to abrasion very well packed in a strong aluminum bag. convenient to store

### S/N F34653 (PLC and servo drive control system with Profinet)



### Technical details

- The PLC unit can be used in an automated production line.
- There is a push button switch, emergency push button switch, on-off switch.
- There is a display screen for the operation of the device can be touched.
- Servo drive with PROFINET, input voltage 200-240 V, 1/3 phase AC.
- The main frequency is 45 ... 66 Hz.
- Rated power 0.40 kW, etc.
- The experimental set is made of insulating material. The front of the panel has a symbol that clearly displayed using screening or grooving technology, which can Resistant to abrasion very well packed in a strong aluminum bag. convenient to store



## Rotrics (Hexbot)



### รายละเอียดทั่วไป

It is a 4-axis robotic arm for industrial applications and for education and training. The robotic arm can control simultaneous movements and each axis and can bring the experimental set to practice. In order to learn the working principle

### Technical details

- Have at least 380 mm.
- Weight support (Payload) 0.5 kg.
- Movement accuracy. (Repeatability) not more than 0.05 mm.
- The robotic arm communicates via a USB port.
- The robotic arm has a suction hand. Available in 3 different sizes
- The robotic arm has a three-sided soft gripper type gripper to grip the workpiece as
- The robotic arm can hold the work piece with a pen.
- The robot arm can print 3D parts.
- Have a mobile phone to control the movement. It is a touch screen type.
- The robotic arm is equipped with a portable air compressor, etc.

## Collaborative Robotic Arm (Z-Arm)



Z-Arm 1632



Z-Arm 2140

### Technical details

The compact all-metal body Z-Arm has access to It can reach 360 degrees completely, making it more useful. pick and place robot automatic speed

- Collaborative robots are designed with safety features. in working with humans

#### Z-Arm 2140

- Have at least 210 mm.
- Weight support (Payload) 3 kg.
- Movement accuracy. (Repeatability)  $\pm 0.03$  mm, etc.

#### Z-Arm 1632

- Minimum Z-Arm Mini makes Your Creation Maximum.
- Have at least 160 mm.
- Weight support (Payload) 1 kg.
- Movement accuracy. (Repeatability)  $\pm 0.01$  mm, etc.

## Delta Robot



DALTA x1



DALTA x2

### รายละเอียดทั่วไป

It's a mechanical arm robot. Ceiling installation for industrial Grab a handle that uses speed on a continuous bridge. and general grip work very well The robotic arm can control simultaneous movements. And the experimental set can be used for joint training in order to learn the working principle

### Technical details

- The length from the mounting base to the end of the handle is 420 mm.
- There is a working area of 320 mm.
- Able to lift a weight of 1,200 grams.
- Movement resolution  $\pm 0.1$  mm.
- Feedback position control.
- IP 54 degree of protection
- There is a program to control the work.
- Chuck set, etc.



# Instrumentation & Control Technology

## UFACTORY xArm 6 Robotic Arm



### Technical details

- The structure of the robotic arm is Collaborative Robot arm
- Weight support (Payload) 0.5 kg.
- Movement accuracy. (Repeatability)  $\pm 0.1$  mm.
- Arm reach is 700 mm.
- The overall axis has a speed of not less than 1m/s.
- A brushless DC motor is used to drive the robot arm's spindle.
- Harmonic Drive component gears
- There is an emergency stop switch. to protect the system
- Electrical connection
  - Supports power systems with power supply voltages and frequencies
- Between 220/230V, 50-60 Hz
- Robot connection
  - Inputs/Outputs are Standard 8/4, 24VDC
  - Can support Modbus TCP connection
- There is a virtual robot simulator.
  - Able to program Python SDK, ROS/ROS2 SDK, and C++ in control

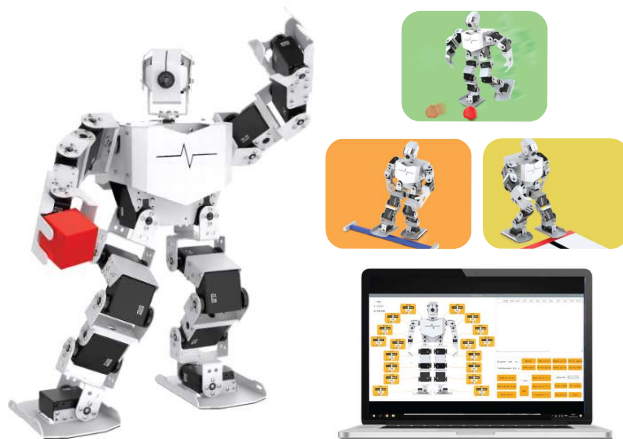
## AI, Mobile Service Robots



### Technical details

- The topic of working or learning no less than this.
  - Navigation, SLAM&VSSLAM, Vision, Machine Learning, Multi-Robot Cluster
- The mobile service robot set has the following details.
  - Have a battery voltage of not less than 12V, can supply a
- current of not less than 9800mA
  - Omni wheel type, not less than 3 wheels
  - Movement speed 1 meter per second
  - Approximately 3 hours of work per charge, etc.
- Working accessories set is as follows.
  - 6-axis motion sensor set
  - Two microphone audio receiver set
  - 3 watt speaker set
- Supported software or operating systems.
  - Linux, Python, C++
  - Support Open Source ROS/ROS2 etc.

## AI learning kit, human-like intelligent robot



### Technical details

- Learning topics
  - Gesture control, group movement control, split and transport system Intelligent Passing, Intelligent Kicking, Intelligent Obstacle Walk, intelligent step walking
- Robot Components
  - It has an approximate weight of not less than 1.65 kg.
  - Have a camera with a resolution of at least 480P
  - Have a battery capacity of not less than 11 V 10C
  - can work approximately 0-60 minutes
  - Controlled by servo motor
- Supported software
  - Android, IOS, PC, Handle
  - It's Open Python code.
  - Have Graphical software config for use



## IOT (Industries IOT) Training Set (Vision Inspection Process)

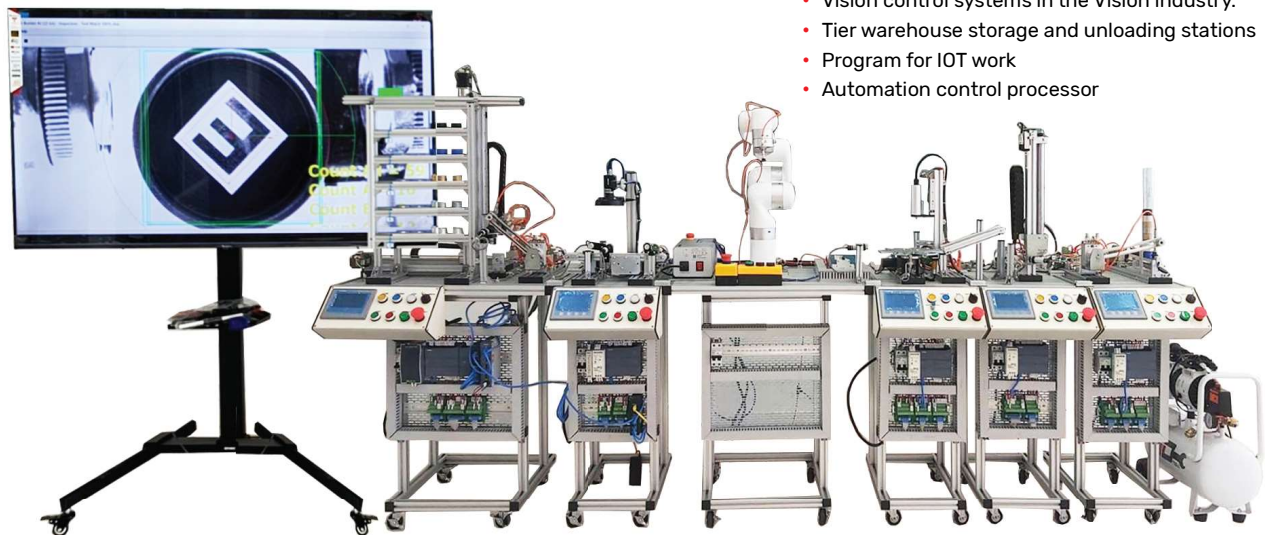
### General details

As a learning set The concept of Industry 4.0, production with Internet network connection in the form of industrial internet of things (IOT), MPS station model, simulates industrial work. Vision Inspection Process Working with Industrial Robotic Arms To test and learn automation control systems The Mable Logic Controller programmable device used to control the work. In which users can learn the operation of a variety of devices and sensors used in industrial applications. by communicating with software running on computers and internet networks that can be integrated Various systems to use for education Robotics, VISION, IOT to raise the trainee and practice to work with skill and expertise industry in the future as well. Stations can be disassembled and assembled to learn together and independently. able to learn specific stations Most of the structure is made of rust-free aluminum profiles. Have a strong connection, have a level, level or plane that is scaled to suit the job.

### Learning unit

- Loading and distributing stations
- Specimen testing station
- Processing stations
- Automated robot arm clamping station.
- Vision control systems in the Vision industry.
- Tier warehouse storage and unloading stations
- Program for IOT work
- Automation control processor

Working together 6 stations





## Multi Control System (MCS)

BRAND : FIELDTECH

MODEL : F670

### General details

It is a simulation set of a three-stage material separation control process, used in conjunction with RFID to collect process data. By giving an example of the process of separating 3 types of materials, users record the data that they want to separate 3 types of materials into the RFID TAG, after which the tank will move through the RFID reader/write head to read the information contained in the ID TAG when the RFID reads the data from the ID TAG by 3 types of materials will be separated to be loaded into place. according to the position specified in the ID TAG by controlling the movement of the belt  
Conveying by controlling the operation of the belt using PLC i in conjunction with the control unit can start and stop operation through

### S/N F38670-100 (Mechatronics Concepts Station)



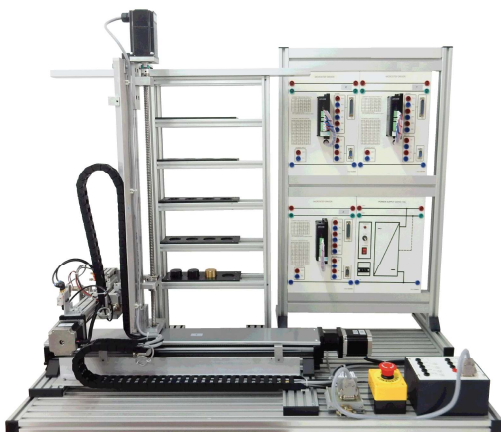
### General details

- Experiment kits can be used for education and learning about the process. Electronic control with PLC programmable system
- The experimental set consists of various parts: PLC experimental panel, experimental set ON-OFF/Automatic/Sequential Control and computer control

### Technical details

- Experiment kits can be used for education and learning about the process. Electronic control with PLC programmable system
- The experimental set consists of various parts: PLC experimental panel, experimental set ON-OFF/Automatic/Sequential Control and computer control computer for experimental control technical details
- Intermediate level PLC experimental set
  - Able to learn to use PLC both basic and advanced level by Assembled into an educational training set that can be easily moved.
- Belt drive unit with DC motor drive.
- Raw material dispensing unit
- A set of detectors to classify workpieces on the conveyor.
- Set of signal poles, tri-color, LED tube type
- A set of cylinders for holding the raw material workpiece with a set of fixings.
- Drill set
- Electric pneumatic valve set
- Two-way working cylinder for pushing the collecting work piece.
- Air filter and pressure regulator
- Clear compartment for separate types of workpieces.
- PLC control panel set
- System mounting bracket, etc.

### S/N F38670-200 WMS (Warehouse Management System) (Step Servo)



### General details

Experimental set of WMS warehouse system with automated robotic arm system It is an experimental set to learn the control system of various devices used in the real industry and applied to the warehouse system in all real industries.

### Technical details

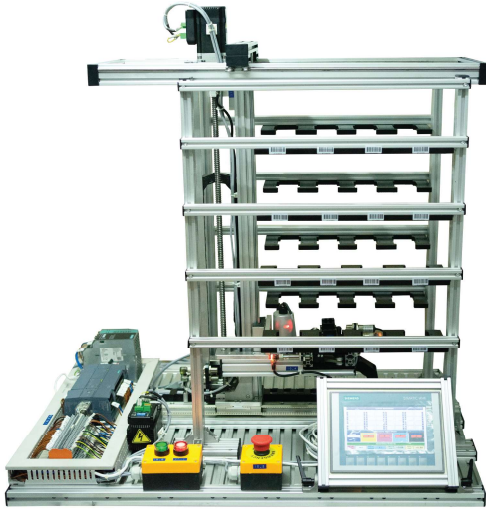


# Instrumentation & Control Technology

S/N F38670-300 (Warehouses Processing Two Storage Rack32 positions (MPS))

## General details

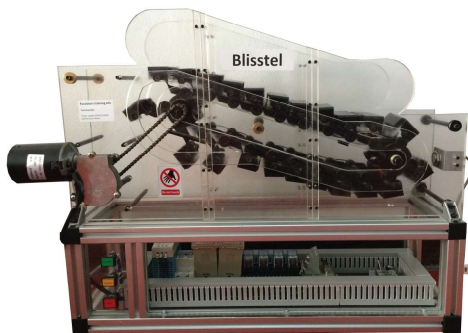
WMS Warehouse System Trial Kit with Mini-Load AS/RS Shuttle is an experimental kit for learning mechanics and controlling various devices. including communication systems used in real industry to be applied to the warehouse system in the real



## Technical details

- Warehouse set
  - Depot style, installed in left and right rows can adjust the distance in and out
  - The number of storage compartments is not less than 32 compartments and has barcode stickers attached.
  - The number of floors is not less than 4 floors, the distance can be adjusted up and down.
  - Box of workpieces There is a lid and a lock.
- AS/RS Shuttle System Kit
  - Principle of work to move boxes or workpieces into storage racks with vertical axis horizontally and vertically and can be stored left and right
  - horizontal axis operation distance of not less than 450 mm. driven by Timing belt, position controlled by motor
  - Working vertical axis drive distance of not less than 500 mm. move with Ball screw position control by motor
  - Shuttle set for moving boxes or workpieces moving distance There is a shelf to support boxes or workpieces. control movement no less than 3 positions with timing

S/N F38679-100 (Escalator Training Kit)



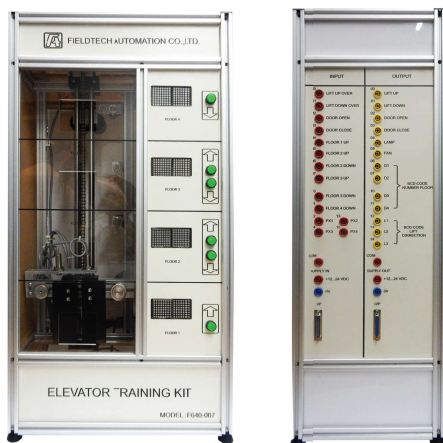
## General details

It is a demonstration set that shows the operation of an escalator for use in learning. Structured teaching, seeing the inner workings, being able to control the speed and being able to can scroll up and down

## Technical details

- Able to control the escalator to go up or down.
- There are at least 20 steps of stairs.
- There are handles on both sides that simulate the structure like a real escalator.
- The steps of the escalator before going up or down are flat.
- The speed of the escalator can be controlled.
- The rotating ladder guide is assembled from chains or belts.
- There is a clear plastic covering the side to see the movement of the stairs.
- The trainer can be controlled externally with a DB25 or safety socket.
- There is a timer system to protect safety.
- Protection system with emergency stop switch.
- There is a Relay to support the work, etc.

