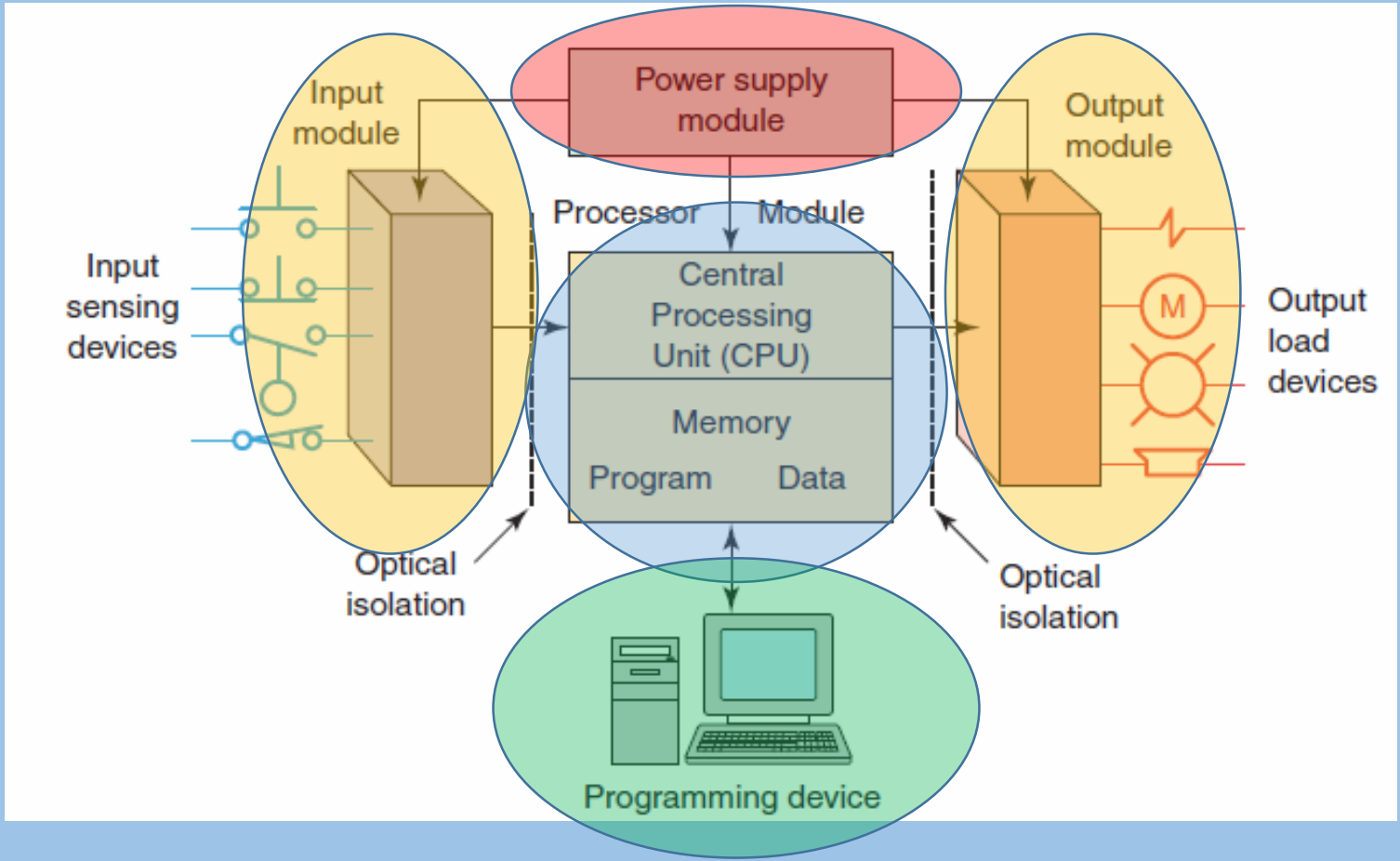
Programmable Logic Controllers
Introduction
Part 3
Parts of a PLC

