

PROGRAMMABLE LOGIC CONTROLLERS

BY

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PLC Overview

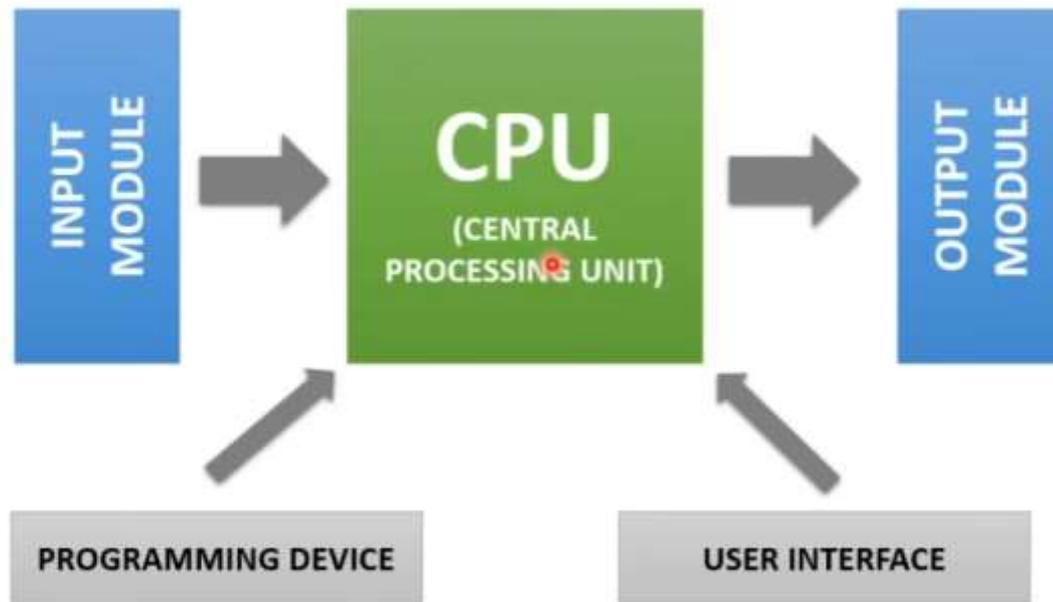
PLC means ***Programmable Logic Controllers***. It is used in commercial and industrial applications. A PLC monitors inputs, makes decisions based on its program, and controls outputs to automate a process or machine.

PLCs Consist of –

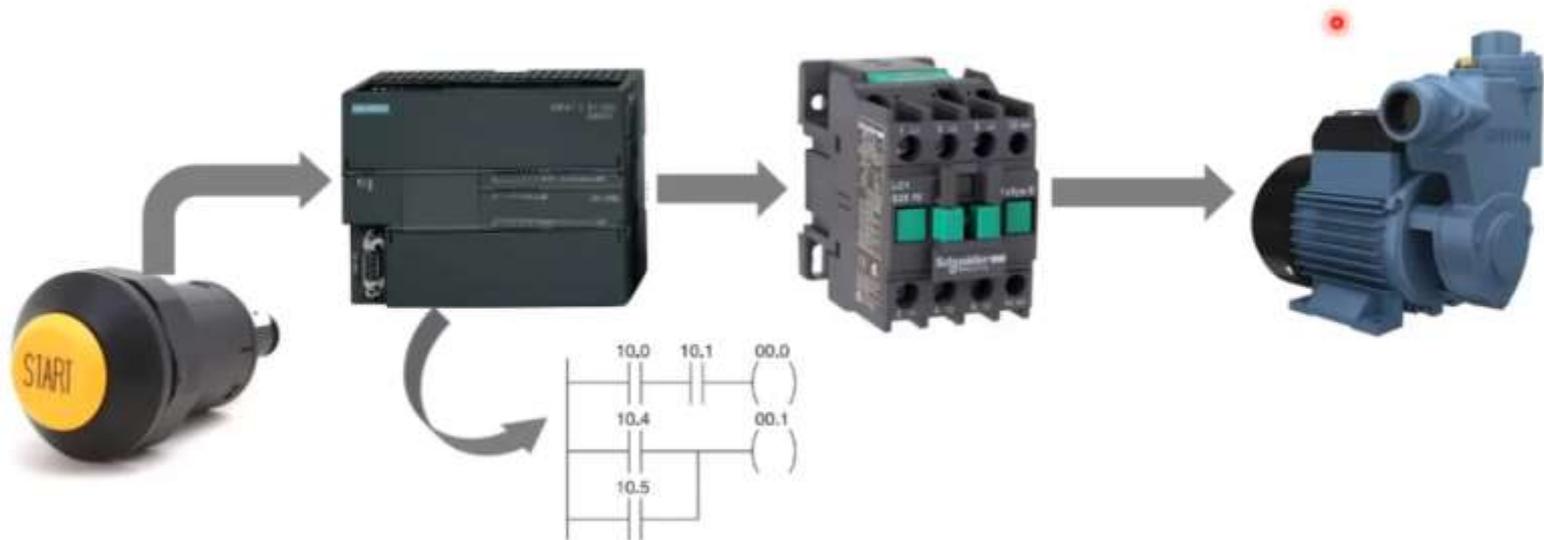
1. Input Module,
2. CPU(Central Processing Unit) &
3. Output module.