S/N F38679-200 (Lift Control System)



## Technical details

- Lift set
  - Have at least 4 floors of elevators
  - Mostly made of aluminum profiles and rust-free metal.
  - There is a MONITOR as an LED DOT matrix display showing the numbers of the lift. on each floor
  - There is a MONITOR as an LED DOT matrix display showing direction arrows. Up and down of the elevator on each floor and work flashing in a moving rhythm
  - can call for delivery on every floor with no less than 8 press switches showing the condition control of ascent, descent, emergency
  - The room and the elevator door can be controlled to close-open like real
  - The lift set has a counterweight set.
- electric control unit
  - output signals from all control units via relays
  - Each relay is operated with a working signal lamp.
- Drive unit uses a motor. direct current
  - Can be used with electricity 220 volts 50 hertz with short



# Instrumentation & Control Technology

## Multi Control System (MCS)

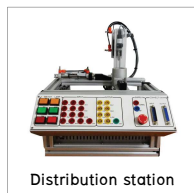
BRAND : FIELDTECH

MODEL : F670

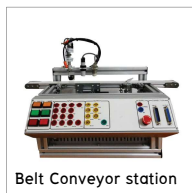
### General details

It is a training set that is produced specifically for education. Simulates the automatic control system for the industry, focusing on the transfer of workpieces. Sorting conveyor belt Moving work by forklift Installed on a separate aluminum profile base as a station. work continuously Each station can be tested independently. Designed for people learning how to operate equipment in electrical pneumatic systems. Practice design and control skills. Applications with PLC control and electric motor systems use 24 VDC to ensure the safety of the experimenter.

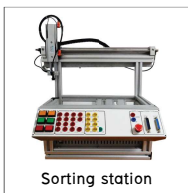
### S/N F38671-100 (The Modular Production System (3 Station))



Distribution station



Belt Conveyor station



Sorting station

### Technical details

Automation test kit It is an experimental kit for recognizing automatic control systems and processes using various sensor devices. that is right in the industry Work in the system, including integration with various powered devices. Such as wind systems, electric motors and PLC control, and can work separately as a module.

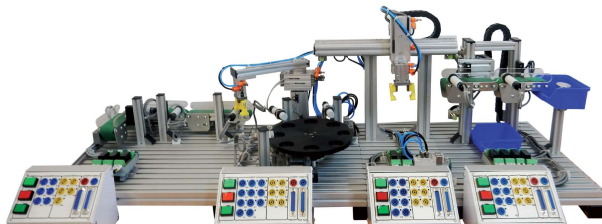
It consists of 3 stations as follows:

- Station 1 Dispensing and punching unit in an automatic system.
- Station 2: Conveyor belt in automatic system
- Station 3, workpiece storage set in an automatic system

### Accessories

- AIR COMPRESSOR WITH PRESSURE REGULATOR set
- operating table
- a set of test cables
- Set of test cables, 25 pin plugs
- Air pipe 4 mm., etc.

### S/N F38672-100 (The Modular Production System (4 Station))



Belt Conveyor Station



Testing Section Station



Positioning 2 axis Station



Lifting platform Station

### Technical details

It is a training set that is produced specifically for education. Simulates an automatic control system for industry, emphasizing on the transfer of workpieces installed on the aluminum profile base, separated into 4 separate stations working continuously, each station can be tested independently.

It consists of 4 stations as follows:

- Station 1: BELT CONVEYOR
- Station 2 : TESTING SECTION
- Station 3: POSITIONING 2 AXIS
- Station 4 : LIFTING PLATFORM

### Operation panel set

- The top panel is made from die-cast aluminum components with U-grooves. For mounting the size of not less than 2 mm. The other side has a wing for fixing the front plate. There are at least 2 holes for threading on the side.
- The bottom panel is made from die-cast aluminum parts with U-grooves. For fixing the size not less than 2 mm. The other side has a wing for fixing the plate. The side face has holes for tapping at least 2 points.

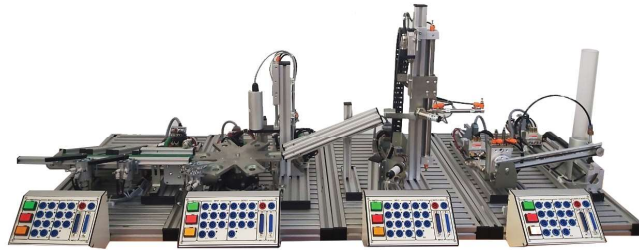
### Accessories

- AIR COMPRESSOR WITH PRESSURE REGULATOR set
- Continuous connection cable set
- Set of test cables, 25 pin plugs
- PU air hose Dia. 4 mm., etc.



# Instrumentation & Control Technology

S/N F38673-100 (The Modular Production System (4 Station))



Distribution station.



Processing station



Pick and Place station



Sorting station

## Technical details

Automation test kit It is an experimental kit for simulating automated control systems and processes using equipment. various sensors That is used in the industry, working in the system, including working with various drive devices such as pneumatic systems, electric motors and PLC control, and can work separately as a module.

It consists of 4 or more stations as follows:

- Parts distribution station
- Sensor test stations
- work place
- work station
- Two-axis moving station.
- Camera Inspection Station
- Horizontal Storage Station
- 3-shelf storage station ((3 to 6)x4 level)
- Robot arm station, etc.

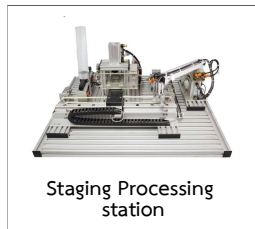
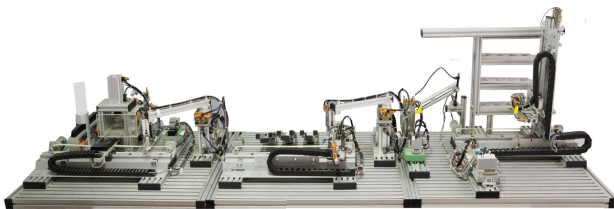
## Accessories

- AIR COMPRESSOR WITH PRESSURE REGULATOR set
- Operating table
- Continuous plug cable set.
- Test cable set, 25 pin plug
- PU air hose Dia. 4 mm., etc.

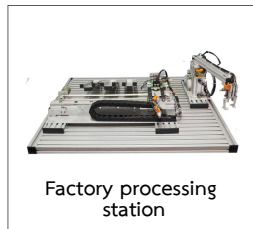
S/N F38674-100 (WMS Warehouse Management System)

## General details

The WMS Warehouse Management System with Mini-Load AS / RS Shuttle is an experimental kit for learning mechanics and controlling various devices. Including communication systems used in real industries To be applied to warehouse systems in real industries, users can save the data they want to separate 3 types of materials into the RFID TAG, after which the container will be moved through the RFID reader / writer head to read. Information contained in 3 ID TAGs to be loaded into position. according to the position specified in the ID TAG



Staging Processing station



Factory processing station



Warehouse Processing 3 level station

## Technical details

Automation test kit It is an experimental kit for simulating automated control systems and processes using equipment. various sensors That is used in the industry, working in the system, including working with various drive devices such as pneumatic systems, electric motors and PLC control, and can work separately as a module.

It consists of 3 stations as follows:

- Loading and distributing stations
  - Processing stations
  - 3-shelf storage training set
    - Vertical workpiece working with pneumatic system
    - The arm is Chupodo Drive aluminum, the handle is a suction type.
    - Most of the structure is aluminum frame, all stations can be used together.
- \* (Can be used with PLC, valve control system and electrical system. 24 VDC motor)

## Accessories

- AIR COMPRESSOR WITH PRESSURE REGULATOR set
- Operating table
- Continuous plug cable set.
- Test cable set, 25 pin plug
- PU air hose Dia. 4 mm., etc.



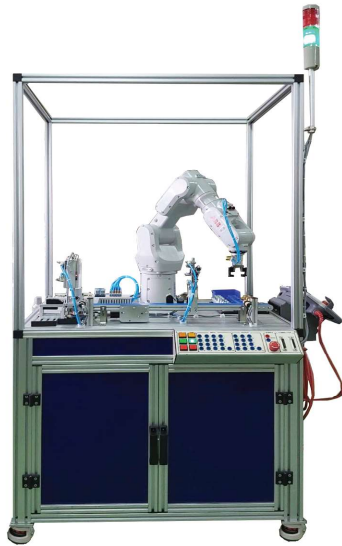
# Instrumentation & Control Technology

## General details

It is a 6-axis robotic arm for industrial applications. The robotic arm can control simultaneous movements and each axis and can bring the experimental set to practice. To learn the working principles and control the robotic arm very well.

- Workpieces can be transported from one place to another and can be used together automatically.
- Able to work independently or in conjunction with other training sets.
- It is a robotic arm that consists of a robot arm like Industries Robot that can work at least 6 axes, can be installed in every direction of work.

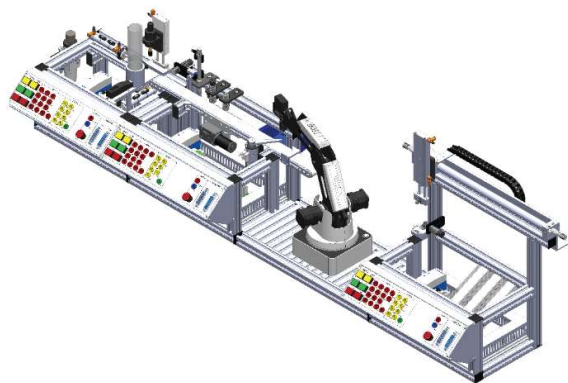
## S/N F38675-100 (Industrial Automation Control Operating System Via IOT System)



### Technical details

- Industrial robots
  - It has a vertical articulated arm structure.
  - Able to carry a total work piece of not less than 4 kg.
  - There are at least 6 axes for moving the robotic arm.
  - Have a reach of the arm not less than 580 mm.
  - Have a protection rating of IP40 or better.
  - The repeatability error at the original position (RP) is not more than 0.1 mm.
  - Repeatability of rectilinear motion (RT), not more than 0.05 mm
  - There is an emergency stop switch. to protect the system
  - Experimental panels made of aluminum profiles can perform two experiments The side has a size of 700x500x30 mm.
- Control unit for the operation of the robot.
- Operation panel set (Pendant)
- Virtual robot simulator.
- Dispensing and punching unit in automatic system.
- Conveyor belt in automatic system
- Automated storage units, etc.

## S/N F38671-200 (Industrial Automation Control Operating System Via IOT System)



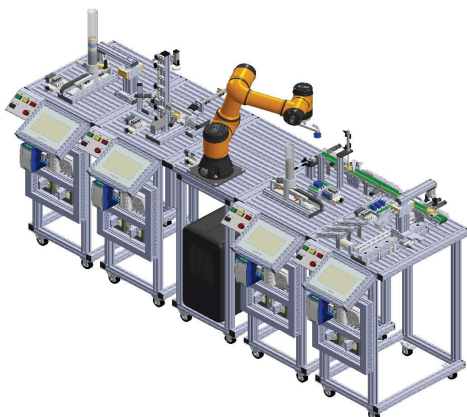
### Technical details

It is a training set for learning how to control various automation systems. With a programmable logic controller (PLC) to operate over the internet. Learn both wind and electric propulsion systems. Industrial sensors learn from the basics to industrial applications and learn to operate through the Internet.

It consists of 4 stations as follows:

- Station 1 Dispensing and punching unit in an automatic system.
- Station 2: Conveyor belt in automatic system
- 3rd station, automatic robotic arm set
- 4th station, workpiece storage unit in an automatic system

## S/N F38675-200 (Industrial Automation Control Operating System Via IOT System)



### Technical details

It is a training set for learning how to control various automation systems. With a programmable logic controller (PLC) to operate over the internet. Learn both wind and electric propulsion systems. Industrial sensors learn from the basics to industrial applications and learn to operate through the Internet.

It consists of 5 stations as follows:

- Station 1, work piece distribution unit
- Station 2, test piece set
- Station 3: 6-axis automatic robotic arm
- Station 4: Test work piece with sensor
- Station 5 Sorting and storing workpieces

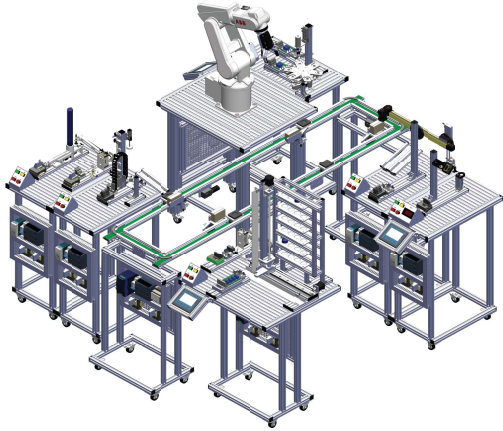


# Instrumentation & Control Technology

## General details

It is a learning package based on the industry 4.0 concept and to integrate the production system with the Internet network connection in the form of industrial internet of things (IIoT). Industry which can disassemble and assemble a set of stations to learn together and independently for learning a specific station. Most of the structure is made of rust-free aluminum profiles. Strong and stable connection. Programmable logic controllers used in automatic control can learn the operation of various devices and sensors used in industrial applications.

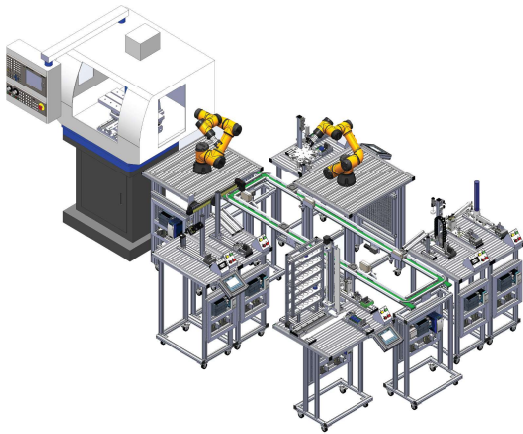
### S/N F38676-1 (Industrial Automation Control Operating System Via IIoT System (FMS))



#### It consists of the following learning stations:

- Parts distribution station
- Sensor test stations
- Two-axis workpiece transfer station.
- Processing stations
- 6-axis robotic arm station
- Camera Inspection Station
- Storage and distribution station, 6 shelves, 4 sockets
- Open-loop conveyor belting station.
- PLC programmable controller with touch screen.
- Programmable automatic control system
- IIoT System Control Training Kit
- computer
- Digital electric meter, etc.

