



In today's environment of automation, the importance of PLC has rapidly increased. **Sciencetech 2400 Universal PLC Platform** is an ideal setup to study the working of PLC's used for industrial applications. Sciencetech 2400 has been designed to learn and practice -

- ▶ Wiring of PLC with different inputs and outputs.
- ▶ Push to ON Switch, and Toggle Switch as an input to the PLC.
- ▶ Realistic Simulation that can drive visual indicators, audio indicators, and IR Sensors.

## Features

- ▶ Freedom to select PLC of different makes
- ▶ Open platform to explore wide PLC applications
- ▶ Industrial feel & look
- ▶ NO/NC Toggle Switches, Push to ON Switch, IR Sensor , LED's , Buzzer
- ▶ Din rail mounting for PLC

- ▶ Powerful instruction sets
- ▶ PC based Ladder programming
- ▶ High execution speed
- ▶ Extremely easy and student friendly software to develop different programs
- ▶ Several sample Ladder programs
- ▶ Choice of PLC and expansion modules
- ▶ Easy downloading of programs
- ▶ Practice Troubleshooting Skills
- ▶ Compact tabletop ergonomic design
- ▶ Ready Experimental details
- ▶ Robust Construction
- ▶ Online Product Tutorials
- ▶ 2 Year Warranty

## Scope of Learning

- ▶ Study and use of Ladder programming
- ▶ Study and use of NO (Normally Open) and NC (Normally Closed) instruction
- ▶ Study and use of set and reset bit
- ▶ Study and use of Timers
- ▶ Study and use of Counter
- ▶ Study and use of compare instruction
- ▶ Study and use of interrupt
- ▶ Study and use of subroutine
- ▶ Study and use of math function

## Technical Specifications

<b>Toggle Switch</b>	: 8 nos
<b>Push to ON Switch</b>	: 3 nos
<b>IR Sensor</b>	: 1 no
<b>LED</b>	: 8 nos
<b>Buzzer</b>	: 1 no
<b>Operating Temperature</b>	: 0-40°C, 80 % RH
<b>Dimension (mm)</b>	: W600 x H 250 x D 300
<b>Weight</b>	: 6 Kg (approximately)
<b>Product Tutorials</b>	: Online (Theory, procedure, reference results etc)
<b>Included Accessories</b>	: Interfacing cable: 1 No. Mains cord: 1 No.

## Input Sensors (optional):

**Switches:** Limit Switch & Thumbwheel Switch

**Digital sensor:-**

- ▶ Capacitive Proximity Sensor
- ▶ Inductive Proximity Sensor
- ▶ Magnetic sensor (Hall sensor)
- ▶ Passive Infrared Sensor (PIR)
- ▶ Fire sensor
- ▶ Clap sensor

**Analog Sensor (Analog module is required for Interfacing of Analog Sensor):-**

- ▶ Thermocouple
- ▶ RTD
- ▶ LM35
- ▶ Speed Sensor
- ▶ Flow sensor
- ▶ Level sensor
- ▶ Pressure sensor

## Input Actuators (optional):

- ▶ DC Motor
- ▶ Stepper Motor
- ▶ Servo motor (compatible with transistorized PLC)
- ▶ Seven segment display
- ▶ Contactor
- ▶ Relay
- ▶ Heater
- ▶ Valve

