

SoftPLC vs Allen-Bradley PLC Features/Cost Comparison

SoftPLC is truly an A-B PLC Clone . . . plus

Abstract: SoftPLC is commonly referred to in the industry as an **A-B PLC "clone"**. The SLC-500 and PLC-5 are very similar in their programming, memory organization, and communications. Therefore, as a PLC-5 "clone", SoftPLC is also a SLC-500 "clone". Additionally, the Logix products offered by A-B are also similar to the older A-B PLC products, thus SoftPLC can be easily compared to ControlLogix.

However, a "clone" is just a copy. SoftPLC is *much* more than just a copy. SoftPLC started with the minimal base functionality of the A-B PLC's and built upon this base by adding powerful features, tremendous capacity and blazing fast performance, as well as using an open architecture (multi-vendor capable and user-configurable), approach to PLC control.

History: SoftPLC Corporation, since 1985, has sold a product called SoftWIRES. SoftWIRES is an PLC emulation/simulation tool that runs A-B ladder logic in a PC for testing purposes. Versions to simulate the PLC-2, PLC-3 and PLC-5 products are all available. SoftWIRES has been used by thousands of A-B PLC customers to prove their systems before installation, both to test their logic and communications to their HMI/SCADA systems.

In 1988, SoftPLC Corp. decided to build on the SoftWIRES for PLC-5 technology and created their first SoftPLC product. Since then, as the PLC-5 and SLC-500 products have evolved, SoftPLC has also evolved to incorporate the new instructions, data types, and protocols supported by the A-B PLC's. What's more, SoftPLC has also incorporated industry standards and features not found in A-B PLC's - thus the moniker **"PLC-5 on Steroids"**.



SoftPLC In Tealware

Introduction: SoftPLC is a control technology that (a) runs a superset of the PLC-5 ladder logic instruction set, (b) has the same data table data types and addressing as a PLC-5, (c) includes the same communication protocols as a PLC-5. At the base functionality level, SoftPLC is a true "clone" of the PLC-5 (see table).

- Typically, unless using an "exotic" A-B or SoftPLC function, users do not notice differences between SoftPLC and the A-B PLC, from programming through troubleshooting (eg: I/O Forcing, online run-mode programming, CPU assisted search & contact histogram, system status file w/ fault codes, and more).
- Training of new SoftPLC users is rarely required, if they have used an A-B PLC.
- Operator interface, SCADA or other products see SoftPLC on the network as a PLC-5, thus the same drivers can be used.
- Additionally, on a network, SoftPLC appears as a PLC-5 to other A-B PLC's, so peer-to-peer messaging can be utilized seamlessly.

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	SoftPLC	SLC-500 (5/03 and up)	PLC-5	ControlLogix
CPU Features				
Standard Instruction Set	PLC-5 plus SLC-500 ladder instructions, specialty functions (eg: LOG DATA, SEND EMAIL), user functions	SLC-500 instructions	PLC-5 instructions, SFC, structured text	PLC-5 ladder, motion instructions, function block diagram
User logic memory	16MB to 768MB	8K to 64K	8K to 100K	64K to 7.5MB
Other memory	16MB to 1 GB flash	EEProm 1K to 64K	EEProm 8K to 100K	N/A
Standard Communication Ports	Enet (10 or 10/100), 2 serial	serial (5/03), serial + DH+ (5/04), serial + Enet (10MB) (5/05)	serial, DH+ to (4) DH+/RIO	serial
Supported Communication Networks	DF1, DH+, DH, Enet	DF1, DH+, Enet, ControlNet	DF1, DH+, Enet, ControlNet	DF1, DH+, Enet, ControlNet
Supported I/O Networks	Tealware local/remote, Profibus, DeviceNet, Interbus, A-B RIO, GE 90/30, many others	SLC-500 local, A-B RIO, DeviceNet, ControlNet	PLC-5 local, A-B RIO, DeviceNet, ControlNet	Logix local, ControlNet, DeviceNet, A-B RIO, Enet/IP
I/O Capacity	16,384+ digital and up to 1M analog	84 to 4,096	512 thru 3,072	128,000 digital or 4,000 analog
Web Server	Software option	N/A	N/A	N/A