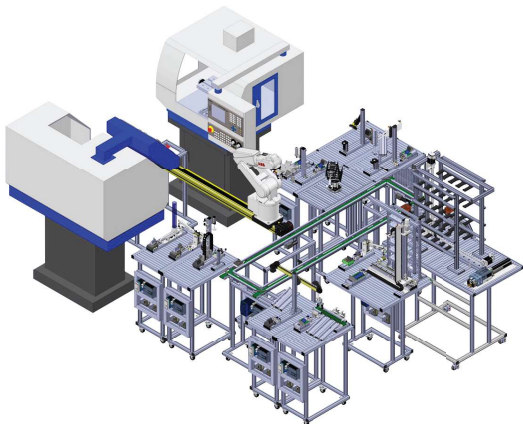
### S/N F38676-2 (Industrial Automation Control Operating System Via IIoT System (FMS))



#### It consists of the following learning stations:

- Parts distribution station
- Sensor test stations
- Two-axis workpiece transfer station.
- Processing stations
- 6-axis robotic arm station
- Camera Inspection Station
- Storage and distribution station, 6 shelves, 4 sockets
- Open-loop conveyor belting station.
- Workpiece production station with CNC milling machine
- PLC programmable controller with touch screen.
- Programmable automatic control system
- IIoT System Control Training Kit
- computer
- Digital electric meter, etc.

### S/N F38676-3 (Industrial Automation Control Operating System Via IIoT System (FMS))



#### It consists of the following learning stations:

- Parts distribution station
- Sensor test stations
- Two-axis workpiece transfer station.
- Processing stations
- 6-axis robotic arm station
- Camera Inspection Station
- Storage and distribution station, 6 shelves, 4 sockets
- Open-loop conveyor belting station.
- Workpiece production station with CNC milling machine and CNC turning machine
- PLC programmable controller with touch screen.
- Programmable automatic control system
- Training kit for IIoT system control, etc.



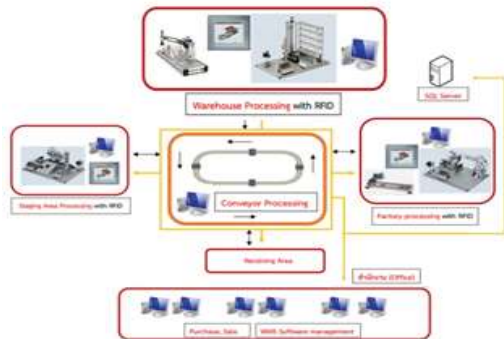
## Logistics System Simulator

### General details

Logistic System Simulator is a design and planning system for logistics to optimize production, planning and sales and management. Covering various logistics processes

### With the following learning topics

- The process of simulating the office (Office).
- Factory-In-Factory Process (RFID)
- Inventory simulation using RFID (WMS).
- Provision of a processing area (RFID)
- Conveyor belt
- Programmable touch screen and programmable driver.



### Technical details

- Station module input module
- RFID tag module mounting kit
- Set the module to move the workpiece horizontally.
- Warehouse Management Program
- Automatic station storage and distribution system
- RFID read and write module
- Set the module module to arrange workpieces.
- Linear conveyor modules.
- Round belt model 1200X800 mm.
- Module kit, inspection kit
- Touch screen control unit.
- Programs to connect and communicate between devices and software.
- Software packages for electrical circuit design and pneumatic hydraulics.
- Interactive virtual reality simulation software suite.
- Controlled by a computer.
- Projector with display.
- Equipment and tools, etc.

### ► Logistics function concept

#### Goods receipt process



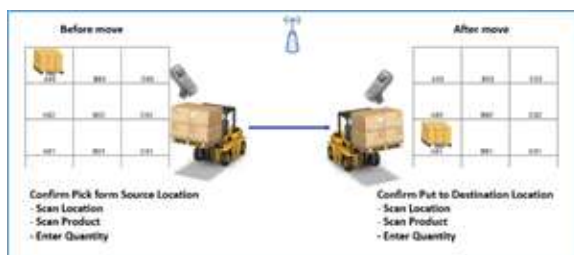
#### Work procedures Out of stock



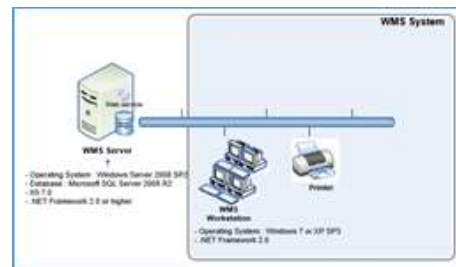
#### Manual moving procedure



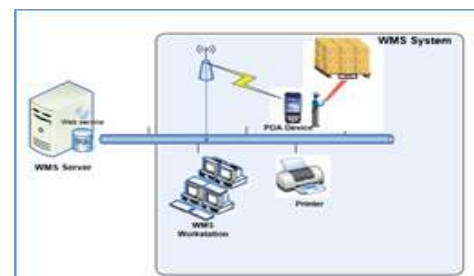
#### Real Time Moving Process



#### WMS Software Management

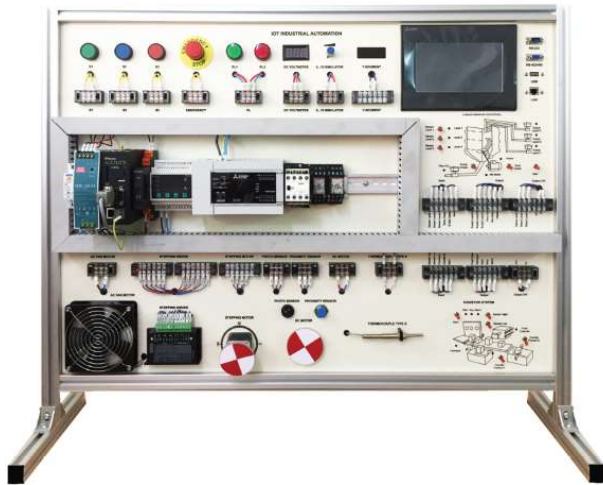


#### WMS Standard Edition





## Programmable Logic Controller Control Through The Internet.



### General details

A training set to control operation with a programmable logic control through the Internet. It is an experimental training set designed to be suitable for learning. Prepared as a set that installs various equipment on the panel, assembled with a stand, convenient to use in teaching. Consists of each set of equipment as follows



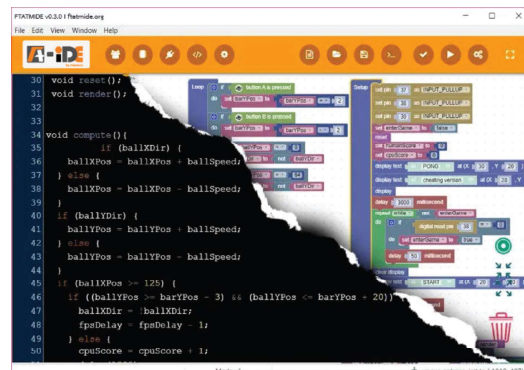
### Technical details

- There are 32 digital input and output channels.
  - There are 2 analog inputs and 1 analog output.
  - There is one Ethernet communication channel and one RS485 communication channel.
- Touch screen (Touch Screen) number 1, the details are as follows.
  - Touch screen (Touch Screen) size is not less than 4.3 inches, the screen is a color TFT LCD.
  - Have at least 8 MB of internal memory and have at least 3 communication ports such as RS-232, RS422/RS485, Ethernet.
- Display control equipment and software and connection to the Internet (IoT) amount 1 set
- Analog signal input 0 to 10 VDC or standard signal type. Quantity not less than 1 set
- Analog signal output display. Not less than 1 number
- Display (7-Segment) that can display at least 4 digits, not less than 1 set.
- Input device There are at least the following devices:
  - Temperature sensor, Photo sensor, Proximity sensor, 1 each
  - Push button switch (Push Button Switch) No less than 3 characters
  - No less than 1 emergency stop switch
- Output devices
  - 1 DC Motor
  - 1 AC Fan Motor
  - Stepping Motor and Driver, voltage 24 VDC, amount 1 set
  - 2 relays (Relay) voltage 24 V DC and 2 lamp (Lamp) voltage 24 VDC
- Power supply (Power Supply), voltage 24 VDC, amount 1 unit
- PLC programming simulator using input and output devices To simulate the operation of the system, at least 2 experiments.

### FT-integrated development environment

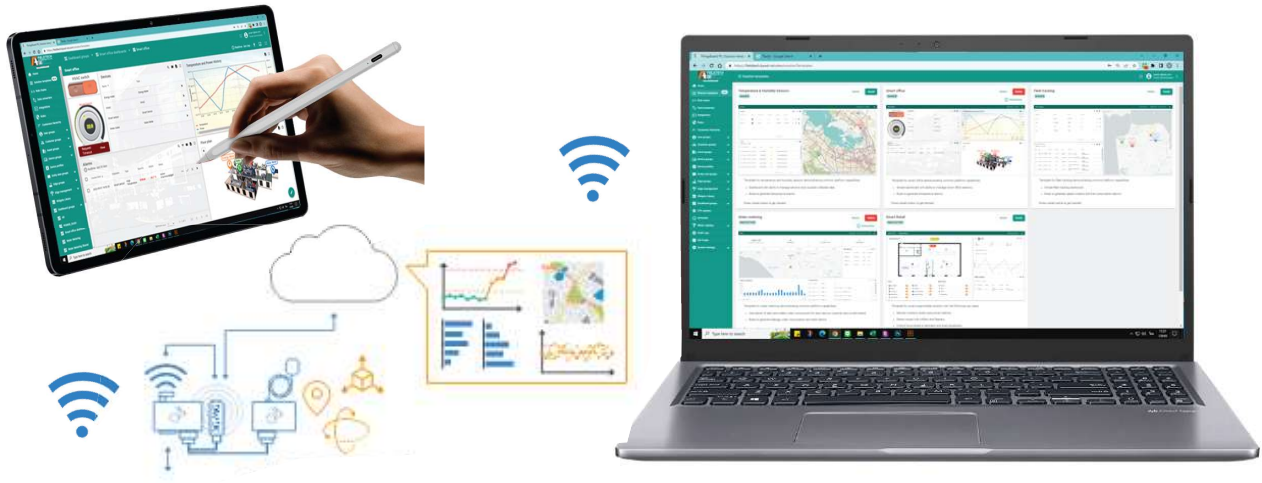
Supports block programming (drag-and-drop) and writing Code type program (Code Editor) in Arduino style

- Basic Level type will be a type of dragging a block like a jigsaw puzzle.
- Programmer Level type: This is a type of programming. Generic Arduino IDE
- Supports a wide variety of boards Whether the Arduino board Various models or ESP, etc. In the future, more boards can be added.
- Support Adding Plugins and Library





## IOT System

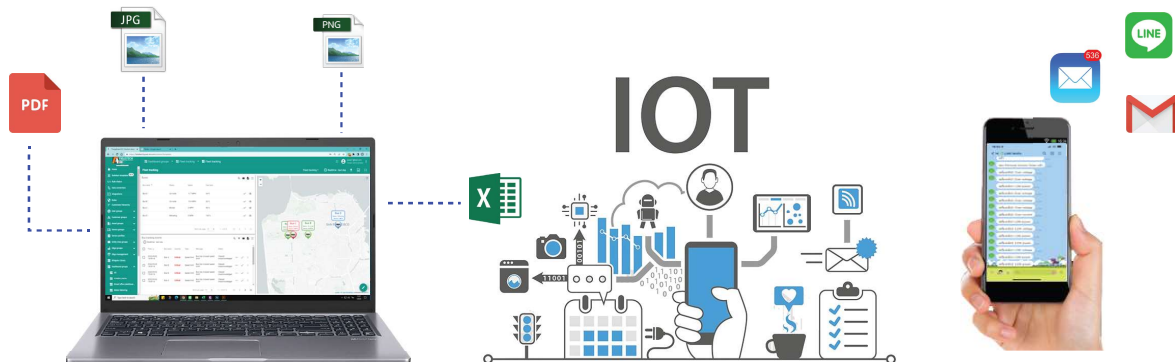


## IOT Software

Software for working, connecting, reading, able to create simulation data from Tablet or Smartphone or Computer via connection.

Bluetooth or WIFI system and supports data collection in the network with no less than this capability.

- Able to transmit data from device to server and server to device.
- Able to write scripts to notify various status.
- There is a system to check the status of devices connected to the server Connect, Disconnect, Activity, Inactivity.
- Entity View can manage data fetch from database to be displayed as Schedule and remember the access rights of each user.
- RPC Capabilities is a system that can request operations to the device or device can reply to the request status back to the server.
- Advanced RBAC For IOT can separate the operation of the system into groups that can request or command operations to the device as a set or as group
- White-labeling Can change the style of the platform look.
- Custom Translation can customize the style of the menu and language.
- Support for working with platforms and protocols not less than this.
  - HTTP protocol, MQTT protocol, OPC-UA, Activity Thing Park, The Things Network (Lora), AWS IoT, AWS kinesis, IBM Watson, Azure Event Hub, TCP, UDP, Sig Fox, Custom Integration Development, Line Notify, SMS use Telegram Bot
- Entity Groups can be customized to show how group devices are displayed, with a single change affecting every device in which they are displayed in the group set
- Scheduler can preset the operation of the system. to operate device genre port as needed and able to update devices in other groups
- Reporting can create a report device.
- Able to create CSV/XLS data export.
- Able to add device from JSON file.
- File Storage When a report is generated, it can be stored on the server for viewing at any time.





## Process Control

BRAND : FIELDTECH

MODEL : F660

### General details

It is a training set for simulating the production process control system (Pressure), controlling the heat process (temperature), controlling process, flow rate (Flow rate) and level (Level) in industrial plants by using real equipment commonly used in industrial plants. which various control systems It can be controlled through the control of devices that can be used both automatically. and not automatic which can display and save various values by computer Strong metal construction and safe to use

S/N F38661 (Pressure Process Control Training Set)



### Technical details

- Process controller (Process PID Controller)
  - The display is LCD type with built-in backlight or better.
  - Capable of single loop control
  - The data communication system is RS485 MODBUS.
  - The type of control is PID Control.
  - Able to adjust control parameters, etc.
- Film Pressure Transmitter
  - Pressure measurement range : 0 - 5 bar
  - Provides a signal output as 4 - 20 mA or 0-10VDC Output.
- Strain gauge Pressure transmitter Transmitter)
- Diff-Pressure Transmitter
- Pressure Switch
  - It is a pressure measuring device with a switch to cut off the electrical system.
  - There is a button to adjust the cut-off pressure setting with the switch difference adjustment point.
  - able to measure pressure not less than 5 Bar ( kg / cm<sup>2</sup> )
  - There is a Switch Output type SPDT (Com - NO - NC).
- Needle pressure meter (Pressure Gauge)
- Digital Pressure Gauge
- Speed control (VSD Inverter)
- Process Tank
- Computer with touch screen (Industrial Panel Computer), etc.