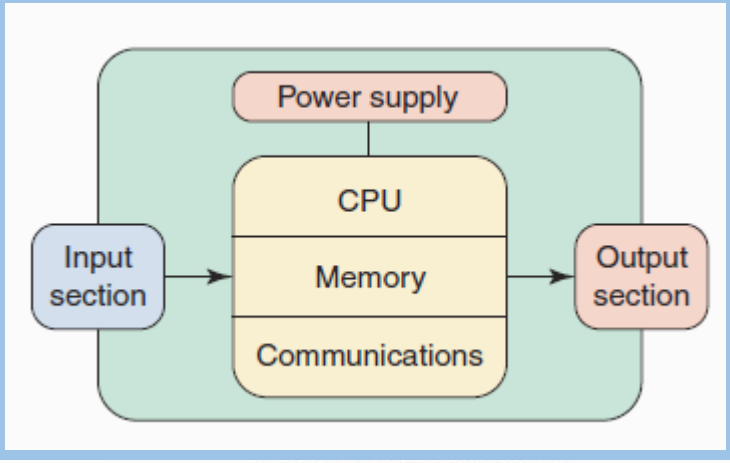
Four Main Parts:

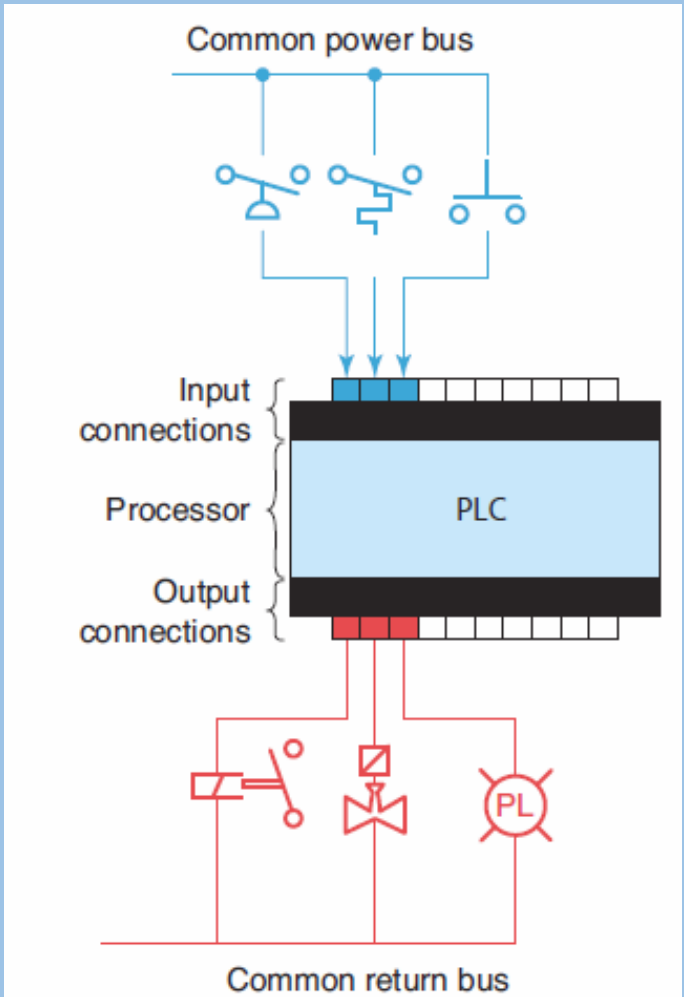
- Central processing unit (CPU)
- Input/output (I/O)
- Power supply
- Programming device



Fixed I/O

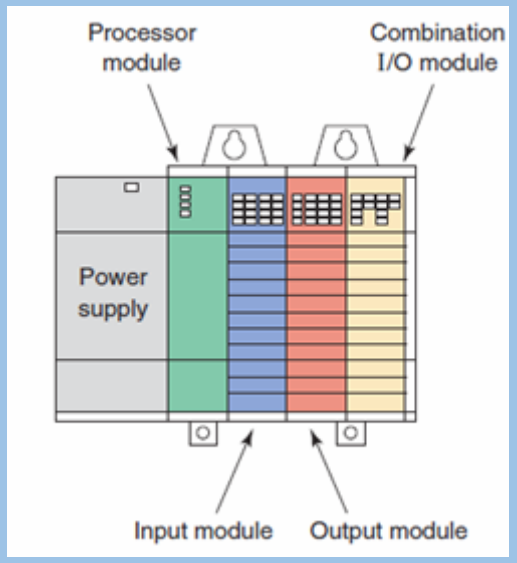
- ***Typical*** **of small PLCs - single package**
- **No separate / removable units**
- **Processor and I/O packaged together**

