# Helping you teach...

# PLC Programming

LJ CREATE™
Learning for life

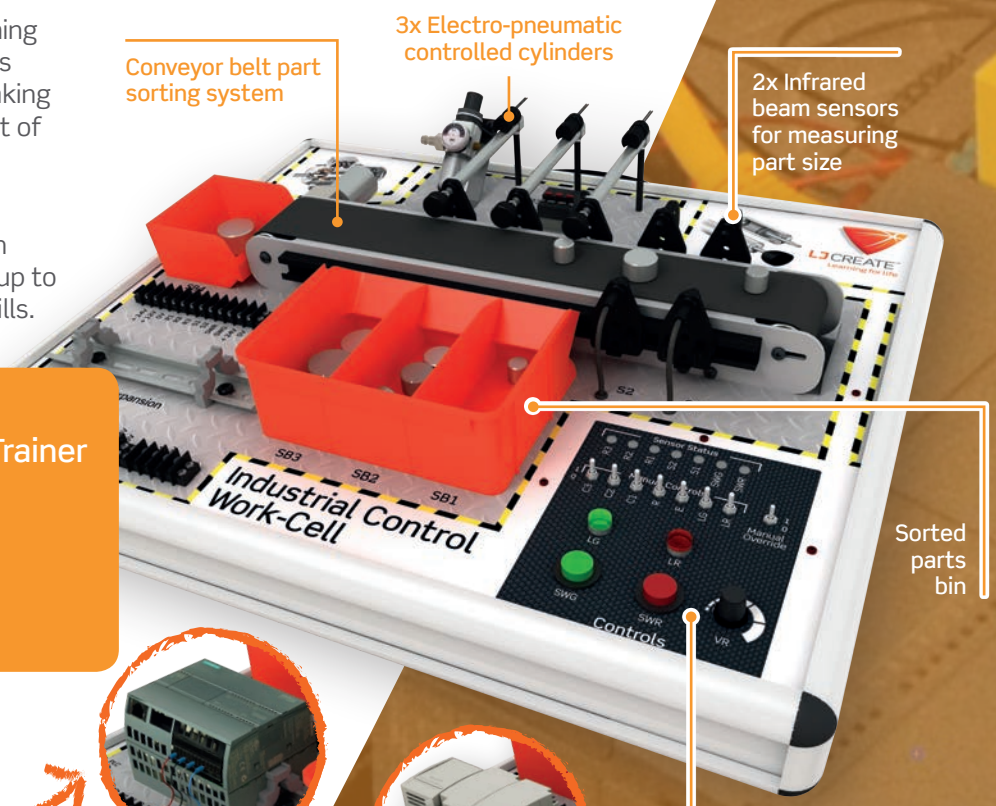
From beginner to expert our PLC training systems provide all you need to teach Programmable Control. They are so easy to set up and use that they will quickly become the most essential items in your lab.

We provide the complete packages with instructions, lessons, and programming software - to ensure that teaching the use and application of PLCs is simple, and can be completed quickly.

## Industrial Control Trainer | INTERMEDIATE LEVEL

The easy-to-use ladder programming software and simulator makes this the easiest trainer available for taking students through the hardest part of their industrial controls learning.

Students follow instructions and complete challenges starting with simple tasks but quickly ramping up to commercial level programming skills.




### Order as:

**290-01 Industrial Control Trainer**

**Includes:**

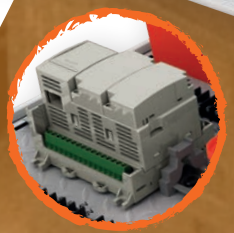
- Industrial Control Trainer
- Hand Operated Air Compressor
- Access to 80+ PLC Lessons

### ALSO AVAILABLE:

The trainer can be packaged with one of two industry-standard commercial controllers:

- Siemens S7-1200
- Allen Bradley Micro820





# Industry 4.0

## PETRA II - Advanced Industrial Control Teaching Set | ADVANCED LEVEL

PETRA II is designed to enable quick and easy instruction on the operation and application of an HMI panel, together with the principles of SCADA.

PETRA II is simple enough to explain and operate quickly, but contains enough process components to demonstrate the operation of an HMI Panel.