S/N F38662 (Temperature Process Control Training Set)



### Technical details

- Single Loop Controller
- Resistance Temperature Detector (RTD)
  - It is a RTD type PT-100 temperature probe.
- Thermocouple temperature sensor (T/C)
  - It is a type-K thermocouple temperature sensor.
- RTD Temperature Transmitter
  - Used to convert temperature values from RTD type sensors to standard signals.
- T/C Temperature Transmitter
  - Used to convert temperature from T/C type meter to standard signal.
- Temperature Sensor with Transmitter
- Analog Temperature Gauge
- Temperature detection switch (Thermostat)
- Hot Water Generator
- Process Tank
- Motorized Control Valve
- Electric valve (Solenoid Valve)
- Water Pump
- Speed control (VSD Inverter)
- Computer with touch screen (Industrial Panel Computer), etc.



# Instrumentation & Control Technology

S/N F38663 (Flow & Level Process Control Training Set)



## Technical details

- Process controller (Process PID Controller)
  - The display is LCD type or better.
  - Can control Single Loop, Cascade, Ratio control.
  - Output control type is PID type or better.
  - Able to adjust Control parameters such as Proportional, Integral, Derivative Value
  - able to receive signals that are Voltage or Current or Resistance (ohm) or RTD or Thermocouple etc.
- Flow Batch Controller
- Turbine Flow meter
- Magnetic Flow meter (Magnetic Flow meter)
- Flow Indicator/Transmitter
- Ultrasonic Level transmitter
- Hydrostatic Level transmitter
- Digital Level Indicator for level meter.
- Motorized Control Valve
- Water Pump
- Speed control (VSD Inverter)
- Water tank
- Level process tanks
- Computer with touch screen (Industrial Panel Computer), etc.



## SCADA Control System

**BRAND : FIELDTECH**

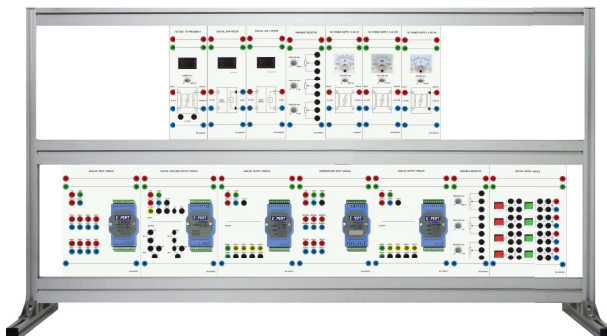
**MODEL : F690**

### General details

It is an experimental training set designed for those who have studied and learned to have a better understanding of signal conduction from various industrial measuring instruments. to display and store data with a software system computer with the following learning topics

- Various standard signal characteristics, both continuous and discrete.
- Connecting standard signals with various types of Remote I/O Modules and transmitting data with computers.
- Displaying and storing different types of data with SCADA Software.

S/N F10690 (Monitoring & SCADA Control Training Set)



## Technical details

- Standard Signal Source
  - Continuous signal (Analog Signal)
  - discrete signal (Digital Signal)
- PC Interface I/O Module
  - Continuous analog signal input connection unit
  - Continuous input temperature measurement signal connection unit
  - Continuous output signal connection unit
  - Digital input and output connection set
  - Signal converter set to connect data communication with computer
  - Converter RS232 to RS 485
  - Converter USB to RS 485
  - Auto Switching Baud Rate up to 115.2kbps



# Pneumatic Technology

## Pneumatic Training Set

BRAND : FIELDTECH

MODEL : F700

### General details

It is a pneumatic experiment and control unit designed for teaching and learning based on technology, today and technology for the future. Be able to learn and practice integrated experiments, innovations, and follow the Thailand 4.0 development plan by using each type of experiment. Including the design of various circuits can be set programs and devices must be assembled and designed to work together well.

### S/N F21711 (Basic Pneumatic Training Set)



### Experimental equipment consists of

- Pneumatic workbench set
- Single acting cylinder, double acting cylinder.
- Air quality improvement kit, regulator, air distribution unit
- Pressure gauge, relief valve, one-way air cylinder speed adjustment valve
- Single air valve (OR), Double air valve (AND)
- Vacuum generating unit with suction nozzle.
- Delay valve Timer valve
- Vacuum sequence valve
- Pressure sequence valve
- The 3/2 valve is mechanically operated two-way normally closed.
- 3/2 valve is mechanically operated, one way, normally closed.
- 3/2 valve is manually operated, push-button normally closed.
- The 5/2 valve is manually operated.
- Valves 3/2, 5/2 are operated by spring return air.
- Valves 3/2, 5/2 are pneumatically operated on both sides.
- 5/3 valves are pneumatically operated on both sides, etc.

### S/N F21741 (Electro Pneumatic Training Set)



### Experimental equipment consists of

- Pneumatic workbench set
- Single acting cylinder, double acting cylinder.
- Air quality improvement kit, regulator, air distribution unit
- Pressure gauge, one-way air cylinder velocity valve
- The 3/2 valve is manually operated, the 5/2 valve is manually operated.
- Valves 3/2, 5/2 are operated by electromagnets, return by spring.
- Valves 3/2, 5/2 are operated with dual electromagnets.
- The 5/3 valve operates with a dual electromagnet.
- The limit switch is operated by two push rollers, spring-loaded.
- CAPACITIVE, OPTICAL, INDUCTIVE PROXIMITY SENSOR
- Push switch signal switch set
- RELAY set
- DC power supply set 24 VDC 5 A
- Pick up delay relay
- Off delay relay
- Counter display set
- Indicator units, etc.





# Pneumatic Technology

S/N F34711 (Basic Pneumatic Training Set (Bag))

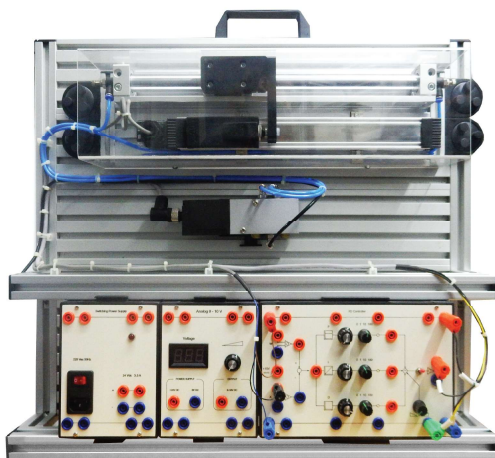
S/N F34741 (Electro Pneumatic Training Set (Bag))



## Experimental equipment consists of

- Carrying case for experimental equipment
- Single acting cylinder, double acting cylinder.
- Air quality improvement kit, regulator, air distribution unit
- Pressure gauge, relief valve, one-way air cylinder speed adjustment valve
- Single air valve (OR), Double air valve (AND)
- The 3/2 valve is manually operated, normally closed Push-button, the 5/2 valve is manually operated.
- 3/2 valve air operated with spring return, 3/2 valve double air operated
- 5/2 valve air operated with spring return, 5/2 valve double air operated
- The 5/3 valve is pneumatically operated on both sides.
- The 3/2 valve is operated by electromagnetic, spring return.
- The 3/2 valve operates with a double-sided electromagnet.
- The 5/2 valve is operated by electromagnetic, spring return.
- The 5/2 valve operates with dual electromagnets.
- 5/3 valves operated with dual electromagnets, etc.

S/N F21761 (Advanced Pneumatic Training Set)



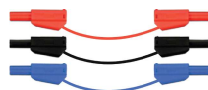
- Proportional valves
- Operation control unit
- There is a working level indicator to send electrical signals.
- signal control unit
- Able to conduct closed and open circuit control experiments.
- Multipliers can be set individually as follows.
  - P adjusts 1X, 10X, 100X.
  - I adjust 1X, 10X, 100X
  - D Adjusts 1X, 10X, 100X.
- The control signal can be unilaterally operated at 0-10V.
- The control signal can be duplexed at the position.
  - Left-Center-Right at (-10V) - 0 - (+10V) and (0-4.5V) - (4.5-6.5V) - (6.5-10V)
- There are settings so that the movement distance can be set, etc.

## Equipment for experimental set



### Air pump

- Motor is 550 watts 220V/50HZ
- The tank has a capacity of 25 liters.
- Loud noise no more than 60 decibels



### Safety connecting lead

- Wire to the circuit size 4 mm.
- Double safety socket type size 4 mm.
- Size 25 cm., 50 cm., 75 cm., 100 cm, 150 cm
- available in black, red, blue



### Plastic tubing PU

- size outside 4 mm.
- size outside 6 mm.
- size outside 8 mm.



### Connector

- T-connector
- Y-connector
- Straight Fittings
- Use with large diameter air ducts
- Outer diameter 4 mm.



### Tubing cutter

- Used to cut the wind of the trial set. Pneumatics



# Hydraulic Technology

## Hydraulic Training Set

BRAND : FIELDTECH

MODEL : F800

### General details

It is a series of experimental and controlled hydraulics designed for teaching and learning in a technological way. today and technology for the future Be able to learn and practice integrated experiments, innovations, and according to the Thailand 4.0 development plan by using each type of experiment, including designing various circuits. Programmable and various devices must be assembled and designed to be compatible with

S/N F21811 (Basic Hydraulic Training Set)



### Experimental equipment consists of

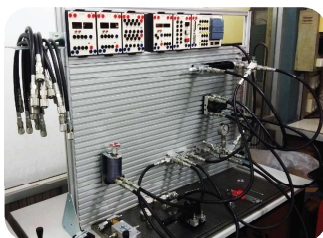
- Hydraulics operating table set
- Double acting cylinder.
- 4-way oil supply set, the joint can supply oil.
- Adjustable pressure relief valve type (Direction operated).
- Pressure gauges, shut-off valves
- One-way flow control valve, two-way flow control valve.
- Non-return valve, hydraulic motor
- Pressure control valves
- Pressure sequence valve
- Counter balance valve
- Brake valve
- Safety valve
- Adjustable 3-way pressure regulating valve.
- Piloted Operated pressure reducing valve
- Piloted Operated Pressure Control Valve
- Piloted Operated Pressure Priority Valve
- Valve 4/2, 4/3, manual operated, spring return, etc.

S/N F21841 (Electro Hydraulic Training Set)



### Experimental equipment consists of

- Hydraulics operating table set
- Double acting cylinder.
- 4-way oil supply set, the joint can supply oil.
- Adjustable pressure relief valve type (Direction operated).
- Pressure gauges, shut-off valves, non-return valves
- One-way flow control valve, two-way flow control valve.
- Adjustable pressure switch.
- Valves 4/2, 4/3 are operated by electromagnets, return by spring.
- The limit switch is operated by two push rollers, spring-loaded.
- CAPACITIVE, OPTICAL, INDUCTIVE PROXIMITY SENSOR
- Push switch signal switch set
- RELAY set
- DC power supply set 24 VDC 5 A
- Pick up delay Relay, Off delay Relay
- Counter display set
- signal display, etc.





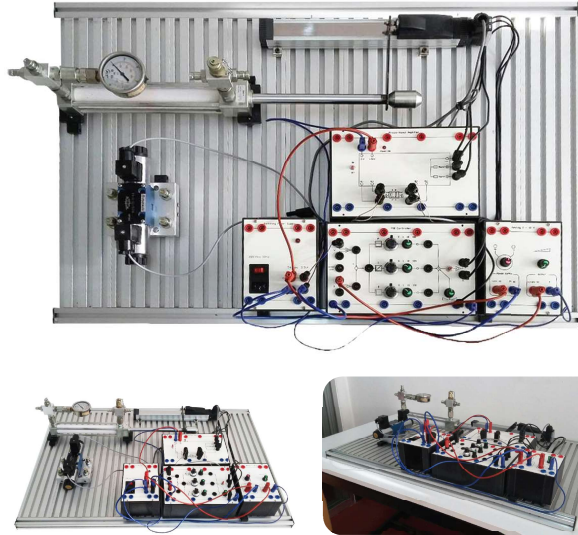
# Pneumatic Technology

BRAND : FIELDTECH  
MODEL : F860

## General details

The Advanced Hydraulics Training Kit is a unique educational kit ideal for learning advanced hydraulics with PID together.

S/N F21861 (Advanced Hydraulic Training Set)



## Technical details

- 4/3 valve operates proportionally.
- Operation control unit
- There is a distance indicator of not less than 150 mm.
- signal control unit
- Digital display set can be adjusted at least 10 characteristics.
- Able to conduct closed and open circuit control experiments.
- Multipliers can be set individually as follows.
  - P adjusts 1X, 10X, 100X.
  - I adjust 1X, 10X, 100X
  - D Adjusts 1X, 10X, 100X.
- The control signal can be unilaterally operated at 0-10V.
- The control signal can be duplexed at the position.  
Left-Center-Right at (-10V) - 0 - (+10V) and (0-4.5V) - (4.5-6.5V) - (6.5-10V)
- There are settings so that the movement distance can be set, etc.

## Equipment for experimental set



### Hydraulic Power Unit

- Electric motor uses electricity 220-240 V/50 Hz
- The oil pressure produced is not less than 120 bar.
- Flow rate not less than 1.2 liters/min.
- There is a Switch on / off, turn on and off.
- With oil level and oil pressure gauges
- with oil pressure limiting valve



### Oil Tray

- The top has a grille to prevent falling equipment.



### Hose line with quick release coupling

- Length 700 mm.
- Length 800 mm.
- Length 1,000 mm.
- Length 1,300 mm.
- Length 1,500 mm.



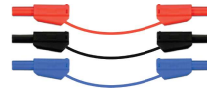
### Hydraulic cable hanger

- Able to hang 15 hydraulic lines



### Electrical cable hanger

- Can hang 20 wires



### Safety connecting lead

- Wire to the circuit size 4 mm.
- Double safety socket type size 4 mm.
- Available in sizes 25 cm., 50 cm., 75 cm., 100 cm, 150 cm



### Hand tools



# Automotive

## Vehicle Electrical System

BRAND : FIELDTECH  
MODEL : F910

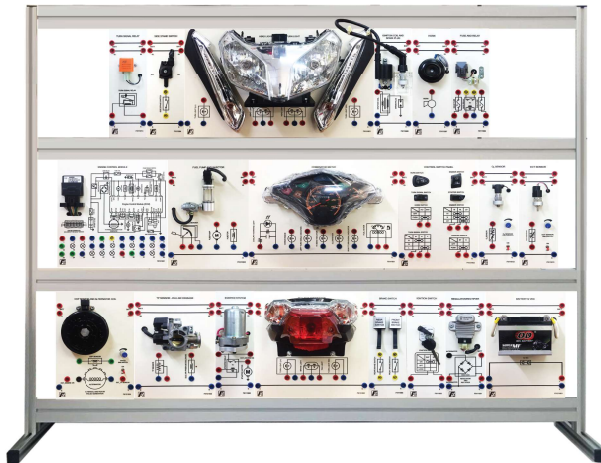
### General details

To study and practice various circuits And test the operation, such as the ignition circuit. Horn signal circuit, charging, power circuit, etc.

