Types of PLC Hardware Components

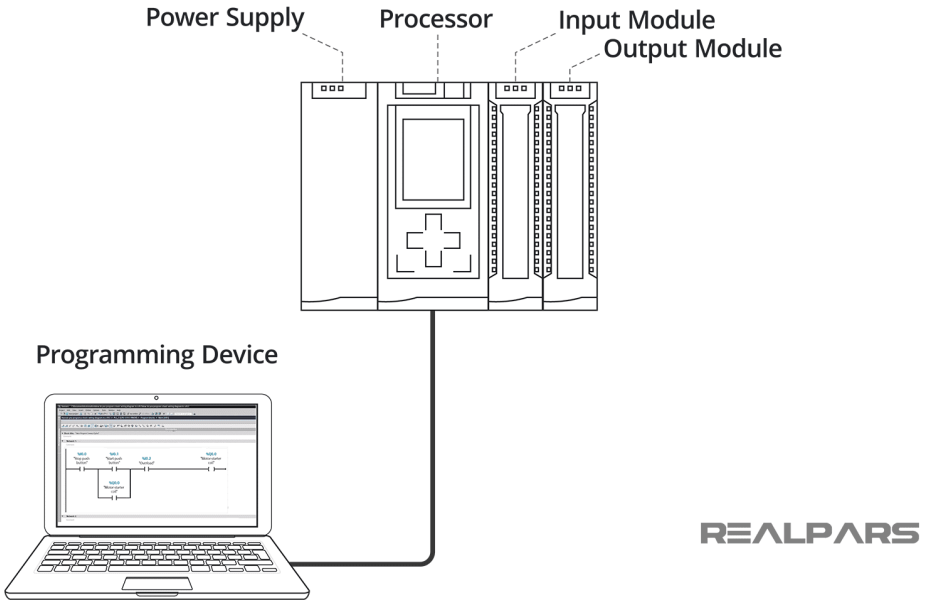
Alright, now that we've got that out of the way, let's look at what we mean by the term **PLC Hardware**. The Hardware components of a PLC include the following:

Processor, Power Supply, Input/Output Modules, and a Programming Device.

Let's look at each piece of hardware, or module one at a time.

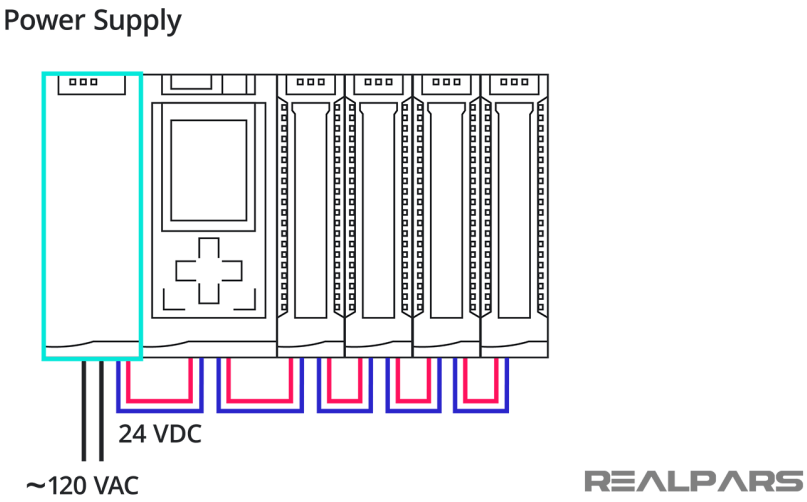
1) Power Supply

The Power Supply is connected to AC mains for the supply voltage.



The output of the Power supply is a DC voltage used to power all of the other modules associated with the PLC.

The Power supply DOES NOT provide power for field devices.