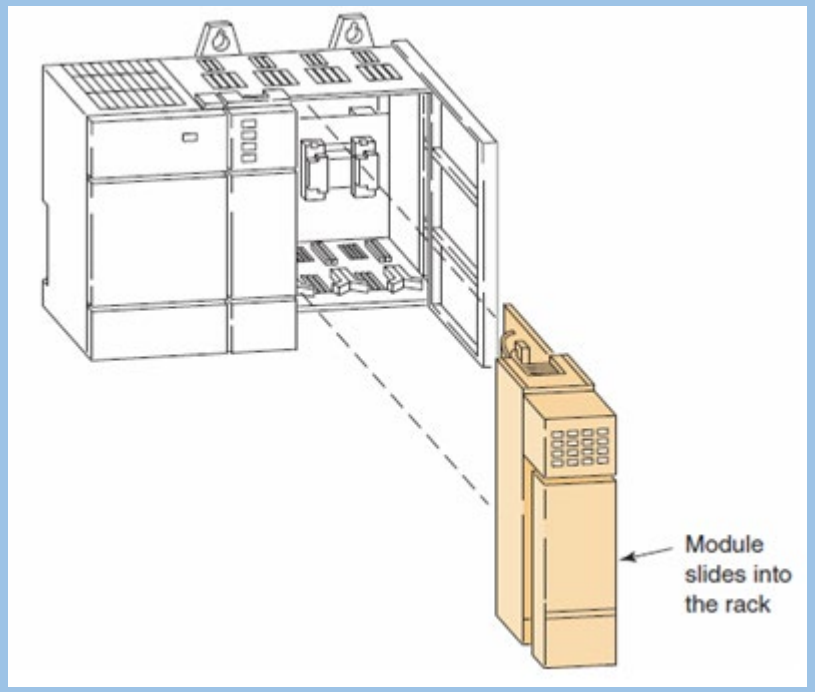




Modular I/O

- Divided by compartments
- Increases options
- Increases unit's flexibility





Power supply

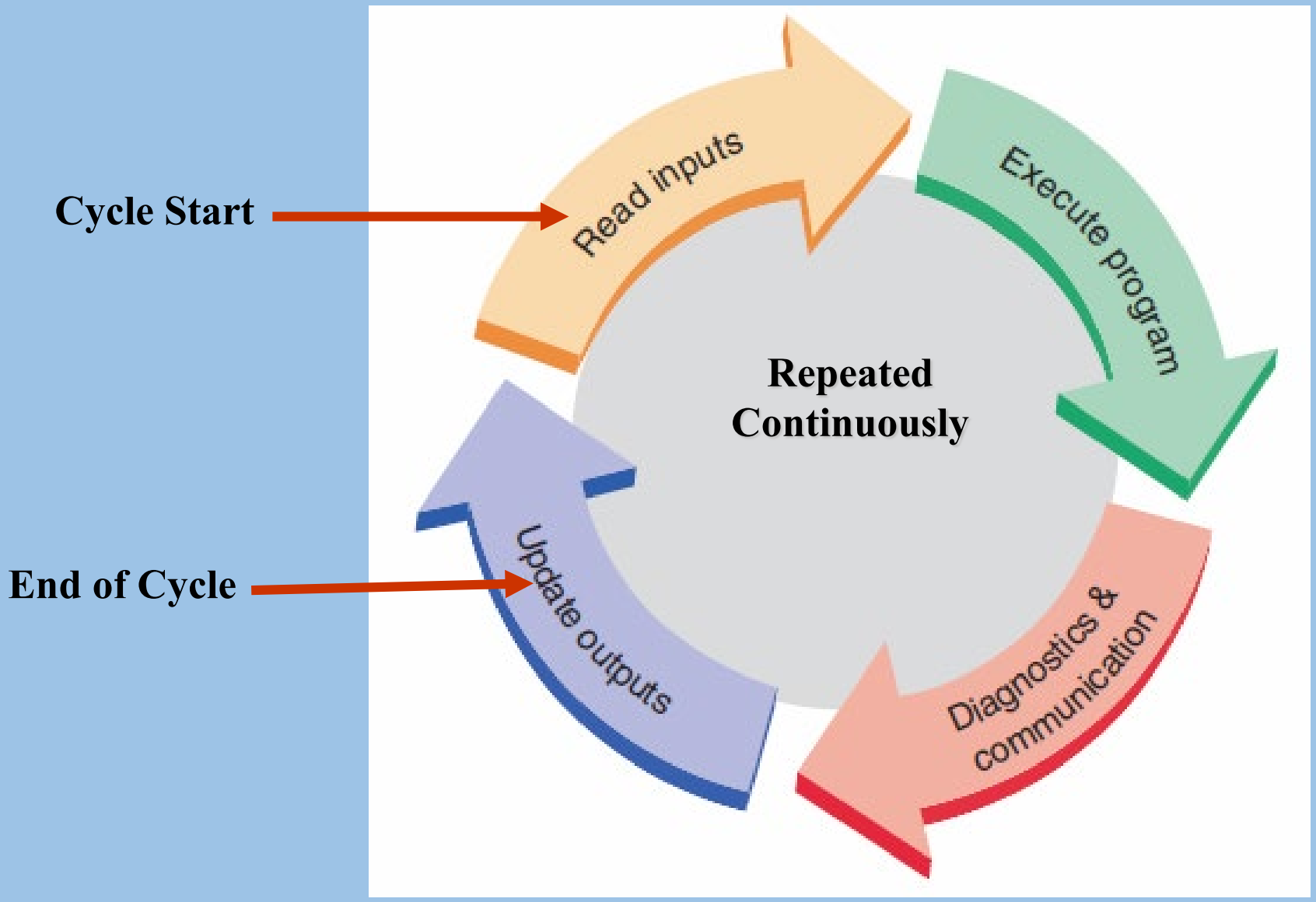
- **DC power – modules and possibly field devices (outputs)**
- **Large PLC - typically does not supply power to the field devices.**

Power Supply

P*rocessor* (CPU)

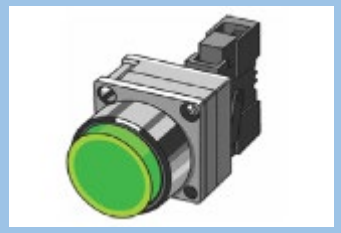
- Control & communication between modules
- Memory for storing operations
- Operating system
- PLC program