S/N F10910 (Motorcycle Electrical Training Set)

### General details

It is a motorcycle electric training board that uses electronic fuel injection. contains components in the circuit And can be used to train the complete motorcycle electrical system of the motorcycle.



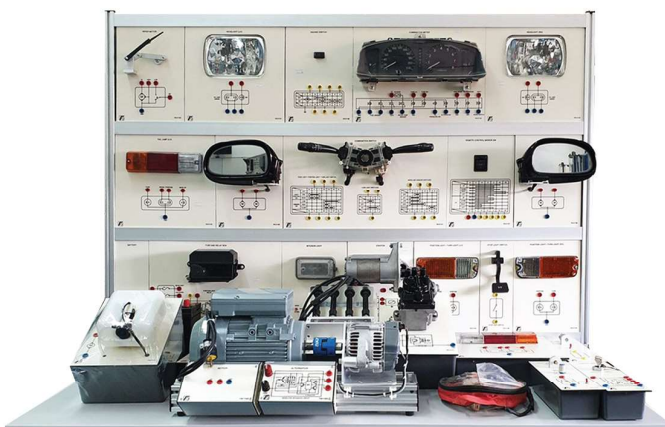
### Technical details

- electronic control unit Controls fuel injection and controls ignition.
- The ignition circuit consists of an ignition coil which is controlled from the unit. electronic controls and spark plugs Ready ignition sparks can be seen. adjustable spark plug gap
- The fuel injection circuit consists of a set of injectors controlled from the control unit. electronics Installed in clear glass tubes or clear plastic tubes. to show the condition injection and fuel injection volume with fuel pump set
- Light circuit (high - low), tail light, mileage light, emergency light (if any)
- Turn signal circuit, brake light circuit, horn circuit
- The charging circuit consists of a magneto regulator that can adjust the speed.
- Fuel level indicator circuit
- Starter system circuit with starter motor
- There are key switches, fuses and various control relays along with the instrument panel.
- Various sensors to measure and operate the electronic

S/N F10911 (Vehicle Lighting System Training Set)

### General details

It is a device for training the vehicle's lighting system about the lighting system, the ignition system, the starting system, the charging system, the lighting system, and the assistive devices. and various flicks can train the circuit connection



### Technical details

- Training equipment Electric lighting system, signal lights, with devices and switches to control. Can practice in various electrical circuits as follows: lighting, high beam, low beam, dimming light, good light, sign light, light Mileage, turn signals, emergency lights and brake lights
- Training equipment Electrical systems for assistive devices and various gauges, with accessories as a training set as follows: ignition switch, fuse, relay Mileage display, fuel gauge, heat gauge, with a set of sensors to measure the fuel level and engine temperature with a wiper motor and switch control with water spray motor
- Training equipment Ignition system, starter, charger, IC regulator with equipment and control switches It can be practiced in various electrical circuits as follows: ignition system, starting system, IC regulator charging system. with motor drive size 1/4 HP.



## Ignition System

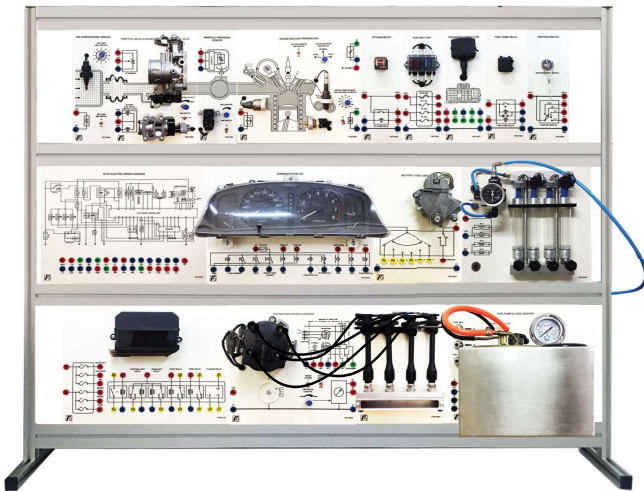
**BRAND : FIELDTECH**

**MODEL : F920**

### General details

It is a training set to study the working system of the car. Use electronic control devices such as power transmission systems, fuel systems. Ignition system and electricity. The experimental set is a panel system. Both sides are homogeneously coated with a smooth, non-reflective material.

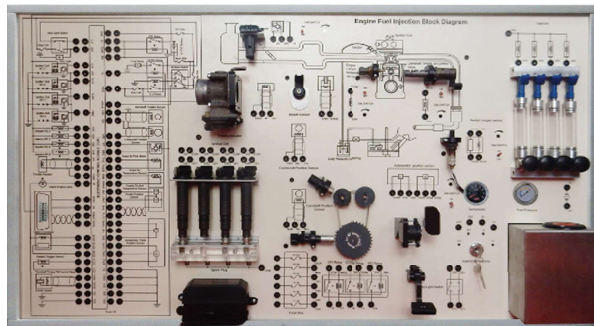
S/N F10920 (EFI Electrical Electronic Training Set)



### Technical details

- It is a training set to study the working system of the car by using electronic control. such as powertrain, fuel system, ignition system and electrical
  - Ignition start switch panel
  - Fuse Box Unit panel
  - Starter System panel
  - Panel Air Temperature Sensor
  - Throttle Valve & Rotary Idle Speed Control Valve panel
  - Map Sensor panel
  - Engine Mixture Preparation panel
  - Panel Idle Control Valve (Solenoid)
  - Engine Control Unit panel
  - Fuel Pump & Level Sensor & Fuel Pump Relay Panel
  - Distributor Driver & Sensor panel
  - Ignition Coil & Ignitor panel
  - Panel Spark Plugs Unit 4 Pole
  - Panel Ignition Distributor, Magnetic Ignition System, etc.

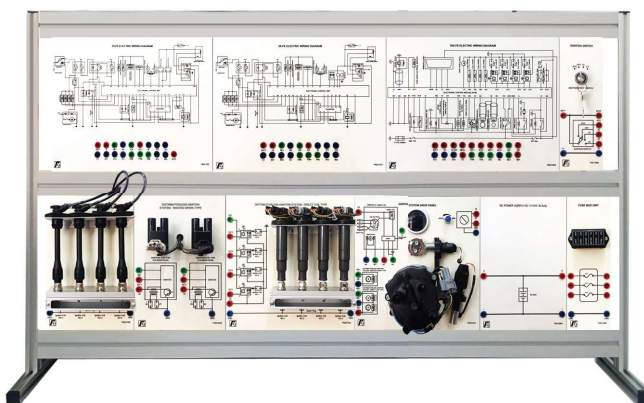
S/N F36920 (VVTI Electrical Electronic System Training Kit)



### Technical details

- It is a training set to study the working system of the car by using electronic control. such as powertrain, fuel system, ignition system and electrical
  - Ignition start switch circuit
  - Circuit Fuse Box Unit
  - Starter System Circuit
  - Air Temperature Sensor circuit
  - Throttle Valve & Rotary Idle Speed Control Valve circuit
  - Engine Mixture Preparation Cycle
  - Idle Control Valve (Solenoid) Circuit
  - Engine Control Unit Circuit
  - Fuel Pump & Level Sensor & Fuel Pump Relay Circuit
  - Distributor Driver & Sensor circuit, etc.

S/N F10921 (3 Type Car Ignition System Training Set)



### Technical details

- It is a training set for the ignition system. To provide students with an understanding of the ignition system of the engine. Able to analyze and fix crashes
  - The ignition system kit must be able to demonstrate its operation by varying the maximum dispensing speed to 4000 RPM at the angle of the crankshaft.
  - It is a demonstration set which shows the operation of various types of ignition systems like real conditions.
  - Can be used with electrical circuits of various types of ignition systems as in real conditions.
  - Electronic advance angle acceleration ignition system
  - Magnetic transmitter type with electronic control unit
  - Ignition system without distributor, Waste Spark and Direct coil with electronic control unit, etc.

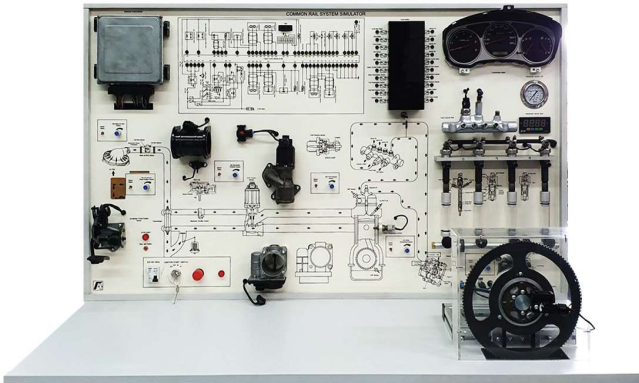


## Ignition System

S/N F36925 (Common Rail Training Set)

### General details

It is a set of panels showing the operation of installing the diesel common rail electronic injection system in the engine. The demo kit is a real device that can be mounted on a workbench. It fully simulates the operation of the



### Technical details

- It is a demonstration panel of common electronic injection diesel system. Rail installed in the engine of common rail system etc.
  - Includes a set of fuel pumps, dispensing hoses and common rail injectors
  - There is a set of electronic control boxes. It is the same model with a complete set of common rail pump and injectors.
  - There are various sensor sets that are required to be used in the control system of simultaneous fuel supply. with working simulation set
  - There is a fuel pressure gauge in the high pressure system. of the fuel pump Common Rail Fire (Digital)
  - Able to display and measure the amount of fuel injection in the system for all 4 injectors
  - Can be used with alternating current 220V 50Hz by using a motor with speed control
  - There is a control switch with a short circuit protection device of electricity.
  - There are various signal measurement points. of devices and sensors connected to the ECU with the symbol of the connection of the circuit
  - Various symbols and circuits of the equipment on the demonstration panel is prepared by screening method

## Brake-Automatic Transmission

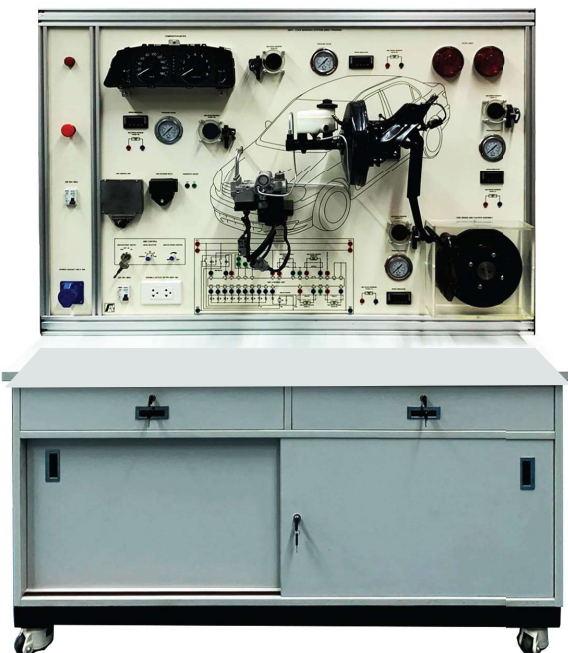
BRAND : FIELDTECH

MODEL : F940

### General details

The ABS training kit is a demonstration of the ABS braking system in a car with drivetrain. The motor can simulate the ABS

S/N F36941 (ABS Brake Control System)



### Technical details

- It is a practice set to simulate the operation of the ABS braking system. It can simulate wheel lock. By installing a set of disc brakes with a complete set of brakes to show braking in various conditions .
  - Electronic box set controls the operation of the ABS braking system.
  - A set of sensors to detect the rotational speed of the wheels with equipment
  - Wheel rotation speed display set digital number dial
  - There is a pressure gauge of the brake fluid in the system at the wheel.
  - Set to generate oil pressure in the brake system consists of Brake master pump, brake booster and brake pedal, brake fluid distribution control device
  - Disc brake kit showing ABS brake operation while rotating with motor and inverter rotational adjustment device.
  - There is a relay to control the operation of the brake system. with a port for connecting to a brake system diagnostic tool
  - Car models are printed. along with showing the position of installing the equipment of the braking system in the car
  - There is a set of switches to control the operation of the ABS braking system experimental set.
  - Set of lamps indicating the operation of the brake system, etc.



## Automotive Training Kit

**BRAND : FIELDTECH**

**MODEL : F900**

### General details

Parts must be assembled and functioning properly and safely. Must be used in practice on components in various systems. Practice disassembling various systems or practicing using a training kit to analyze to find faults or the operation of electric vehicles. which can simulate problems with various systems In order for students to practice skills in solving problems in order to maintain various problems that occur with electric cars. In addition, the electric vehicle practice set is a real car. Electrical measuring instruments and personal protective equipment must be provided to teachers and students. to prevent danger from electric current Including basic general tools and specific tools used with electric vehicles (VDE Tools) used in work. Electric vehicle practice set like a real car The essential components of the electric vehicle must be clearly identified and identified as new and never used before. Including the training set must have a computer program for simulating the

S/N F39901 (Real Electric Car Training Set)



### Technical details

- Electric vehicle practice set like a real car. It is a training set used for teaching practice about electric cars like real cars, which consists of the following parts:
  - Electric Power train
  - Transaxle and Transmission
  - Suspension
  - Steering, Restraints
  - Air conditioner
  - Body Interior, Body exterior, and vehicle Security
  - Drive control
  - Charging, Brake, etc.

### Experimental subject

- High voltage battery
- Power conversion module (Inverter)
- Battery charging system (On board charger)
- High voltage battery cooling system
- battery cooling system)
- Personal protective equipment equipment)
- Motor drive (Traction moto)
- Diagnosis system for electric vehicle faults
- Air conditioning system, etc.

S/N F39902 (Pickup Truck)

### General details

Standard cab pickup trucks with diesel engines. manual transmission system Rear wheel drive with braking system Light-ing, signaling and air conditioning systems are equipped with all parts of the car. Complies with manufacturer standards



### Technical details

- Engine (Engine)
  - It is a 4-cylinder in-line diesel engine.
  - (Inline Engine) cylinder capacity not less than 2400 cc.
- Transmission system (Transmission)
- Weight support system (suspension)
- Brake system (Brake)
- Steering system
- Type and Wheel
- Fuel tank
- Spare tire with wheels and spare tire.
- Engine parts, etc.