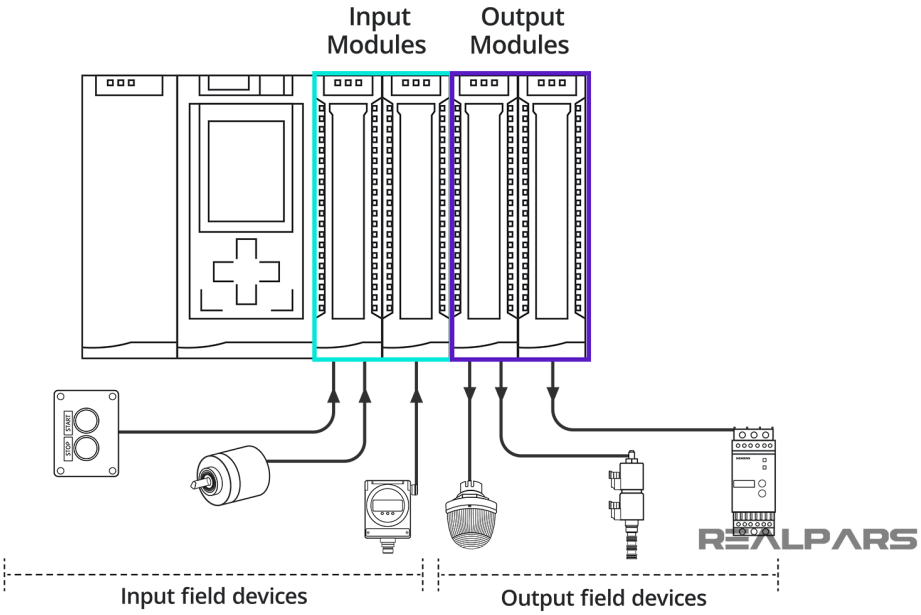


2) Input/output modules

The input/output modules are connected to digital or analog field devices.

Input field devices include switches, encoders, and transmitters for example.

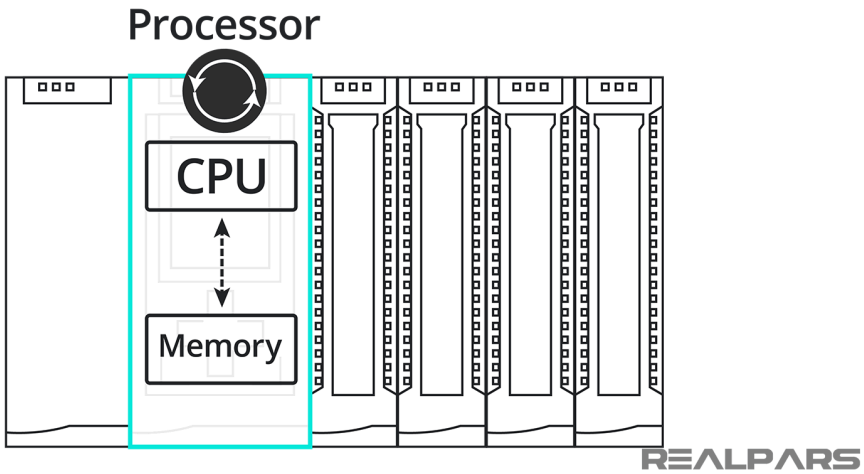
Typical output field devices are relays, lamps, and proportional valves.