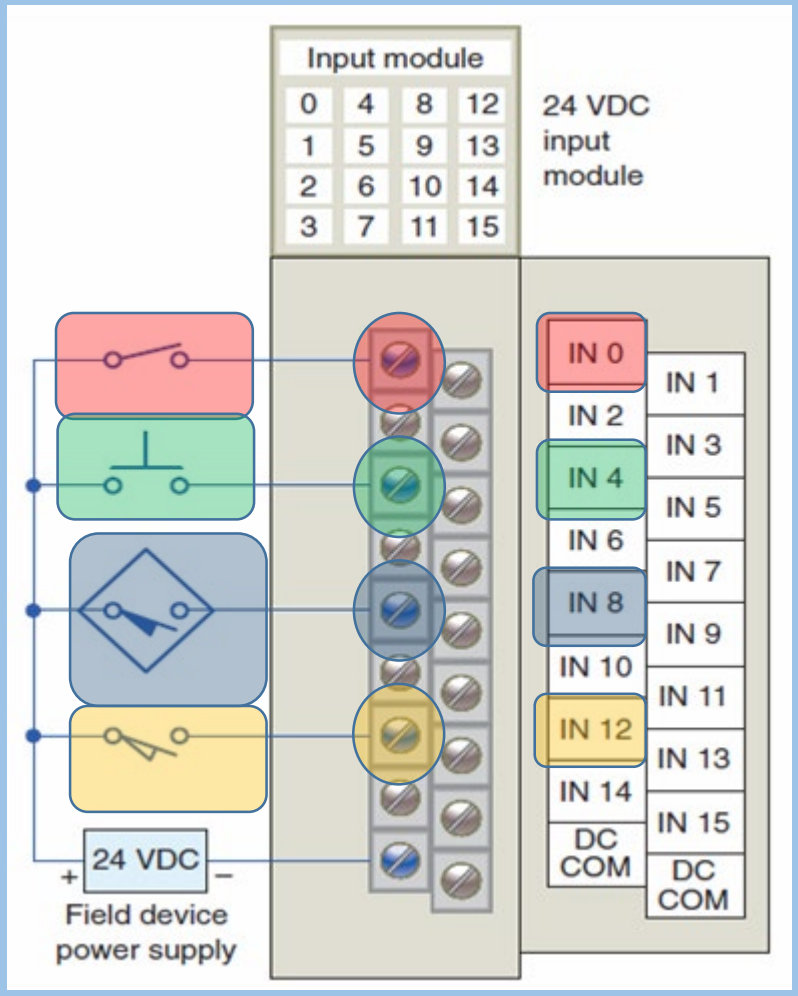
PLC program *scan* cycle



Input Modules

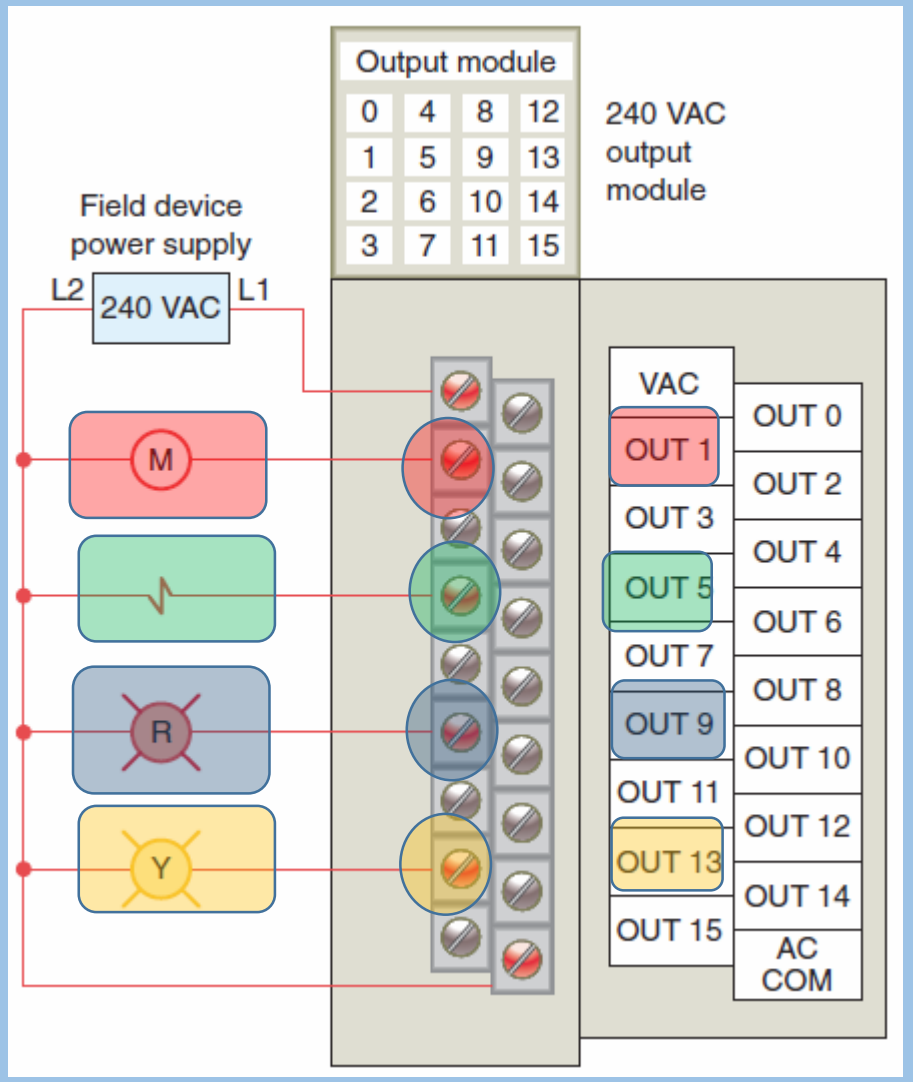
- Forms field device interface connection to the controller
- Input devices: Pushbuttons (PB), Limit Switches (LS), Sensors, etc…
- Hardwire to ***input module*** terminals