# Automotive

## General details

Parts must be assembled and functioning properly and safely. Must be used in practice on components in various systems. Practice disassembling various systems or practicing using a training kit to analyze to find faults or the operation of electric vehicles, which can simulate problems with various systems. In order for students to practice skills in solving problems in order to maintain various problems that occur with electric cars. In addition, the electric vehicle training station Electrical measuring instruments and personal protective equipment must be provided to teachers and students, to prevent danger from electric current. Including basic general tools and specific tools used with electric vehicles (VDE Tools) used in work. Electric vehicle training station The essential components of the electric vehicle must be created and clearly identified separately from the above details. As for the electric vehicle equipment, it is used equipment in good condition. Including the training set must have a computer program for simulating the situation through a mobile phone or tablet.

S/N F38905 (Electric Vehicle System Training (Station))



### Contains the following training sets:

- Electric Vehicle Battery and Management Training Package
- Electric charge system set
- Electric vehicle electric power steering training set
- Electric vehicle propulsion and control system training set
- Electric Vehicle Air Conditioning and Heating Systems Training Kit

## Technical details

- Electric Vehicle Battery and Management Training Package
  - Understand the structure of the battery pack High voltage of electric vehicle EV Car and working principle, learn high voltage battery and BMS system with display circuit board and connections and measurement points, etc.
- Electric charge system set
  - Used for charging high-voltage batteries of electric vehicles that meet safety standards.
- Electric vehicle electric power steering training set
  - Learn how to check winding insulation of steering motors (DC motors), etc.
- Electric vehicle propulsion and control system training set
  - Able to understand the high voltage and low voltage wires in the motor drive system and their working principles, etc.
- Electric Vehicle Air Conditioning and Heating Systems Training Kit
  - Understand resistance and temperature change
  - Understand how to check temperature sensors etc.
- Electric vacuum power and electric vehicle parking aid training kits
  - Use the real equipment of the electric booster system and electronic parking assistance system of the electric vehicle EV Car, and show the component structure of the electric booster system and electronic parking assistance system.
- electric vehicle electrical training system
  - Understand the structure and working principle of low voltage electrical system, etc.
- A software package to learn electrical circuits.

Module 1



Module 2



Module 3



Module 4



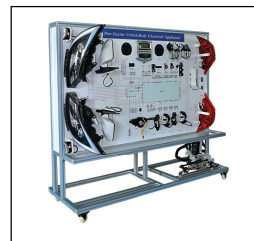
Module 5



Module 6



Module 7



### Option

- Hand tool set
- Measuring tool set
- Personal Protective Equipment

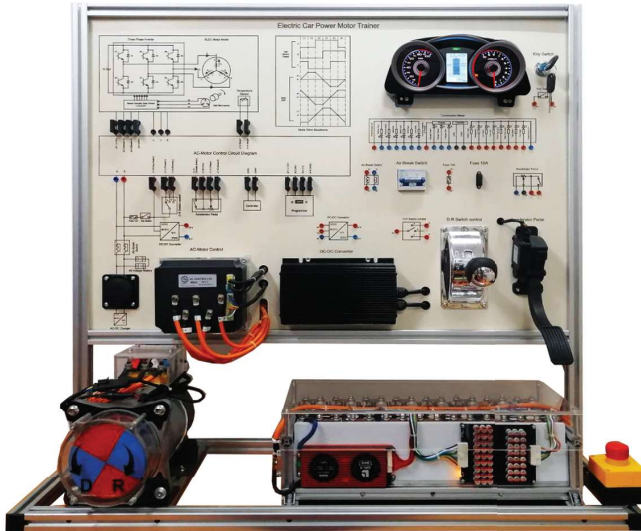


# Automotive

S/N F36963 (Basic electric vehicle circuit experiment and testing kit)

## General details

Practice and basic electric vehicle circuit test kit, training panel It is a training set for learning and practicing skills on various systems, control, disassembly or circuit connection, and inspection of electric cars by using real equipment and systems from electric cars. The experimental set is designed to be able to study from theoretical basis to maintenance practice. about electric vehicle technology in particular



## Technical details

An electric vehicle basic circuit test and demonstration set, a practice panel, consists of electric vehicle equipment. Mounted on the table, panel type, with grooved circuits and symbols. Ready to fix the control device on the training panel. circuit connection point on the mounting plate to understand the work Each set contains

- Electric motor
- Motor control unit
- High Volt Battery (HVB)
- DC to DC Converter
- Accelerator Pedal
- Charger charging set
- Brake system, electrical signals
- There is a switch to cut Air breaker, size not less than 48V/100A.
- Key switch for turning on and off the system.
- There is a fuse for overcurrent protection.
- Gear system not less than 3 positions.
- Comes with Panel Female Charger Plug EV 3p size 48V/16-63A
- Wiring harness for voltage connector circuit
- Display of electric cars, etc.

S/N F38915 (Electric Vehicle Circuit Test Kit With Real Driving System)

## General details

Electric vehicle circuit test and competition set with real propulsion system It is a training set for learning and practicing skills on various systems, control, disassembly or circuit connection and inspection. and testing the real electric vehicle propulsion system using real equipment and systems from electric cars The experimental set is designed to be able to study



## Technical details

Electric vehicle circuit test and competition set with real propulsion system It consists of electric vehicle equipment installed on a front-wheel drive vehicle structure. It has a grooved circuit board and symbol, along with a steering system. Ready to fix the control device on the training panel. Circuit connection point on the device mounting panel. to understand the work Each set contains

- Electric motor and motor control unit
- High Volt Battery (HVB)
- DC to DC Converter
- Accelerator Pedal
- Charger charging set
- Brake system, electrical signals
- Brake system on 4 wheels, disc or drum brakes
- Steering system
- Transmission system with drive shaft
- Able to carry at least 2 people including the driver.
- There is a switch to cut Air breaker, size not less than 48V/100A.
- Key switch for turning on and off the system.
- There is a fuse for overcurrent protection.
- Gear system not less than 3 positions.
- Comes with Panel Female Charger Plug EV 3p size 48V/16-63A
- Wiring harness for voltage connector circuit
- Display of electric cars, etc.

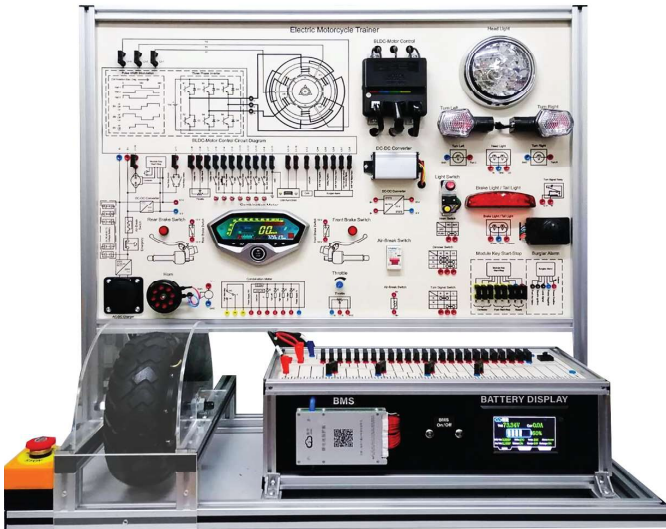


# Automotive

S/N F36931 (Electric Motorcycle Practice Set)

## General details

The electric motorcycle practice training compact is used to learn about Key components of two-wheeled or three-wheeled electric motorcycles and practice skills on various systems, control, disassembly or circuit connection and inspection electric motorcycle using real equipment and systems from electric motorcycles The experimental set is designed to be able to study



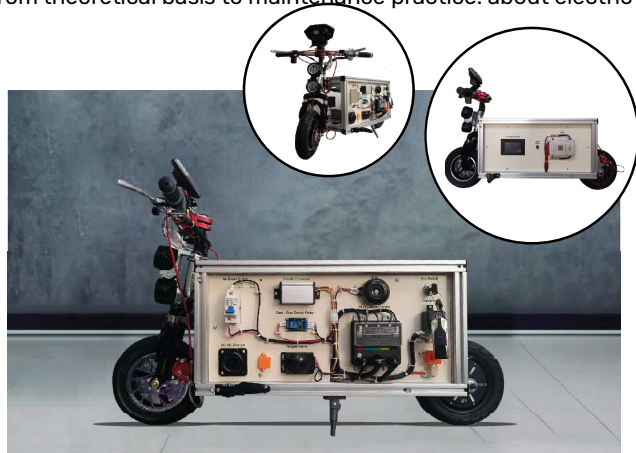
## Technical details

- drive motor
  - The drive motor is a 3-phase BLDC type.
  - Drive motor compatible with DC voltage
- Power converter module (Inverter)
- Throttle (Handle Throttle Accelerator)
- Drive selector switch
- DC/DC converter
- Combination meter
- Battery charging point (charge port)
- High voltage battery
- There is a switch for front brake and rear brake.
- There is a left and right turn signal.
- There is a horn for the driving warning system.
- There is a front light that can be adjusted high and low.
- There is a tail light with a brake light.
- All equipment of the electric motorcycle must be assembled and mounted on the trainer panel, ready to be assembled and circuited for the trainer to work properly and abrasion-resistant electrical circuits are grooved on the trainer panel.

S/N F38931 (Test kit for disassembling and assembling an electric motorcycle with a real propulsion system)

## General details

Electric motorcycle practice training kit is used for learning about Key components of two-wheeled or three-wheeled electric motorcycles and practice skills on various systems, control, disassembly or circuit connection and inspection electric motorcycle using real equipment and systems from electric motorcycles The experimental set is designed to be able to study from theoretical basis to maintenance practice. about electric vehicle technology in particular



## Technical details

- drive motor
  - The drive motor is a 3-phase BLDC type.
  - Drive motor compatible with DC voltage
- Power converter module (Inverter)
- Throttle (Handle Throttle Accelerator)
- Drive selector switch
- DC/DC converter
- Combination meter
- Battery charging point (charge port)
- High voltage battery
- There is a switch for front brake and rear brake.
- There is a left and right turn signal.
- There is a horn for the driving warning system.
- There is a burglar alarm.
- There is a front light that can be adjusted high and low.
- There are taillights with brake lights, etc.
- All equipment of the electric motorcycle must be assembled and mounted on the training panel, ready to be assembled and circuited for the training suit to work properly and abrasion-resistant electrical circuits are grooved on the training suit panel.





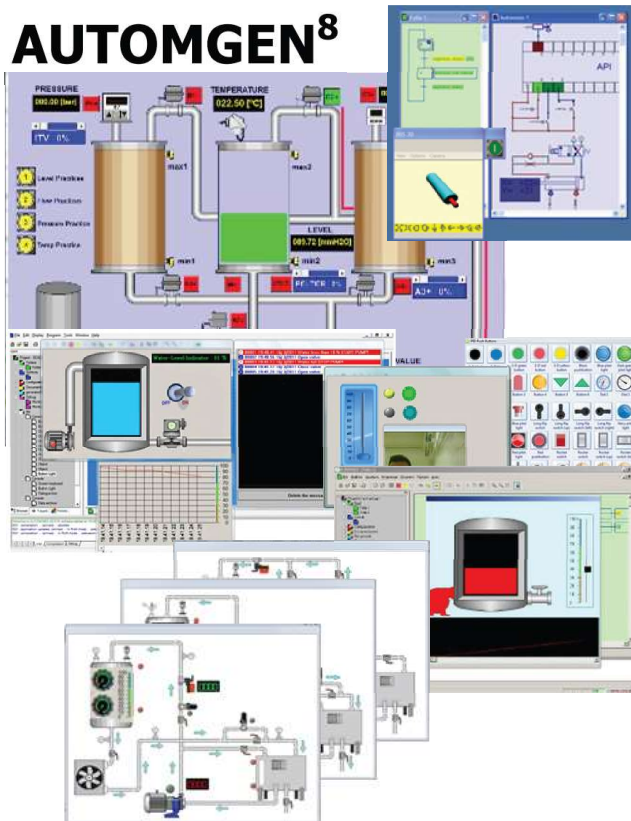
# Software

## Learning Guide



- Learning Guide Thai and English
- Software manual
- Produced from a certified company which is a training kit manufactured to ISO 9001: 2015 (Design and Manufacturing Including Sales and After - Sales service of Education Teaching Media and Training Kits for Engineering).

## Automgen8 Automation Software

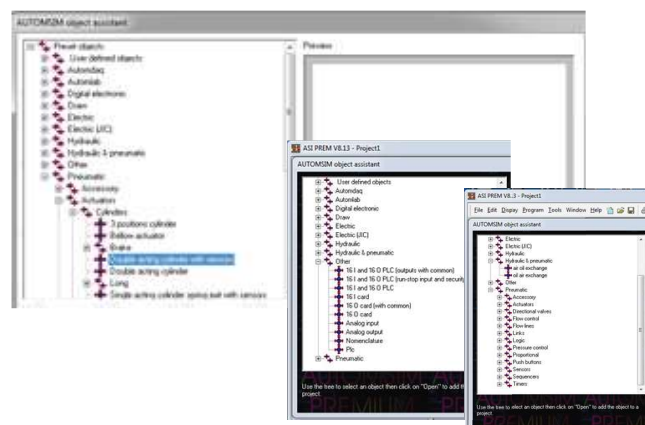


### Automation software

- SCADA , HMI
- PLC programming
- Input / Output control & monitoring on PC
- Realistic 3D process simulation with physical engine
- Electric, pneumatic, hydraulic and digital electronic Simulation (With AUTOMSIM optional module)

### Technical details

- Supervisory Control and Data Acquisition (SCADA, HMI)
- SCADA is an industrial measurement and control system consisting of a central host or master (usually called a master station, master terminal unit or MTU) usually used for plant & facilities process controls. One or more field data gathering and control units or remotes (usually called remote stations, remote terminal units, or RTU's) and a collection of standard and/or custom software used to monitor and control remotely located field data elements.
- Monitoring Temperature in a process control system
- Monitoring Level of a tank in a process control system
- Monitoring Flow path and volume in process control system