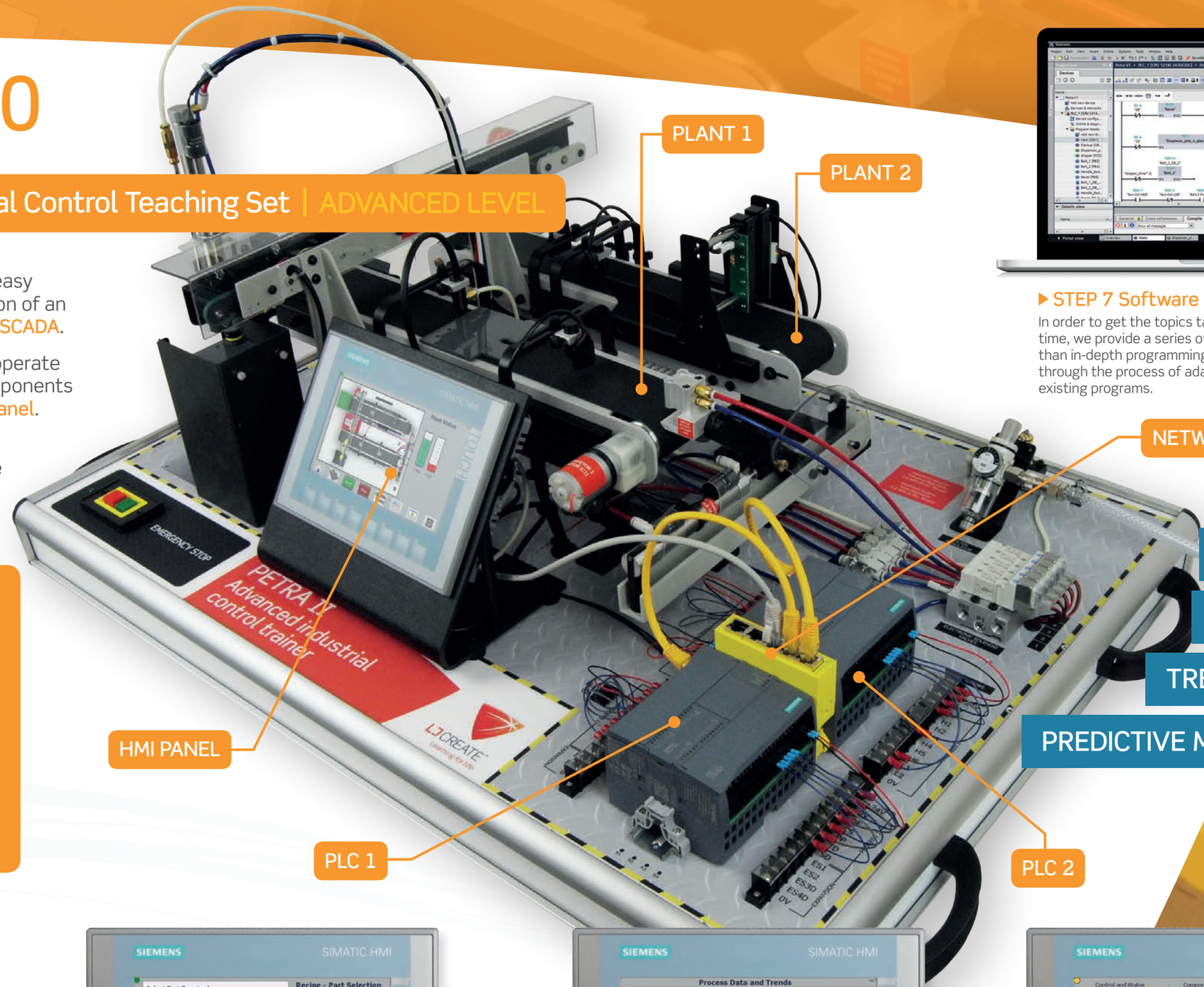
Intermittent fault insertion illustrates the need for SCADA and the HMI panel, for the efficient operation of a modern Industry 4.0 plant.

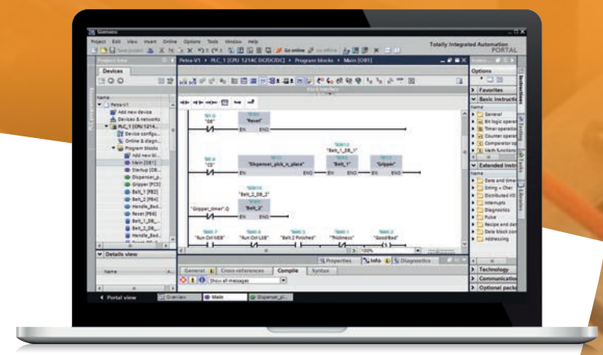
### Order As:

292-00 PETRA II - Advanced Industrial Control Teaching Set

**Includes:**

- PETRA II Advanced Industrial Control Trainer
- 2x Siemens PLCs
- STEP 7 Software
- HMI Panel
- Network Hub
- Access to 90+ Advanced PLC Programming Lessons



### ▶ STEP 7 Software

In order to get the topics taught in a short space of time, we provide a series of PLC programs. So rather than in-depth programming, students are taken through the process of adapting and extending existing programs.