I/O (Input/Output) system

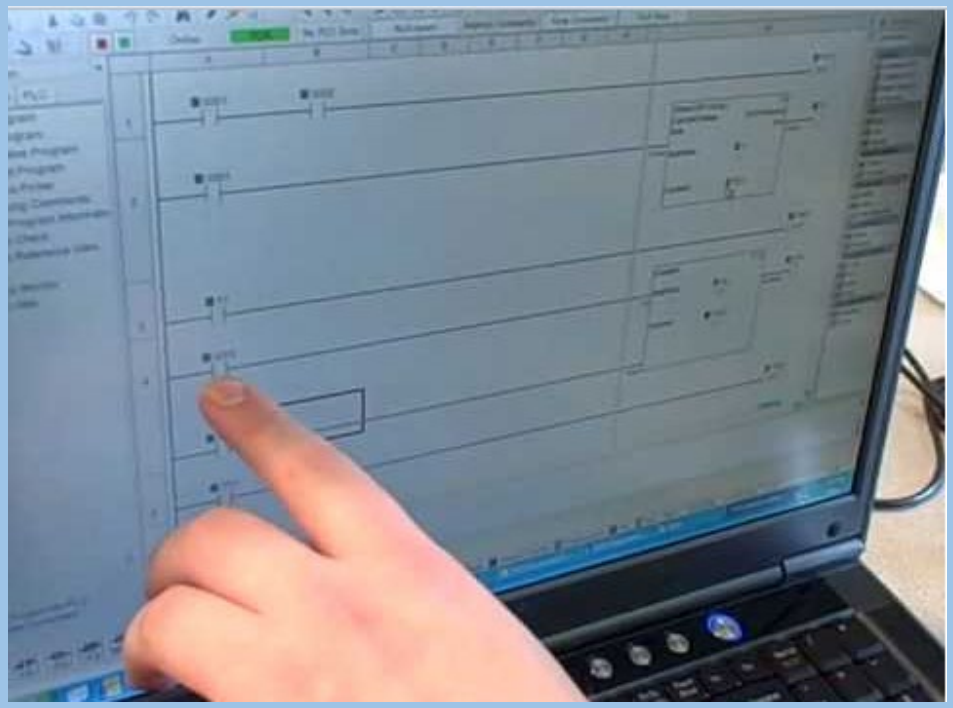
- Output devices:
  - Motor Starters (MS)
  - Solenoid Valves
  - Indicator Lights, etc…
- Hardwired to *output module* terminals.