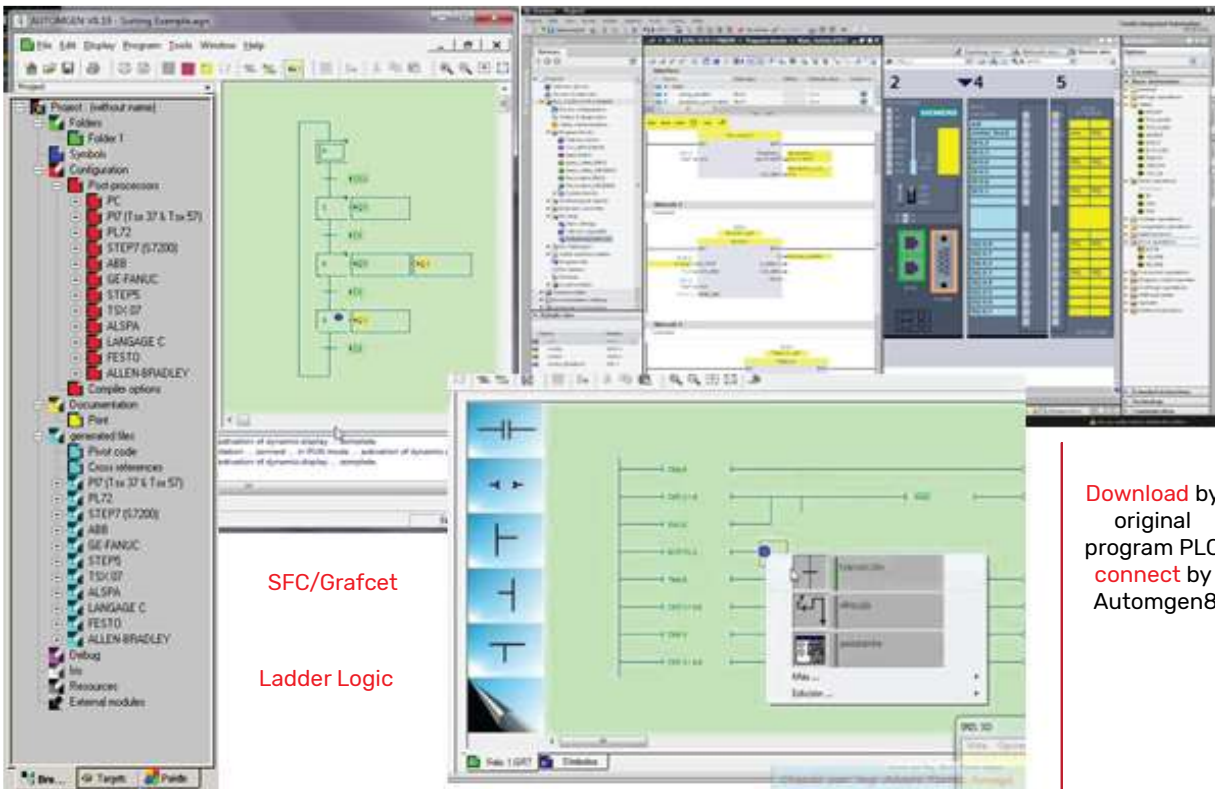




# Software

## Automgen8 Automation Software

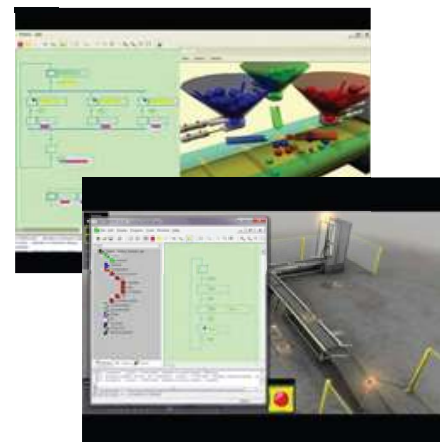
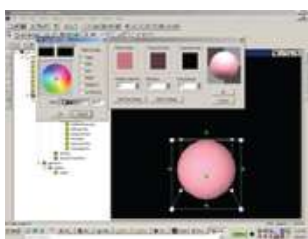
### PLC programming



Able to **connect** and download directly to most PLCs  
OMRON, SIEMENS, Allen Bradley, Mitsubishi. EXT...



- Able to interface external components with PC using
  - USB I/O interface modules
  - Ethernet connection
  - Modbus
- Realistic 3D process simulation with physical engine
  - Allows import of 3D files from SOLIDWORKS, 3D STUDIO, VRML etc





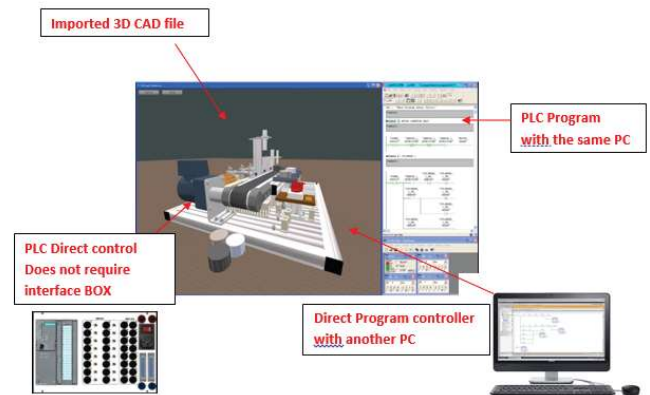
# Software

## Virtual Universe Pro Software

### General details

This program is controlled with a virtual 3D interactive digital electronic circuit simulation using the pneumatic, hydraulics and PLC integration. This integrated simulation can be controlled and run with the same program. The Program Control Software is able to communicate with hardware components using compatible drivers together with OPC.

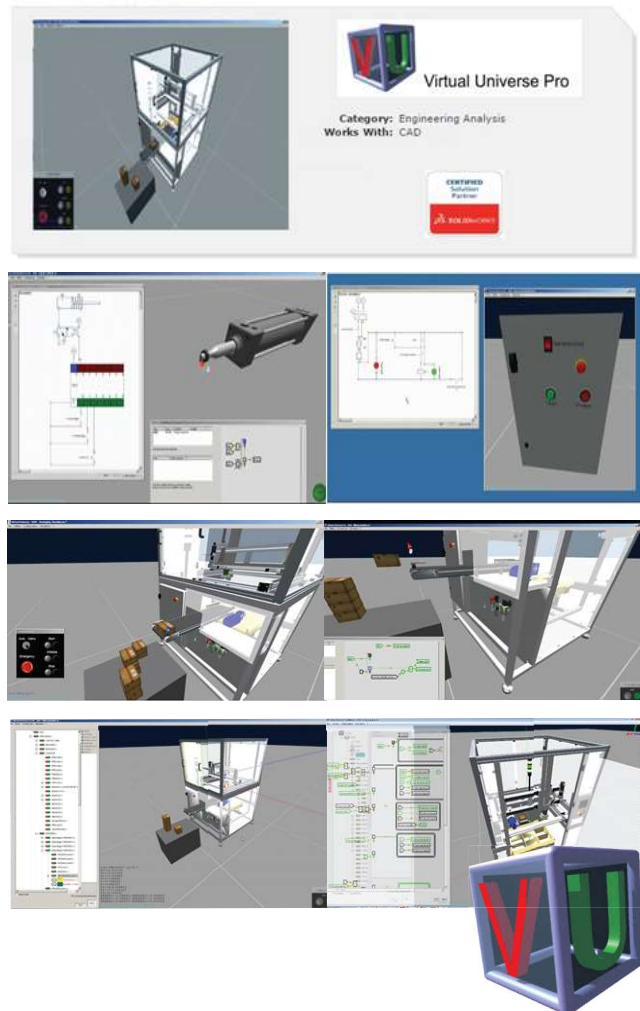
As an example, the indication of input / output of a program written with Solid works can be controlled with S7-PLCSIM Simulating Modules.



### Specifications

- VR
  - Oculus Rift headset and Xbox gamepad
  - Htc Vive headset and gamepad
  - Manus VR glove\*\*
  - All Steam VR compatible systems
- Software connections
  - Automgen (all compatible targets)
  - Matlab Simulink
  - Labview
  - Proteus
  - all softwares or programing tools
  - dll, ip, universal memory access
- Integrated programing tools
  - Ladder
  - Grafcet
  - Blocs fonctionnels
  - Script (Basic)
  - Langage C
- Intergated Simulation Tools
  - Pneumatic
  - Hydraulic
  - Electric
  - Digital Electronic
  - Schematic Blocks (Simulink)
- Import from 3D files
  - 3DXML, OBJ, 3DS,
  - X, VRML, STL, DXF

### IRAI: Virtual Universe Pro



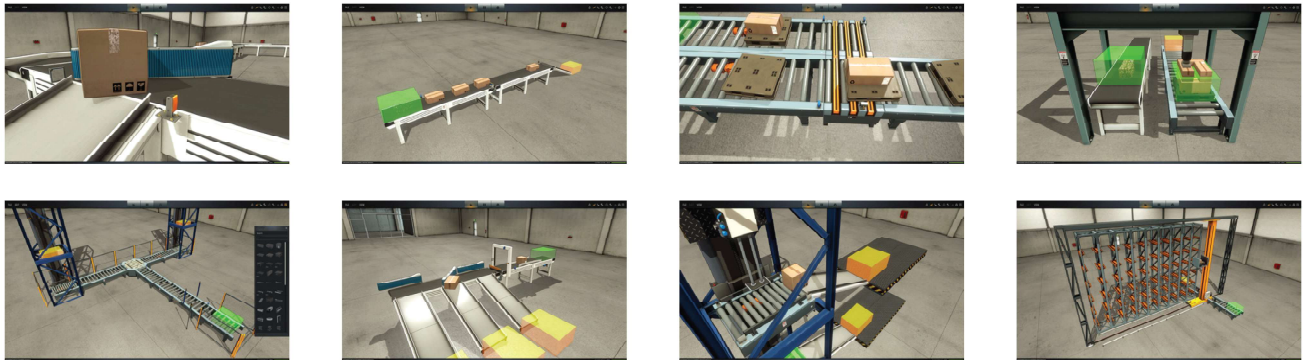


## Factory I/O Software

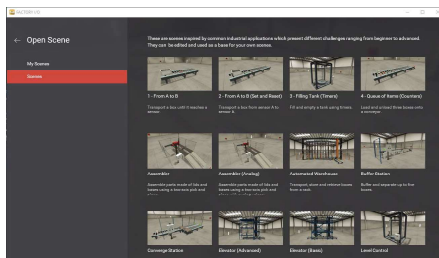
### General details

Factory I/O is a 3D factory simulation for learning automation technologies. Designed to be easy to use, it allows to quickly build a virtual factory using a selection of common industrial parts. Factory I/O also includes many scenes inspired by typical industrial applications, ranging from beginner to advanced difficulty levels.

The most common scenario is to use Factory I/O as a PLC training platform since PLC are the most common controllers found in industrial applications. However, it can also be used with microcontrollers, SoftPLC, Modbus, among many other technologies.



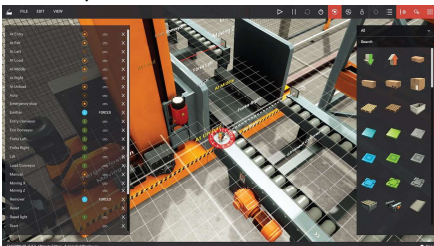
- 20+ ready-to-use scenes



- Library of industrial parts



- Build your own scenarios



- I/O drivers



### Specifications

Factory I/O is a 3D simulation software to build, control, and simulate factory automation environments. You can build your factory with various pre-built elements like light conveyors, heavy conveyors, robot station, pick and place arm, gantry, warehouse, sensors, tanks, elevators, and whatnot.

- 20+ ready-to-use scenes

- Factory I/O offers more than 20 scenes inspired by typical industrial applications to practice real world control tasks. Use a scene as it is or as a starting point for a new project.

- Library of industrial parts

- Create a virtual factory using a library of industrial parts, including sensors, conveyors, elevators, stations, and many others.

- Build your own scenarios

- Factory I/O smart editing tools make building a 3D scene a comfortable and natural experience. Use a library of industrial parts and customize Factory I/O by creating your own training scenarios.

- I/O drivers

- Factory I/O uses drivers to interface with PLC, SoftPLC, PLC simulators, Modbus and many other technologies. Each edition includes a bundle of drivers for a specific technology (i.e. Allen-Bradley Edition, Siemens Edition, ..)

- OVER 60 PARTS

- Build your scene from a large selection of sensors, conveyors, buttons, switches etc. Most of the parts allow different configurations, such as, discrete and analogue values, weight scale, etc.



# Machine

Metal Working Machinery

## OPTIMUM MACHINE

Drilling/Milling  
Machines



Magnetic Core  
Drilling Machines



Drilling Machines



Drilling Machines



Metal-Cutting Band Saws



Double Grinders



Folding Machine



Universal Machines



Bench Lathes



Lathes Machine





# Machine

## Metal Working Machinery

### CNC MACHINE



CNC Turning Machine



CNC Lathe Machines



CNC Milling Machines



CO<sup>2</sup> Cutting Machine



Laser Cutting Machine



CNC Laser Cutting Machine



Plasma Machine



Shearing Machine



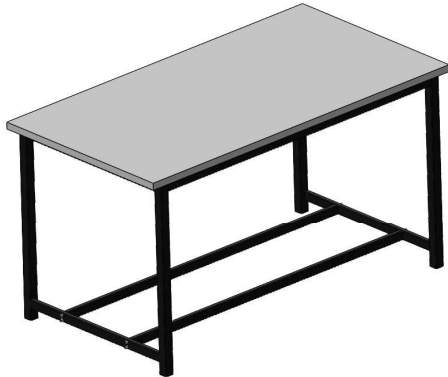
3-Roll Bending Machine





## Lab Furniture With Power Supply

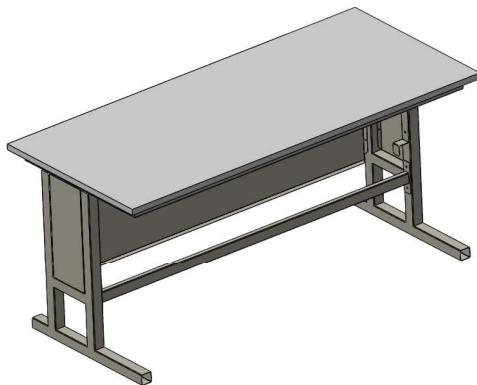
### Operating Table



#### Technical details

- Operating table
  - It is a table designed especially for electrical experiments. table top with particle wood coated with melamine on both sides
  - Table top size (WxH) 1500x800 mm. Total thickness 28 mm.
  - The edge of the table around is covered with PVC, thickness 3 mm.
- Table legs
  - The structure of the table legs is made of steel box, size 38 x 38 mm., thickness 2 mm. It is industrial powder paint through moisture drying.
  - There is a beam size 25 x 50 mm. that is fixed between the two sides of the frame.
  - The table frame can support the weight of the table top.
  - The height from the floor to the table top level is 800 mm.
  - Table legs can be height adjusted at least 20 mm.
  - The operating table structure can be disassembled.

### Operating Table



#### Technical details

- Working table size 800 x 1,800 x 800 mm.
- The table top is made of hardwood or particle, size 1800 mm. x 800 mm. 28 mm. covered with melamine on both sides Cover all four edges of the table with PVC.
- The structure of the table legs is made of 50x50 mm. steel box, coated with epoxy paint through the process. heat treatment
- The beam is made of box steel, the same size as the table legs.
- The beams are connected together on all 4 sides, along with beams to support the weight of the table top. along the width of the table top
- A set of beams assembled with the legs of the table. using mounting screws
- The height from the floor to the table top level is 800 mm.
- There is a metal plate covering the front, width 48 cm., length 159 cm. side of the table top frame There is a footrest beam size 24x50 mm. to be fixed between the legs. tables on both sides, etc.