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Cost Comparisons				
Base CPU Module (not equivalent functions/features)	\$1450 and up	\$845 and up	\$3340 and up	\$3500 and up
Power Supply	\$275 (4.5-10A)	\$475 (5A)	\$780 (8A)	\$720 (10A)
6 Module Chassis	\$250	\$340	\$540 (7 modules)	\$395
16 point DC Input Module	\$200	\$235	\$440	\$280
16 point AC Output Module	\$300	\$425	\$700	\$500
8 ch Analog Input Module	\$750	\$960	\$1920	\$850
High Speed Counter Module	\$500 (3 ch)	\$590 (1 ch), \$955 (2 ch)	\$2980 (1 ch)	\$925 (2 ch)
Programming Software	\$950 (incl drivers)	\$1100 + \$1450min RSLinx	\$3300 + \$1450min RSLinx	\$2400 + \$1450min RSLinx
Ethernet Port	Standard	\$1705	\$1500	\$1550
Memory Upgrades	(16MB to 32M) \$160	(16K to 64K) \$1,240	(48K to 100K) \$5,060	(750K to 7.5M) \$5,000
EEPROM Memory	16MB Standard	(64K) \$290+	(100K) \$1,484	(750K) \$500 add'l for NV memory
2nd Serial Port	2 Std (2 add'l ports \$125, 8 add'l ports \$500)	\$305 (stand-alone AIC module) or \$1,170 (Basic Module)	\$2,445 (ASCII module)	(2 ports total) \$1,400+ (C++ module)
DeviceNet	\$1500 interface card w/ software	\$1185 scanner module + \$995 software	\$2,300 scanner module (2 ch) + \$995 software	\$975 scanner module + \$1495 software
User developed functions	\$0 (runs in CPU) + \$750 one time toolkit fee (C++ or Java)	\$1,170 (Basic Module)	\$2,745 to \$15,700 (Basic or various Coprocessor Modules) + \$1155 one time toolkit fee	\$1,400 (MVI Module) + \$1,625 one time C++ toolkit fee

(Reflects US Pricing, Allen-Bradley Price Catalog dated November, 2002 & SoftPLC Price List dated January, 2003)

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Examples: To illustrate exactly how similar SoftPLC is to the A-B PLC's, the following are some example applications where SoftPLC has been used to replace A-B PLC's.

1. **Milk Processing Plant:** PLC-5/80 that was out of memory and communication was locking up due to high traffic. A SoftPLC system was used in place of the PLC-5/80 CPU, connecting to the existing (7) racks of remote SLC-500 I/O, (46) drives on remote I/O, and also (30) valves via a separate Profibus network. Communications networks include an ethernet connection servicing (2) Citect I/O servers and (6) Citect Display Clients, a DH+ connection to (9) A-B PLC-5's, (8) A-B Panelviews and (1) A-B SLC-5/04. No logic changes were required in the (9) PLC-5's, SLC-5/04 or Panelviews. Out of the over 4000 rungs of logic, only 10 needed any modifications to run in the SoftPLC.
2. **Meat Processing Conveyor System:** PLC-5/80 that was out of memory, connected to 10 racks of remote I/O. Communications included a local serial DF1 connection to an HMI, and a DH+ connection to other PLC-5's. Only 1 instruction needed to be changed for this program to run in the SoftPLC, and the HMI and other PLC-5's needed no changes.
3. **Quarry Automation OEM:** SLC-5/04 application originally. Conversion of the logic to run in SoftPLC required only changing Input/Output addresses from decimal to octal with a text editor. Similar changes were required in the Wonderware application.
4. **Post Office Sortation System:** This project utilized A-B DeviceNet I/O and Ethernet communications for HMI and PLC peer-to-peer. It was originally engineered using a SoftPLC system with a HMI that had been previously developed by the OEM in Visual C++. A-B attempted to win the project back. A PLC-5 was connected in place of the SoftPLC, and with no changes to the ladder logic or HMI, the system ran. Of course, the customer put the SoftPLC back into service as the PLC-5 ran slower, cost more and had less features, therefore subtracting value, not adding it.

Summary: SoftPLC is a better choice than an Allen-Bradley PLC if you want a controller solution that is:

- Cost Effective
- Flexible, both in programming and hardware choices
- Easy to communicate with
- Fast
- Powerful and with tremendous capacity
- Web-enabled
- Easy to use with little or no training (for A-B users)

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