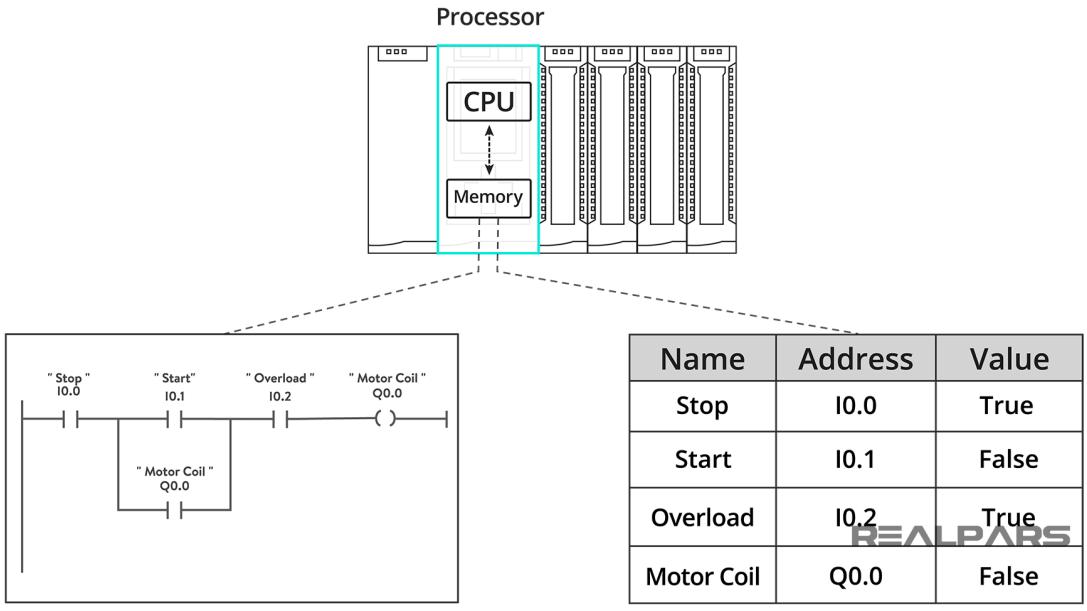
3) Processor

The Processor consists of the CPU (central processing unit) and memory.

The processor section makes decisions needed to observe and operate the field devices connected to the Input/Output modules.



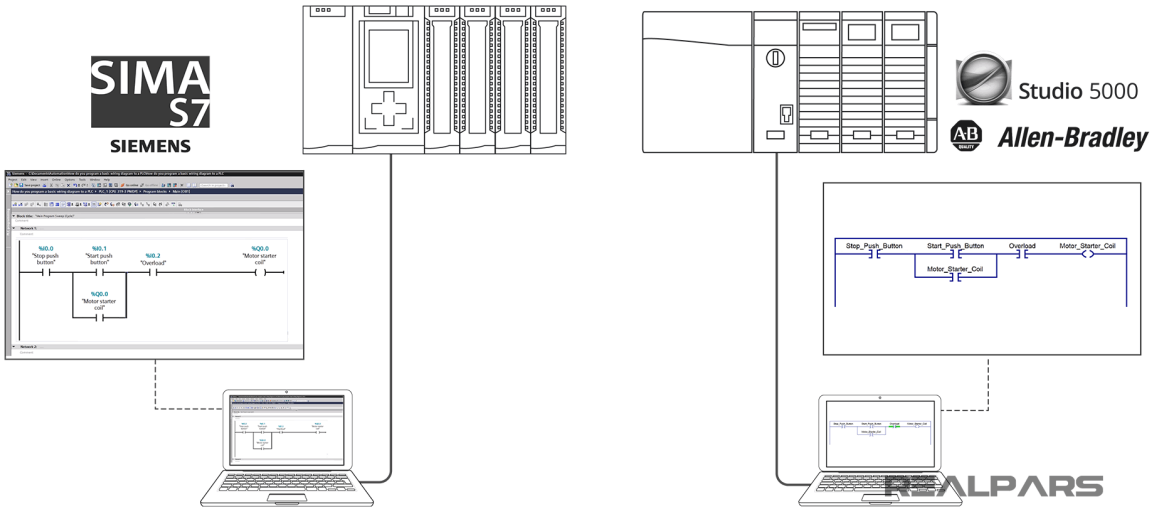
The decisions are based upon a user-created program saved in the memory. The memory also stores data representing the condition of all input field devices and contains the data telling the output field devices what to do.



4) Programming Device

The Programming Device in today's industrial applications is usually a laptop or a desktop computer that facilitates the creation of decision-making programs destined for the PLC.

Examples of the programming software residing on the laptop are **Studio 5000** for **Allen Bradley PLCs** or **SIMATIC Step 7** for Siemens PLC's.



Summary

OK, let's review…

– A PLC consists of a computer with several additional hardware pieces that are a part of it or can be attached to it at any time.

– Today's PLCs have replaced much of the old-style hardwired circuitry in industrial applications, but many of the original physical devices are connected to the PLC.

– The Hardware components of a PLC are the Processor, the Power Supply, the Input/Output Modules, and a Programming Device.

– The AC mains connected Power Supply provides DC power for the PLC modules but not for field devices.

– The input/output modules are connected to digital or analog field devices.

– The Processor consists of the CPU (central processing unit) and memory.

– The Programming Device in today's industrial applications is usually a laptop or a desktop computer.