PLC Basic Operation



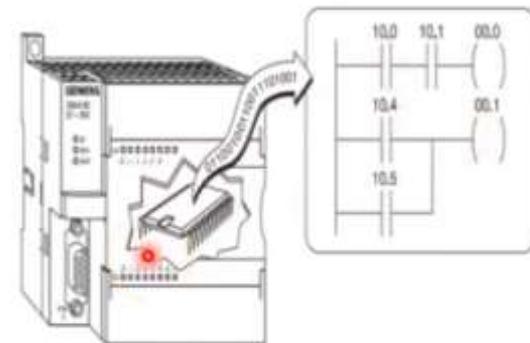
Example:- How PLC Work



Major Component of PLC

1. CPU

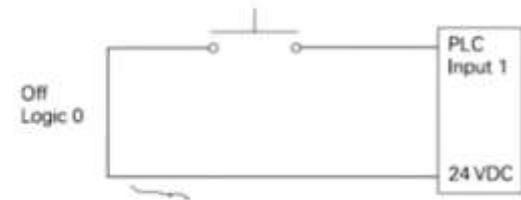
The central processor unit (CPU) is a microprocessor system that contains the system memory and is the PLC decision making unit. The CPU monitors the inputs and makes decisions based on instructions held in the program memory. The CPU performs relay, counting, timing, data comparison, and sequential operations.



Major Component of PLC...

2. Input Module

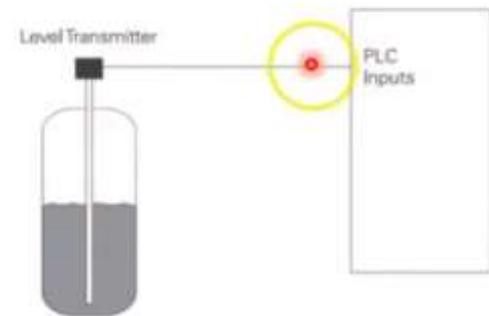
- ❑ Input Module are that connect with field input.
- ❑ There are two type of Input-
 - ❑ Digital Input/ Discrete Input
 - ❑ Analog Input
- ❑ ***A Digital /Discrete input*** is an input that is either in an ON or OFF condition.
Pushbuttons, toggle switches, limit switches, proximity switches are example of Digital IP



Major Component of PLC...

2. Input Module

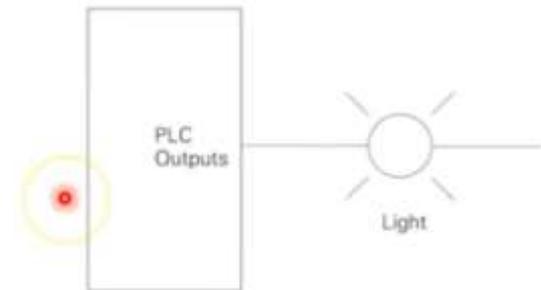
❑ *An Analog input* is an input signal that has a continuous signal. Typical analog inputs may vary from 0 to 20 milliamps, 4 to 20 milliamps, or 0 to 10 volts.



Major Component of PLC...

3. Output Module

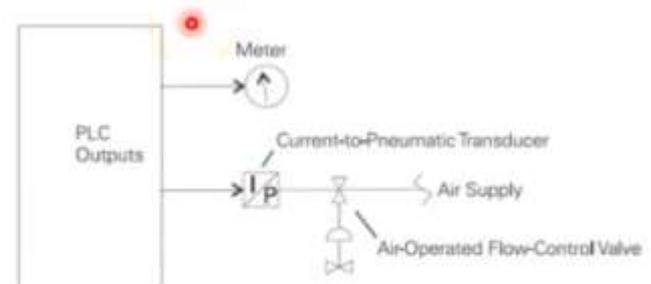
- The Output module are that connects with output device
- There are two type of Output-
 - Digital Output/ Discrete Output
 - Analog Output
- A Digital /Discrete output*** is an output that is either in an ON or OFF condition. Solenoids, contactor coils, and lamps are examples of digital outputs.



Major Component of PLC...

3. Output Module

❑ **Analog output** is an output signal that has a continuous signal. The output may be as simple as a 0-10 VDC level that drives an analog meter. Examples of analog meter outputs are speed, weight, and temperature.



Major Component of PLC...

3. EPROM

- ❑ *Erasable Programmable Read Only Memory (EPROM)* provides some level of security against unauthorized or unwanted changes in a program. EPROMs are designed so that data stored in them can be read, but not easily altered. Changing EPROM data requires a special effort.



Major Component of PLC...

3. EPROM

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- ❑ **UVEPROMs (ultraviolet erasable programmable read only memory)** can only be erased with an ultraviolet light. EEPROM (electronically erasable programmable read only memory), can only be erased electronically



Advantage of PLCs

1. Number of connection is less & Simple wiring.
2. Small Physical size.
3. More Flexibility.
4. Ease of maintenance /troubleshooting.
5. No need of Hard wired Timer & Counter.
6. High speed of operation.



Application of PLC

- General Industry like Machinery & Conveyor.
- Printing Industry
- Food & Beverage Industry.
- Packaging Industry.
- Pharmaceutical.
- Power Generation, Transmission & Distribution.



- **THANK YOU**