### Laboratory Workbench With Mounting Frame



#### Technical details

- Operating table
  - It is a table designed especially for electrical experiments. table top with particle wood coated with melamine on both sides
  - Table top size (WxH) 1500x800 mm. Total thickness 28 mm.
  - The edge of the table around is covered with PVC, thickness 3 mm.
  - There are at least 2 drawers for storing experimental equipment.
- 2-tier panel installation frame
  - The rail is a rail made of anodized aluminum, injection molded in one piece. together along the length of the rail without twisting, being strong, having a The length of the rail is not less than 1,400 mm.
  - There are no less than 2 floors for installation of experimental panels, the distance between

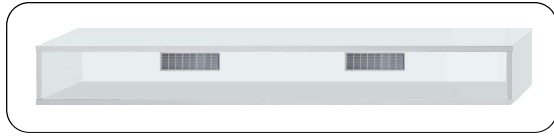


# Lab Furniture With Power Supply

## Electric Lab Table

### General details

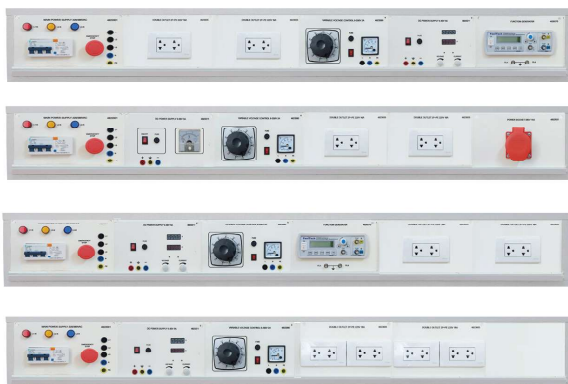
It's a table for studying electrical labs. electronics automatic control system In the experimental table, there must be equipment for both direct current and voltage sources. and alternating current that can be adjusted There is a device for generating electrical signals. and protective devices against electrical hazards for the safety of the experiments of students



### • Electric system console Single Phase



### • Electric system console Three Phase



### • operating table

- It is a table designed especially for electrical experiments. The table top is made of particle wood coated with melamine on both sides.
- Table top size (WxH) 1500x800 mm. Total thickness 28 mm.
- The structure of the table legs is made of steel box, size 50 x 50 mm, is industrial powder paint through humidity.
- There is a beam size 25 x 50 mm. that is fixed between the two sides of the frame.
- The table frame can support the weight of the table top.
- The height from the floor to the table top level is 800 mm.
- Table legs can be height adjusted at least 20 mm.
- The operating table structure can be disassembled.

### • The electric console box is installed at the back of the table.

- Console box has dimensions (WxHxD) 1500x216x240 mm., made of melamine-coated particle board, thickness 19 mm., edged with PVC.
- Behind the console box, there are 2 air vent grilles.
- There is a rail for mounting the module that is attached to the console box. Made of extruded aluminium, the entire length of the console is T-slot, which allows the module to be moved left or right. until the T-Pin can be locked.

### General details

The module panel is made of 5mm thickness electrical insulating material, the symbol is shown on the front by screen or groove, module panel is used for electrical installation, can be installed in front of the console, Each module can be independent.

It consists of the following experimental modules:

- Power supply unit (Single phase)
- Panel power supply unit (Three phase)
- Adjustable DC power supply unit.
- Adjustable AC power supply unit.
- Multi-function power supply unit.
- Function generator set panel
- 2 sets of single-phase power plug sets, 220 VAC, 50 Hz
- Schuko plug set panel





## Pneumatics and Hydraulics Operating Table Type 1



### Technical details

- Workbench set
  - Leg structure made of aluminum profile size 40x120 mm. Less than 2 grooves inside the legs of the experimental table
  - Groove with a width of not less than 7 mm. for fixing the frame. build a desk The table top has dimensions of not less than 600 x 1100 x 25 mm. Can adjust the height.
  - There are wheels that can adjust the direction 360 degrees and can lock all 4 wheels.
- Experimental panels made of aluminum profiles can be used for both sides of the experiment.
  - Have a size of not less than 1,000x600x30 mm. The file can be separated into 7 sections, each section of the aluminum profile has a height Not less than 100 mm wide, not less than 30 mm thick in one section. Aluminum profiles have a number of mounting grooves. Not less than 4 grooves per device Both front and back and is the same piece of aluminum profile and is Grooves that have the same position on all sides, front, back and top and bottom edges.
- There is a beam for installing electrical equipment.
  - installed on the experimental table
  - Have a length of not less than 1,100 mm.
  - It's an aluminum profile.
- Cable suspension kit
  - Able to hang at least 20 wires
- Hydraulic Suspension Kit

## Pneumatics and Hydraulics Operating Table Type 2



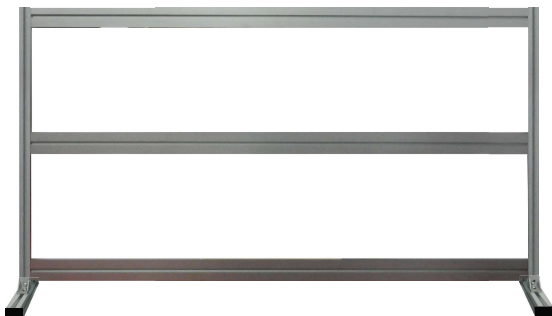
### Technical details

- Workbench set
  - The table top has dimensions (WxH) 1500x800 mm., made of laminated particle board. Melamine on both sides, total thickness 28 mm.
  - The structure of the table legs is made of steel box, size 50 x 50 mm., powder-coated. industry through humidification
  - There is a beam size 25 x 50 mm. that is fixed between the two sides of the frame.
  - The table frame can support the weight of the table top.
  - The height from the floor to the table top level is 750 mm.
  - Table legs can be height adjusted at least 20 mm.
  - The operating table structure can be disassembled.
- Equipment mounting panel made of aluminum profiles.
  - Have a size of not less than 700 x 1100 x 30 mm.
  - Aluminum profile experiment panel can be separated into 7 parts
- There is a beam for installing electrical equipment.
  - installed on the experimental table
  - Have a length of not less than 1,100 mm.
  - It's an aluminum profile.
- Cable suspension kit
  - Able to hang at least 20 wires
- Hydraulic Suspension Kit
  - Able to hang at least 15 hydraulic lines



# Lab Furniture With Power Supply

## Mounting Frame ( 2 or 3 Level)



### Technical details

- 2- or 3-tier panel mounting frame
  - The rail is a rail made of anodized aluminum, injection molding same throughout the length of the rail without twisting, being strong, having dimensions the length of the rail is not less than 1,400 mm.
  - There are no less than 2 floors for installation of experimental panels, the distance between the layers of the rail. There is a height size for inserting an A4 size test panel.
  - All assembled into a stable panel mounting frame. Strong and neat

## Cabinet



### Technical details

- Laboratory equipment cabinet
    - Is the cabinet made of steel or wood or better?
    - Number of drawers 3-4 drawers
    - Each drawer can support weight not less than 5 kg.
    - with key lock
    - Suitable size for the experimental table
- Can be made according to customer requirements

## Connecting Lead



### Technical details

- Wires connected to the circuit are bare (Connecting Leads). The plug size is 4 mm in diameter.
- Length of wire
  - Length size 250 mm.
  - Length size 500 mm.
  - Length size 750 mm.
  - Length size 1,000 mm.
- The wires connected to the circuit are black, red and blue.

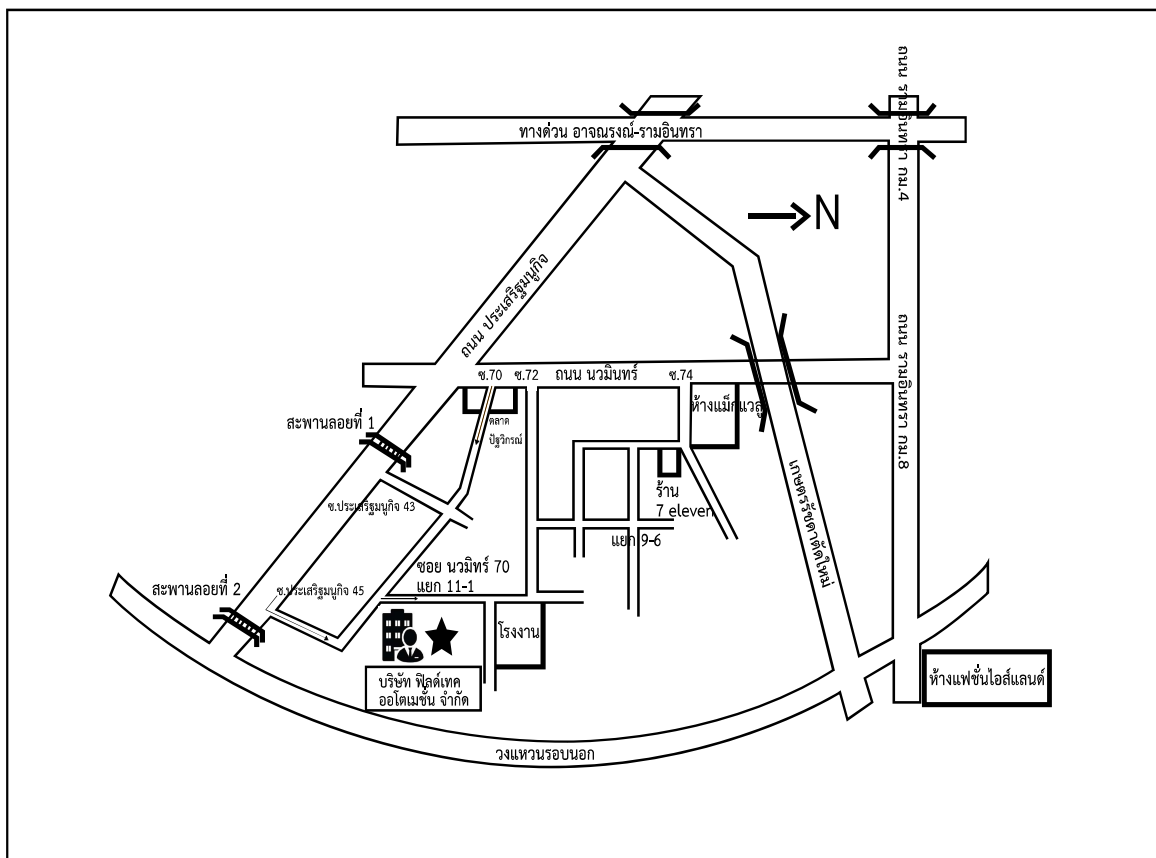
### รายละเอียดทางเทคนิค

- Cables connected to the circuit are Safety Lead (Connecting Leads).
- The plug size is 4 mm in diameter.
- Length of wire
  - Length size 250 mm.
  - Length size 500 mm.
  - Length size 750 mm.
  - Length size 1,000 mm.
- The wires connected to the circuit are black, red and blue.





## Company map



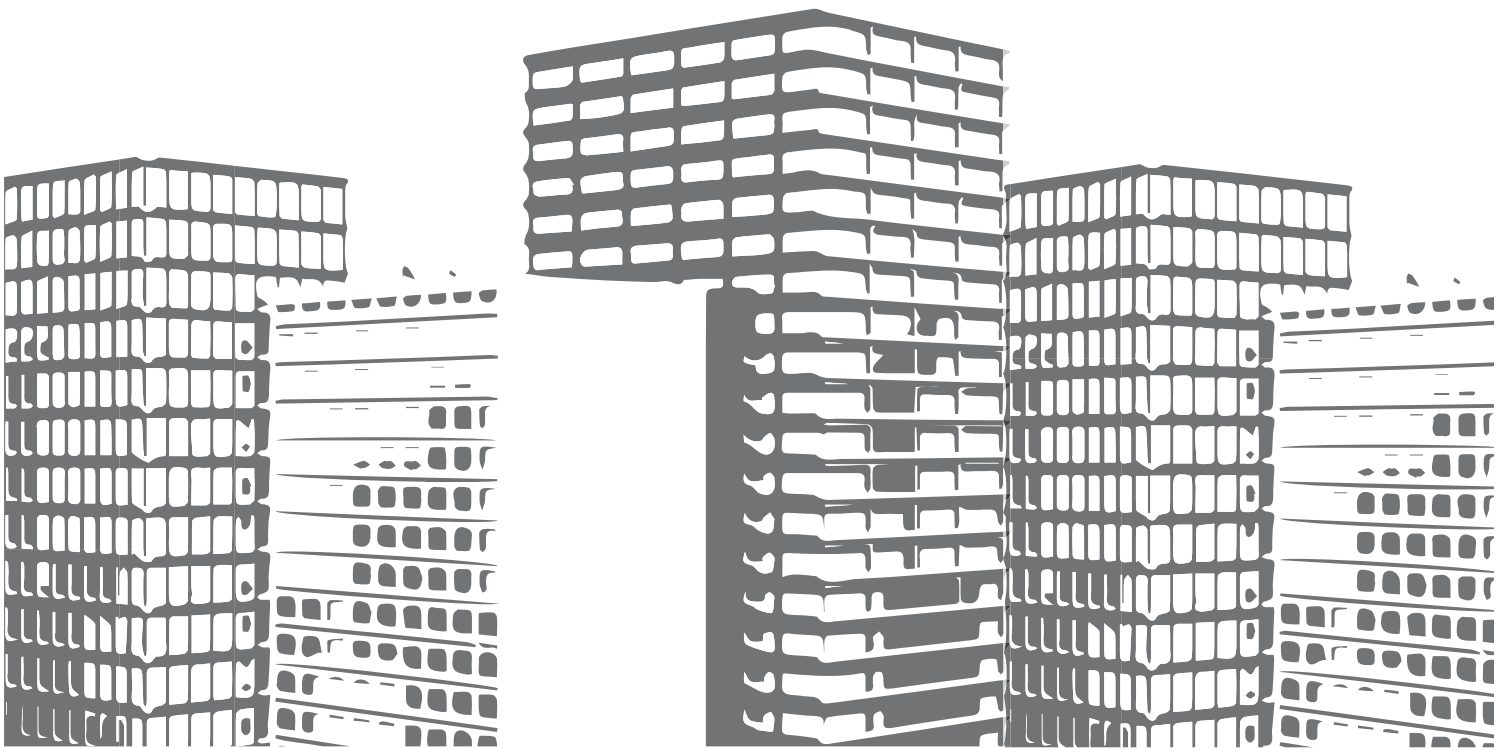


*Product quality*

*Committed to developing*

*Deliver on time*

*Progressive always*



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