## Application modules (optional):

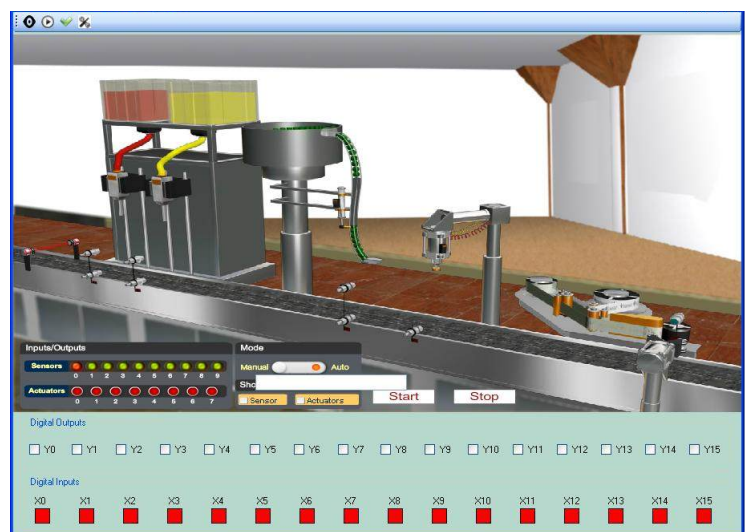
**Real Time module**

- Temperature control by PLC (Sciencetech 2424) (Analog module is required)
- Conveyor control by PLC (Sciencetech 2425)
- Speed control of DC Motor by PLC (Sciencetech 2426)(Analog module is required)
- Motor & Switches control by PLC (Sciencetech 2427)

**Simulation module**

- Water level control by PLC (Sciencetech 2421)
- Elevator control by PLC (Sciencetech 2422)
- Traffic Light control by PLC (Sciencetech 2423A/B)
- Bottle filling plant with PLC & Nvis 631 DAQ

(Required 12 digital input & 8 digital output)



Bottle filling plant

**3D Interactive Training System with PLC**

**Sorting:** Transport cases from the entry bay to the elevators, sort them by height

**Batching:** Mix three primary colors in order to obtain a desired color (red, green, blue)

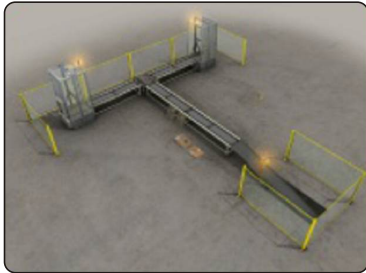
**Palletizer:** Palletizer cases up to three layers

**Pick & Place:** Place parts inside boxes through a three axes manipulator

**Automatic Warehouse:** Transport, store and retrieve boxes from a rack

(Required 12 digital input & 8 digital output)