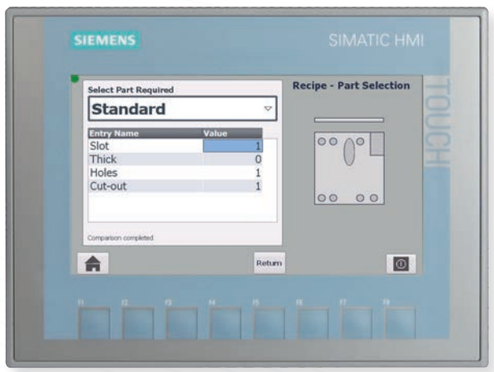
MONITORING

SUPERVISING

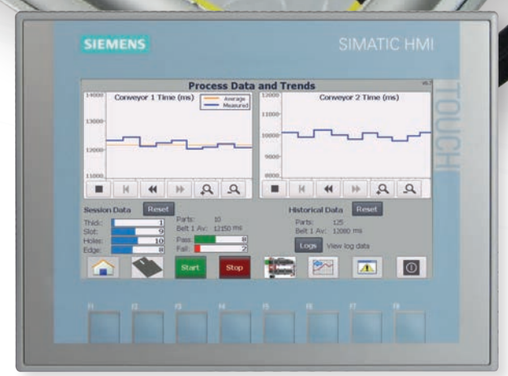
TREND ANALYSIS

PREDICTIVE MAINTENANCE


▶ Plant Simulation and Status Screen



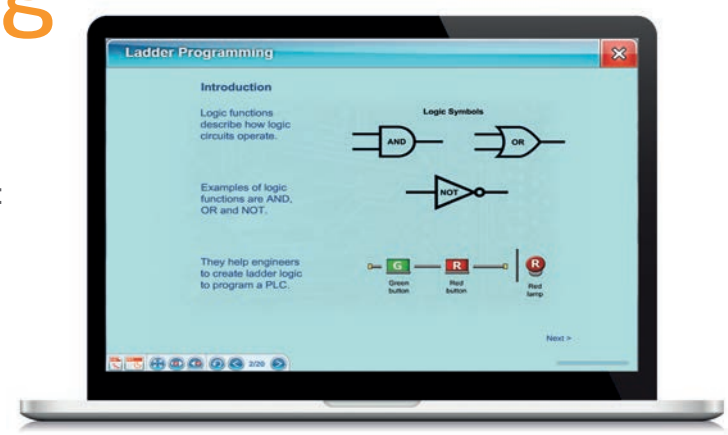

▶ Recipes Screen




▶ Performance Tracking Screen


▶ Alarms Screen

# PLC Programming Curriculum




Our emphasis is on delivering training solutions that:

- Match curriculum requirements
- Can be taught within the unit times available
- Can be used by any student

The lessons we've developed to accompany this training set include the following topics:

## INTERMEDIATE LEVEL
Industrial Control Trainer (290-01)

### Programmable Logic Controllers
- Introduction to PLCs
- Construction and Function of a PLC
- Sequence Control System

### Basic Programming Concepts
- Identifying the Requirements
- Ladder Programming
- Latches
- Flip-Flop Latches
- Latching an Airlock

### Ladder Instructions
- Counters
- Counting Parts
- Timers
- Memory Stores

### Further Programming Methods
- Using GRAFCET Diagrams

### Fieldbus Systems
- Profibus DP

### Analogue Sensors and Actuators
- Analogue Inputs
- Analogue Outputs

## ADVANCED LEVEL
PETRA II - Advanced Industrial Control Teaching Set (292-00)

### Programmable Logic Control
- Programmable Logic Controllers (PLCs)
- Construction and Function of a PLC
- Connecting a PLC

### Programming PLC Systems
- Converting Logical Circuit to Functional Plan
- GRAFCET Sequence Control Systems
- Using GRAFCET Diagrams
- Ladder Logic Programming
- PLC Programming
- Latches / Counters / Timers
- Memory Stores
- Analogue Inputs and Outputs

### SCADA Systems
- Introduction to SCADA
- Smart Sensors
- Industrial Networks and Security
- HMI - Recipes, Alarms, and Logs

### Practicals
- Networking - Connecting Devices Together
- Displaying Real-Time Data on the HMI Panel
- Controlling Program Flow from the HMI
- Sharing Data Between 2 PLCs and HMI
- Programming a Recipe and an Alarm
- Showing a Trend
- Logging Detailed Data
- Identifying Faults and Maintenance Issues

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