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* Graded Activity - 07 *

Q.1 Explain PLC input & output mode in detail.
→ Input and output modules are the fundamental parts of the programmable logic controller systems.

Multiple input and outputs modules are used in PLC system. They provide an interface between CPU & programmable device.

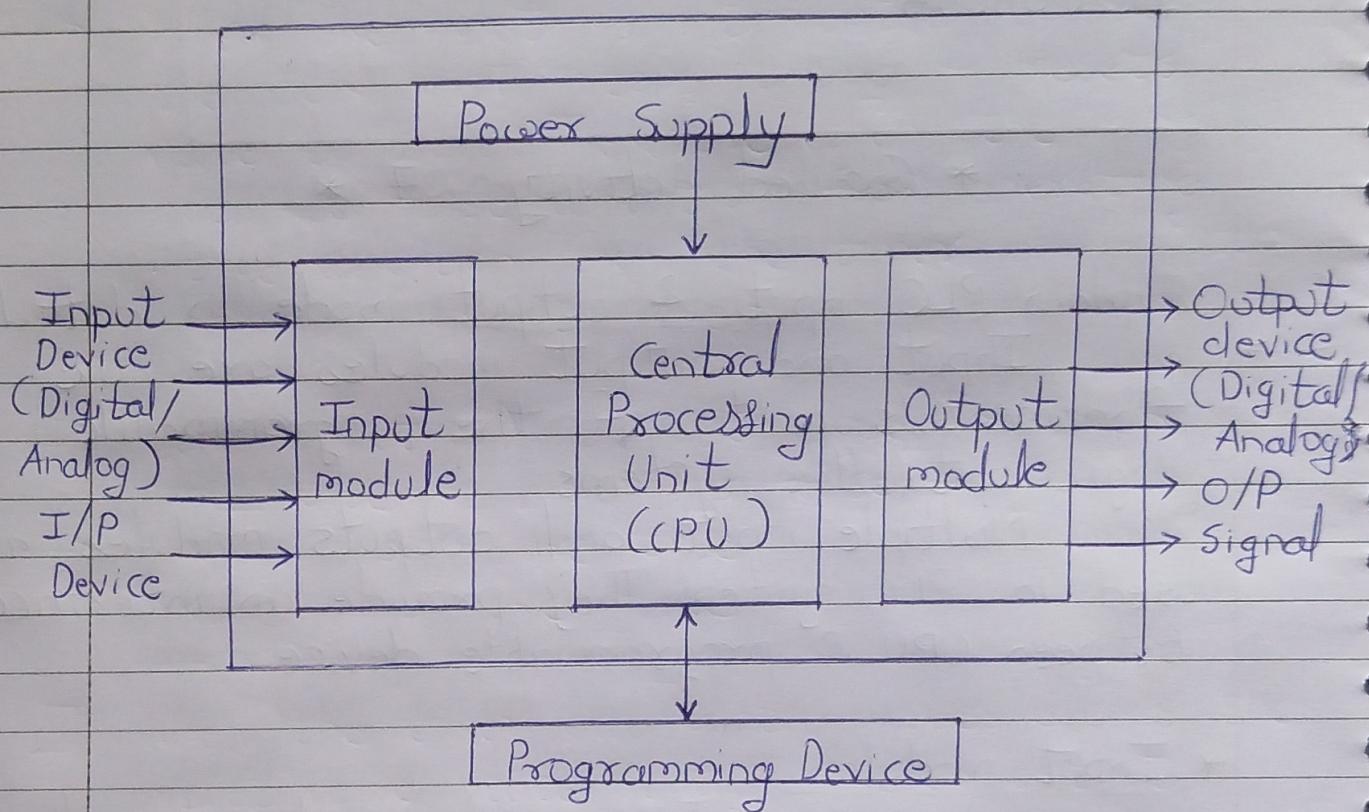
* Input modules :-

The module which interacts with the input signal is called as input module. It is required to connect input device.

