PC55/ML - Advanced Programmable Controllers

The PC55/ML teaching set introduces students to programmable controllers through a range of practical activities that are based on an advanced pneumatic/electronic applications trainer.

The teaching set includes the applications trainer, an industry-standard programmable controller, a compressed air pump and a curriculum manual.

When used in conjunction with a student personal computer (PC), the curriculum manual is fully compatible with the ClassAct computer managed learning system.

The curriculum manual is divided into a series of chapters. Each covers a specific topic area and provides background theory, practical activities and student assessment questions.

Each chapter is designed around a list of performance objectives. These objectives are used by the ClassAct management system to generate a student competency report.

A student workbook is also provided, allowing students to record basic theory and practical results as they work through the curriculum manual.

Finally, the teaching set includes an instructor's guide. This provides solutions to all of the questions and practical activities contained in the curriculum manual.

Typical topic areas include:
- Introduction to Industrial Logic Control
- Introduction to Programmable Logic Controllers
- Programmable Controllers - Equipment Overview
- Introduction to Ladder Programming
- Latches and Program Editing
- Timers and Timed Control of the Conveyor Belts
- Counters – Up, Down and Up/Down
- Driving the Carriage and Master Control Reset
- Shift Instructions
- Output Sequencers
- Sequencer Compare and Advanced Use of Sequencers
- Detecting Faults - The Complete Program

Typical activities include:
- Draw an elementary relay ladder diagram.
- Outline the relationship between relay systems and PLCs.
- Identify how branch instructions can be used in ladder logic diagrams.
- Investigate the operation of Output Latch and Output Unlatch instructions in ladder logic programs.
- Investigate programs that use the Count UP and Count DOWN instructions.
- Use the Master Control Reset (MCR) instructions in ladder logic programs.
- Produce a program that uses the Sequencer Compare and Sequencer Output instructions.

The PC55/ML teaching set comprises:
- AB ML1500 Allen Bradley Micrologix 1500 Controller, remote programming software and interface cable.
- PC10 PETRA Pneumatic/electonic applications trainer, comprising of:
  - Two conveyor belts.
  - Set of parts - some inside, and some outside specification.
  - Parts dispenser.
  - Pneumatic pick-and-place cylinder mounted on electrically operated carriage.
  - Pneumatically-activated gripper arm.
  - Wide range of pneumatic and opto-electronic sensors.
  - Storage bins for separation of good and reject parts.
- PC20 Electrically operated compressed air pump.
- PC55/ML IM Curriculum Manual, Instructor's Guide and Student Workbook.

Additional items required:
- Windows-based personal computer (PC) fitted with serial (COM) port.

Module Facts

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	No.	Average time
Chapters	12	90 minutes
Total		18 hours

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