E6.7.2

MECHATRONICS

E6.7.2.4
Elevator Control with PLC

Elevator Control with PLC (E6.7.2.4)

Cat. No.	Description	E6.7.2.4
34-150-1	Elevator - PLC Application	1
34-060	Siemens PLC	1*
34-060-1	Siemens PLC I/O Pre-wired Pack	1
34-020	Mitsubishi PLC	1*
34-020-1	Mitsubishi PLC I/O Pre-wired Pack	1*
34-040	Allen Bradley PLC	1*
34-040-1	Allen Bradley PLC I/O Pre-wired Pack	1*
	additionally required: 1 PC with Windows 7/8/10	

* alternative PLC

Elevator control with PLC

Programmable Logic Controllers (PLCs) are used extensively in many manufacturing processes and control applications being readily programmed and reprogrammed when variations in the controlled process are required. This elevator illustrates the principles of PLC interfacing & control based on a real-life and easily identified application, therefore providing excellent interest for students. Starting with simple program sequences to control elevator speed, direction and floor arrival/departure, the student can progress to advanced floor request handling and continuous (analogue) control with acceleration profiling and compensation for varying car loads. The internal motor speed controller has both logic and analogue interfaces such that a basic PLC with minimal digital I/O can be used to implement control. More sophisticated control may be developed if analogue I/O is available. The load-cell and motor position feedback signals are available to develop programs for continuous control. The load-cell indicates elevator car loading and a set of weights simulates varying numbers of car occupants. The position feedback signal allows for the development possibility of advanced control of the elevator car motion.

Function

- Fully working model of an elevator with 4 floors
- Floor sensing and visual indication of travel
- Motorised elevator car door
- Brake to hold car at desired floor
- Up/down call button at each floor
- Front panel manual switch for testing
- etc.

Topics

- Logic fundamentals
- Basics of PLC programming
- Developing ladder logic programmes
- Basic sequencer control
- Advanced sequence control
- etc.

Experiments require the Siemens software TIA Portal to create programs.
The equipment can require additional software modules.