* Output modules :-

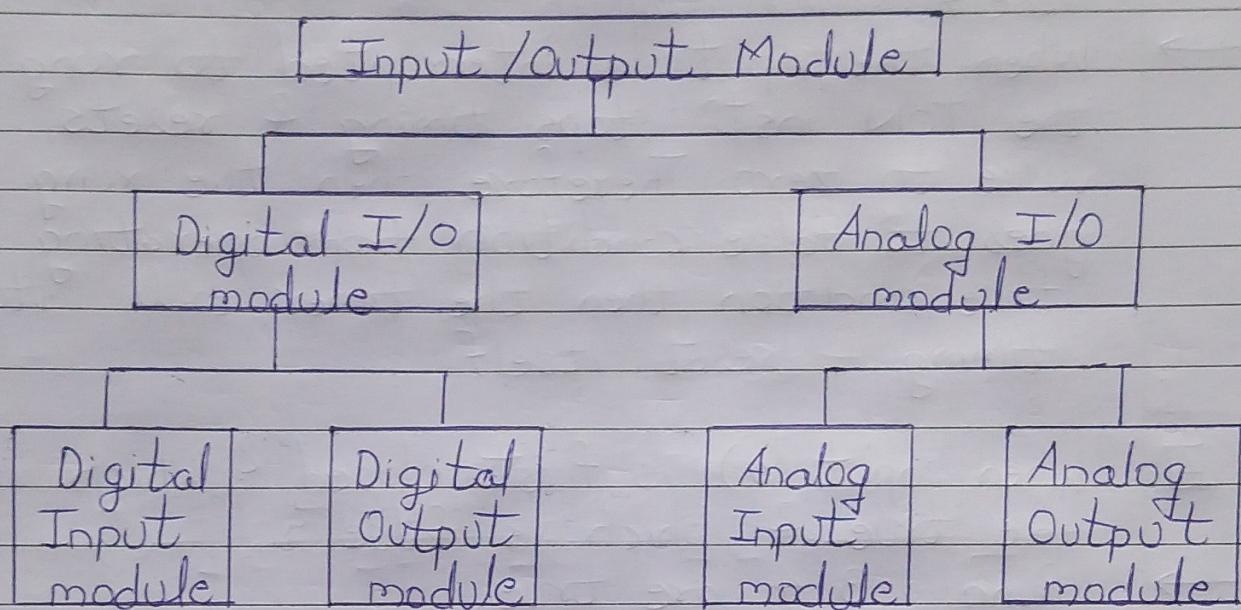
The module which interacts with the output signal is called as output module. The output module is required to connect output device like electrical applications.

Block diagram of PLC input output modules



- 1] The input device provides a signal to an input modules
- 2] Thus input module is connected with the CPU for initial automated process
- 3] CPU processes all the input data.
- 4] After processing by CPU, it gives output data to output module
- 5] The output module provides a signal to O/P device
- 6] The signals can be anything like activating or deactivating O/P device

* Classification of PLC Input & Output Modules



Digital module = Discrete
 Analog module = Continuous

Q.3 Answer the following

1) What is the value of the accumulated time when power is first applied?

→ The value is '0' as that's the value at which the accumulator is at when it starts counting up towards the preset value.

2) When does the timer start timing?

→ When the input switch is closed, rung goes true EN & TT go high. Then the timer starts counting.

3] When does the timer stop timing & reset itself?

→ When the input is interrupted to rung the TON inst stops timing & resets value to zero. Therefore, when the rung goes to false condition from operating true condition then the timer will stop timing & reset itself

4] When input(s) is first closed? Which rungs are true & which is false?

→ Rung 1,3,4 are true
Rung 2,5 are false

5] When the timer accumulated values equals the preset value, state status of each output

→ Output 1,3,4 = OFF
Output 2,5 = ON

6] When input(s) is first closed, state the status of each output

→ Output 1,3,4 = ON
Output 2,5 = OFF

7] When the timers accumulated value equals the preset value, which rungs are true & false?

→ Rungs 1,3,4 are false
Rungs 2,5 are true

8] Suppose that the rung 1 is true for SS & then power is lost. What will be the accumulate value of the counter be when power is restored

→ PLC counters are normally retentive; that is, whatever count was contained in the counter at time of processor shutdown will be restored to counter on powerup. The counter may be reset when rung 1 is true for SS & the input power is lost, then the accumulated value automatically goes to the reset position. Hence, when the power is restored, the value contained in accumulated word is zero.