Sorting



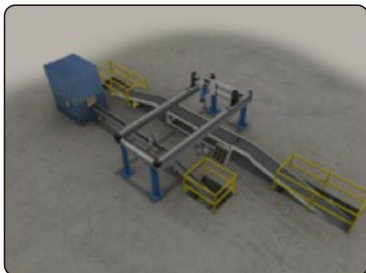
Batching



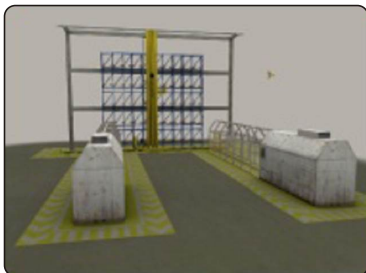
Palletizer



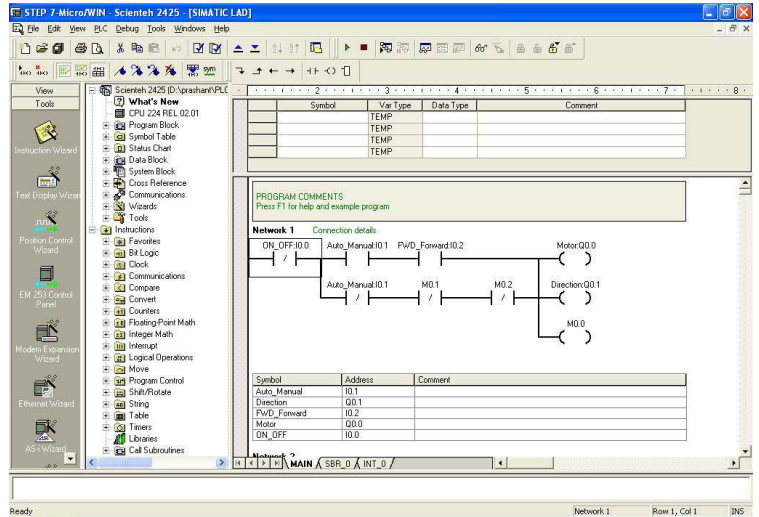
Pick & Place



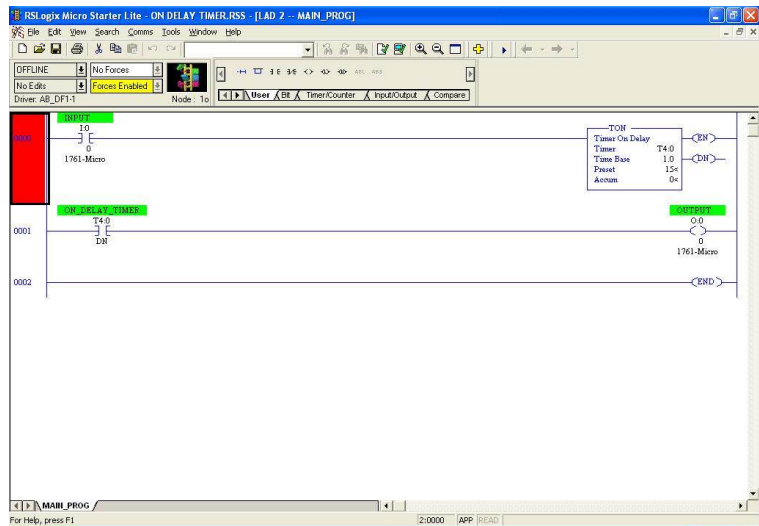
Automatic Warehouse



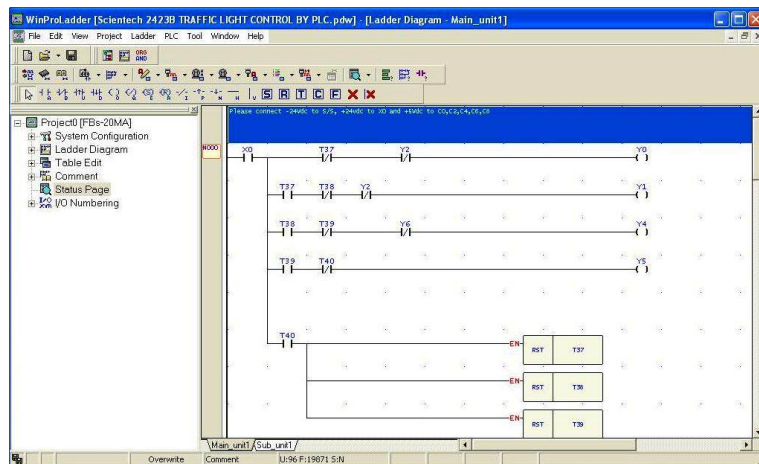
**Program window**



Siemens PLC



Allen Bradley PLC



FATEK PLC



## Ordering code:

### ▶ **Scientech 2400A Siemens PLC**

PLC CPU Type	: CPU-222 (AC/DC/Relay)
Digital Input	: 8
Digital Output	: 6
Program Size	: 2048 words
Internal Memory Bits	: 256
Boolean Execution	
Speed	: 0.37ms/instruction
No. of ports	: 1 No
Interface	: USB
Expansion module	: Expandable

### ▶ **Scientech 2400B Siemens PLC**

PLC CPU Type	: CPU-224XP (AC/DC/Relay)
Digital Input	: 14
Digital Output	: 10
Analog Input	: 2
Analog Output	: 1
Internal Memory Bits	: 256
Program Size	: 4096 words
Boolean Execution	
Speed	: 0.37ms/instruction
No. of ports	: 2 No
Interface	: USB
Expansion module	: Expandable