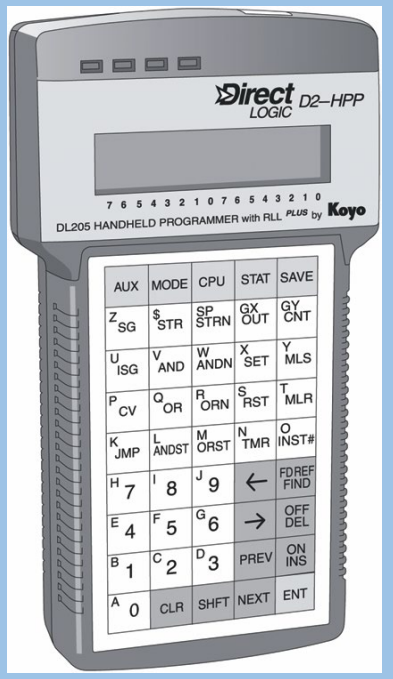


Programming Devices

Used to enter program to processor

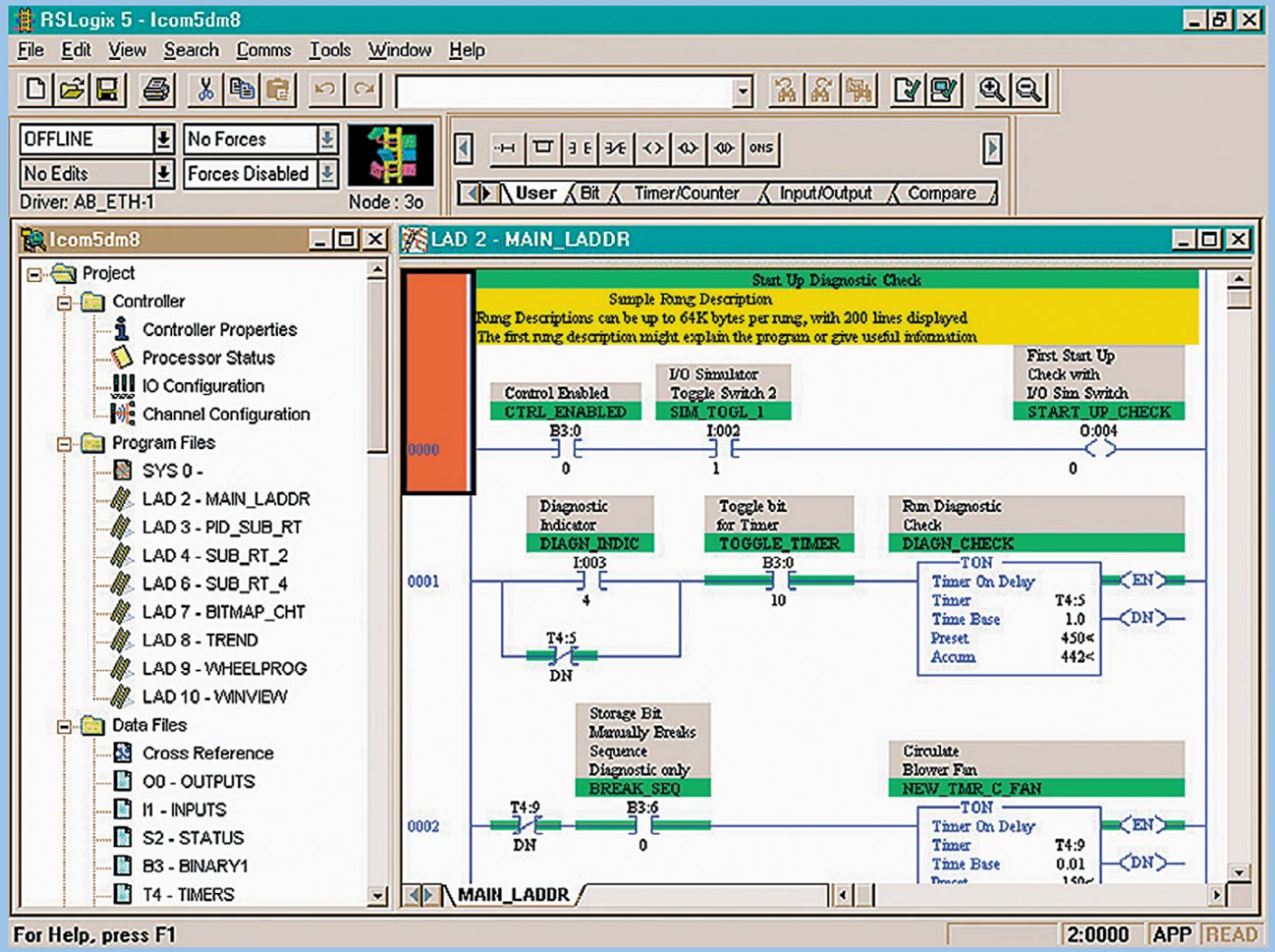
- **On board (Some Micro Fixed I/O)**
- **Hand-held**
- **Personal Computer (PC)**





Personal Computer (PC)

- Most used programming device
- Displays more logic than hand-held device
- Makes program interpretation easier (more visible)



PLC Program

- Series of instructions
- Directs the PLC to execute actions
- *Relay ladder logic is the standard program language*