

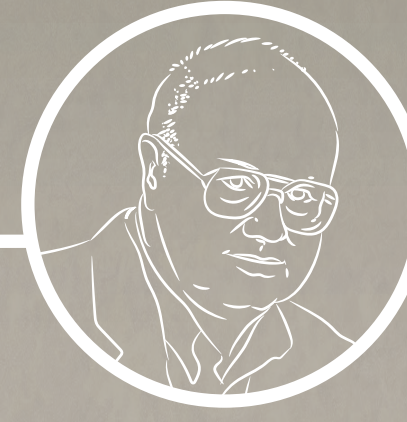
EVOLUTION of the PLC

ALLEN BRADLEY

MODICON

SIEMENS

THE PROBLEM: Before PLCs, automated machines were run by a complex and problematic series of relays. Maintenance costs were high, and system reconfiguring took too long to accomplish.



THE FATHER OF THE PLC: In the late 1960s, GM's Hydra-Matic division requested a concept from Dick Morley. On New Year's Day 1968 the concept that would become the PLC was born. It was then called the Standard Machine Controller. Morley's new company MODICON introduced the 084 Model in 1969 starting the race to perfect this new technology.

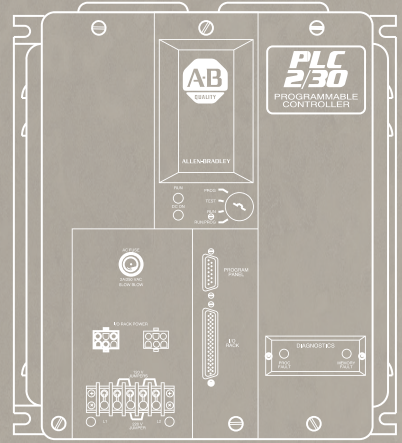
MODICON 184 Model
Described by Morley as the first commercial success

1970

284/384 Models

1774 PLC family introduced by Allen-Bradley

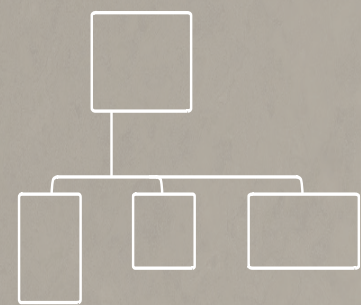
1975



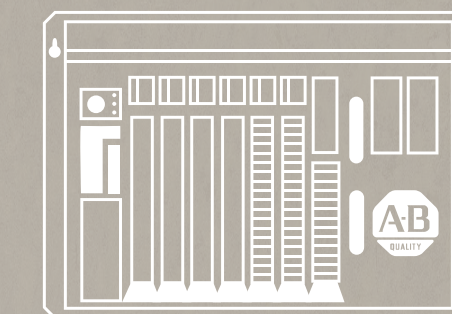
Rack based PLCs
Rack based PLCs, such as Allen-Bradley's PLC 2, begin to proliferate.

Modbus is introduced as first PLC network, becoming an industry standard.

1980



Field I/O
Field I/O, such as AB Remote I/O is introduced. Greatly reduced wiring costs, increasing the rate of growth.



Processors Evolve Further

Offering more expansive instruction sets in models such as the Allen-Bradley's PLC 5.

1985

Simantic S5
Siemen's Four CPU design makes advanced automation applications a reality.

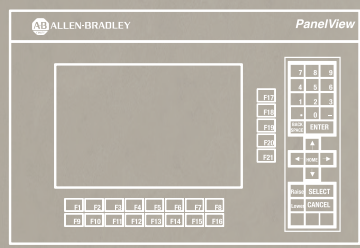


Size and Costs are Optimized

Functionality is packaged into smaller and less expensive models like Allen-Bradley's SLC-500

MODICON 984 Model

1990



Operator Interfaces
Operator Interfaces, such as Allen Bradley's PanelView are introduced, providing plant floor interaction PLCs and greatly increasing capability.

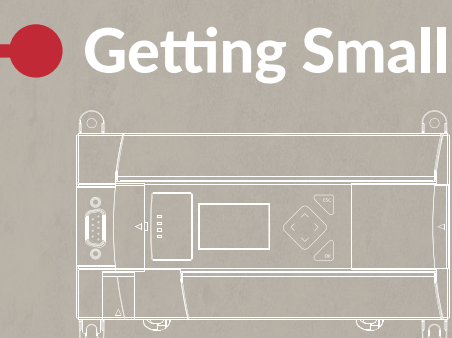
Open Networks
Open networks, such as DeviceNet, begin increasing intelligent I/O options.

PROFIBUS

ETHERNET

Simantic S7
Introduced Siemen's Step 7 Programming System

1995



Getting Small

Allen Bradley's MicroLogix 1000 further reduced the size of the standard PLC. Amazing processing power and expansion options.

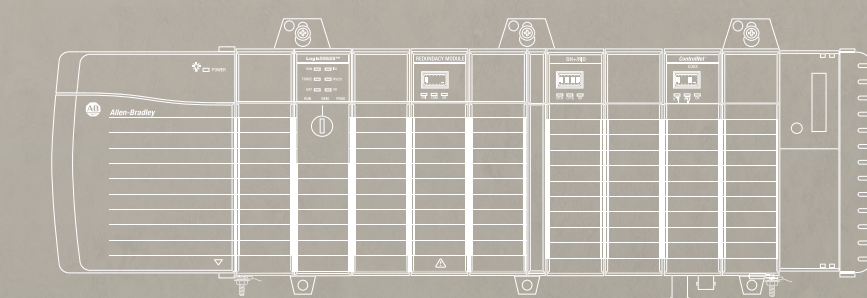
Quantum Range of Automation Control

Programming Languages:

The International Electrotechnical Commission (IEC) identifies five standard programming languages as the most common for both process and discrete programmable controllers:

- Ladder Diagram (LD) - Most Widely Used
- Function Block Diagram (FBD)
- Sequential Function Chart (SFC)
- Instruction List (IL)
- Structured Text (ST)

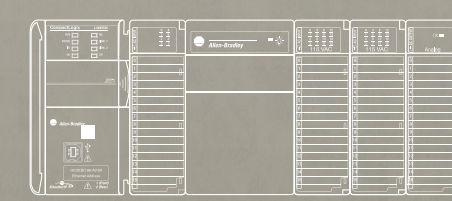
2000



Motion Control & Tag Based Addressing

Motion Control, Tag based addressing and other advancements are packaged into the next generation of PLCs, such as the ControlLogix platform.

2005



Even Smaller

Even smaller platforms, such as CompactLogix, emerge to deliver the latest functionality.

2010

FOR NEARLY 50 YEARS

The Programmable Logic Controller has been crucial to the advancement of manufacturing globally. From the earliest Modicon models to the latest Allen Bradley components, PLCs have given manufacturers the ability to increase proficiency and market value.



TODAY

Modern technology has led us into the new revolution of Smart Manufacturing. We can now achieve advanced operational analytics limited only by your imagination. It's important to look back to see our progression, but many of these classic PLCs will have to be replaced or upgraded in order to stay relevant in the modern manufacturing market place.



2015



FUTURE

Where is PLC/PAC technology going? Contact us today for more information on PLCs and how to modernize your aging automation equipment.