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PROGRAMMABLE LOGIC CONTROLLERS

A programmable logic controller (PLC) is a digital computer designed to perform machine control functions in the industrial environment. This type of programmable control is easy to program and install and it has eliminated much of the hardwiring associated with common relay control circuits. Besides, PLCs are small and inexpensive, they have a high control speed and a high reliability. Finally, they are resistant to vibration and impact. The programs for the control of manufacturing process equipment and machinery are generally stored in battery-packed or non-volatile memory. Since the structure of a PLC is based on the same principles as those employed in computer architecture, PLCs can also perform other applications such as timing, counting, calculating, comparing, and processing analog signals.

A typical PLC consists of different parts – the central processing unit (CPU), the input/output (I/O) section, the power supply, and the programming device. An open architecture design allows the system to be connected easily to devices and programs made by other manufacturers. On the contrary, a system with a closed architecture cannot be easily connected to other systems. There are two ways in which I/Os (Inputs/Outputs) are incorporated into the PLC: fixed and modular.

Fixed I/O is typical of small PLCs with no separate, removable units. This type of packaging is cheaper though less flexible. Modular I/O is divided by compartments into which separate modules can be plugged. This feature greatly increases your options and the unit's flexibility. The basic modular controller consists of a rack, power supply, processor module (CPU), input/output (I/O modules), and an operator interface for programming and monitoring. The modules plug into a rack. When a module is slid into the rack, it makes an electrical connection with a series of contacts called the backplane. The PLC processor is also connected to the backplane and can communicate with all the modules in the rack

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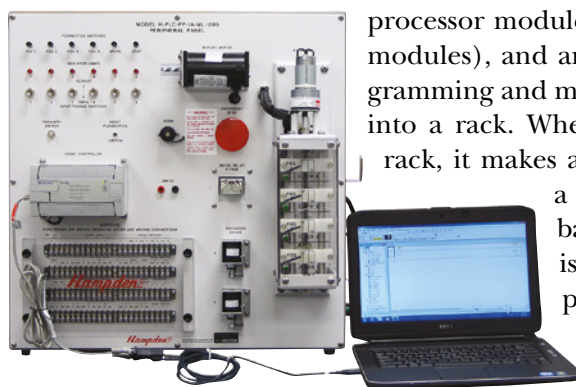
READING COMPREHENSION

● *Answer the following questions.*

1 What is a PLC?
2 What are the advantages of PLCs?
3 What applications can a PLC perform?
4 What are the main parts of a PLC?
5 What is the difference between a system with an open architecture and one with a closed architecture?
6 How are I/Os incorporated into the PLC?
7 What does the basic modular controller consist of?

WORDS TO MATCH

● *Match a term in the first column with one in the second column.*

1 Digital	A Supply
2 Industrial	B Speed
3 Control	C Connection
4 Power	D Module
5 Processing	E Environment
6 Electrical	F Computer

VOCABULARY

● *Read the text again and find the English equivalents of the following verbs.*

1 Programmare ....
2 Installare ....
3 Calcolare ....
4 Elaborare ....
5 Collegare ....
6 Dividere ....
7 Aumentare ....
8 Controllare ....