### ▶ **Scientech 2400C Siemens PLC**

PLC CPU Type	: CPU-226 (AC/DC/Relay)
Digital Input	: 24
Digital Output	: 16
Internal Memory Bits	: 256
Program Size	: 4096 words
Boolean Execution	
Speed	: 0.37ms/instruction
No. of ports	: 2 No
Interface	: USB
Expansion module	: Expandable

### ▶ **Siemens Analog Module**

#### **Analog input**

Total Channel	: 4
Input ranges	
Voltage (Unipolar)	: 0 to 10 V, 0 to 5 V, 0 to 1 V, 0 to 500 mV, 0 to 100 mV, 0 to 50mV
Voltage (bipolar)	: 10V, 5V, 2.5V, 1 V, 500mV, 250 mV, 100 mV, 50 mV, 25 mV

#### **Analog Output**

Total Channel	: 1
Signal range	
Voltage output	: ±10V
Current output	: 0 to 20 mA
(Compatible only with Scientech 2400A/B/C)	

### ▶ **Scientech 2400D Allen Bradley PLC**

PLC CPU Type	: MicroLogix 1000
Digital Input	: 10 inputs
Digital output	: 6 (4 source , 2 contact outputs)
Memory Size	: 1K words (approximately 737 instruction words, 437 data-table words)
Fast Execution time	: 500-instruction program in only 1.56 ms.
Interfacing	: RS232
No. of ports	: 1
Expansion Module	: Not Expandable

### ▶ **Scientech 2400E Allen Bradley PLC**

PLC CPU Type	: MicroLogix 1400
Digital Input	: 20(12 Fast , 8 Normal)
Digital output	: 12
Analog Input	: 4
Analog Output	: 2
Memory Size	: 1K words (approximately 737 instruction words, 437 data-table words)
Fast Execution time	: 500-instruction program in only 1.56 ms.
Interfacing	: RS232
No. of ports	: 1
Expansion Module	: Expandable

### ▶ **Scientech 2400F FATEK PLC**

PLC CPU Type	: FBs-14 MA
Digital Input	: 8
Digital output	: 6
Program size (Words)	: 2048
Boolean Execution speed	
Sec. per instruction	: 0.33 μs/Sequential instruction in average
Interfacing	: RS232
No. of ports	: 1
Expansion Module	: Not Expandable

### ▶ **Scientech 2400G FATEK PLC**

PLC CPU Type	: FBs-20 MC
Digital Input	: 12
Digital output	: 8
Program size (Words)	: 4096
Boolean Execution speed	
Sec. per instruction	: 0.33 μs/Sequential instruction in average
Interfacing	: RS232
No. of ports	: 1
Expansion Module	: Expandable

### ▶ **Scientech 2400H FATEK PLC**

PLC CPU Type	: FBs-24 MCT (Transistorized PLC)
Digital Input	: 14
Digital output	: 10
Program size (Words)	: 4096
Boolean Execution speed	
Sec. per instruction	: 0.33 μs/Sequential instruction in average
Interfacing	: RS232
No. of ports	: 1
Expansion Module	: Expandable

### ▶ **FATEK Analog Module**

#### **Analog Input**

Total Channels	: 4 CH
Resolution	: 14 or 12 bit
I/O Points Occupied	: 4 RI (Input Register)
Measurement Range	
Voltage	: +10V, +5V, 0~10V, 0~5V,
Current	: +20mA, +10mA, 0~20mA, 0~10mA

#### **Analog Output:**

Total Channels	: 2 CH
Resolution	: 14 bit
I/O Points Occupied	: 2 RO (Output Register)
Output Range	: Voltage : +10V, +5V, 0~10V, 0~5V,
Current	: 20mA, +10mA, 0~20mA, 0~10mA
(Compatible only with Scientech 2400G/H)	

**Designed & Manufactured by-**  
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