

A-B Upgrades/Software: PLC Upgrades/Migrations

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Overview

If you have a control system using an Allen-Bradley PLC you can easily migrate to a SoftPLC based system - with minimal re-engineering or disruption to your business.

Models supported include

- PLC-2 or 1774 PLC
- PLC-5 or SoftLogix5
- SLC-500 or MicroLogix
- PLC-3
- Pyramid Integrator (PLC-5/250)

In most cases, as much of the original I/O racks/modules, field wiring, communication networks, and HMI/SCADA as you want can be left intact. Over time, you can then retrofit other parts of the system (eg: drives, I/O, HMI) as it makes sense to do so. With SoftPLC's open architecture PACs, you have a lot of options on future product choices and virtually unlimited capacity!



We offer migration kits starting at **only \$1850 USD**, that include a SoftPLC with a built-in A-B RIO interface, application conversion services and more. SoftPLC CPU models are available to handle even the largest applications with multiple RIO and communication networks.

In some cases, based on the age and configuration of the A-B equipment, it may be more cost effective to convert the logic and documentation but replace the A-B hardware. Reduce the ongoing cost of maintaining obsolete equipment, connect to modern networks, add new functionality or hardware, and more. You can even combine multiple A-B PLC's into a single SoftPLC!

[Contact us](#) to discuss your upgrade application details.

Hardware

Note: Detailed conversion information for each A-B PLC model can be found in the specific model's section.

The most popular SoftPLC controller models that can replace an Allen-Bradley PLC CPU are [NeoPAC SoftPLC's](#) and [Smart SoftPLC's](#).

A [NeoPAC SoftPLC](#) can be factory equipped with (2) A-B interfaces, which can be for RIO (Remote I/O), either Master (controller) or Slave (adapter), or DH+ (Data Highway Plus). If you need more than (2) bluehose interfaces or want a built-in Ethernet switch, select a Smart SoftPLC.



A [Smart SoftPLC](#) can be factory equipped with up to (3) A-B interfaces. Interfaces can be RIO (Remote I/O) channels, either Master (controller) or Slave (adapter), or DH+ (Data Highway Plus). It also has a built-in 4-port Ethernet switch.



Any HMI/SCADA/DCS system can continue to be used, normally without change, as the SoftPLC will appear as an A-B PLC to the operator interface - either as a PLC-5/SLC-500 or using PLC-2 compatibility mode on serial DF1, DH+ or A-B Ethernet networks.

OR, you can upgrade the operator interface as well - either with one of our [HMI migration solutions](#), or with any product of your choice - all are compatible with SoftPLC.

Most special I/O, coprocessor and side-car modules are supported as part of the migration process, or many times the modules can be eliminated with functions that are standard in the SoftPLC (eg: *Modbus communication*).

Application/Documentation Conversion



Detailed conversion information for each A-B model can be found in the specific model's tab.

SoftPLC Corporation has developed sophisticated utilities that automatically convert A-B ladder logic and documentation to our file format. In most cases, the automatic conversion is 98% or better. These tools provide a report that lists not only what may need manual review, but also details about the conversion process such as a cross-reference from old address to new, rung number equivalences, and more.

We offer the automated conversion services as a low flat-rate fee*. Optionally, we offer services at an hourly fee for engineering review of the results, manual conversion of any flagged logic, or to enter logic/documentation from a program printout (*when files are not available*).

We provide a no-charge engineering pre-review of each application prior to issuing a formal hardware quotation, to help ensure your new SoftPLC based system start-up will be as easy as possible. This review includes an existing system equipment analysis and a review of the program logic, resulting in a list of any potential issues found with recommended solutions.

As part of our migration service, we can even ship your new SoftPLC with the converted application pre-loaded.

** For most A-B models. Some models are quoted by project.*

PLC-5 Migrations

PLC-5 migrations to SoftPLC are unbelievably smooth!

Minimal hardware changes are required in most cases. But, even more significantly, the ladder logic is not converted - it is imported! Rarely does any logic need to be changed, since SoftPLC was initially modeled after the PLC-5.

This means no re-training of personnel, no re-programming of HMI/SCADA systems, and minimal documentation/drawings re-work.

Application Conversion Steps

1. Email us your RSLogix5 .RSP file, if available. Instead, if the files are in 6200 format, export the logic to "pc5" format (*using "Save as pc5" or "Save as text"*), and export the documentation to text format.
2. We will convert them to a single SoftPLC application file that will load into [TOPDOC NexGen](#), the SoftPLC programming software.
3. Download the application to your new SoftPLC controller using [TOPDOC NexGen](#)

Hardware Migration

1. Replace the PLC-5 processor with a 1771-ASB remote adapter module or reconfigure it as a remote I/O adapter (*If the PLC-5 had extended local I/O, replace all local adapters with remote adapters.*) SoftPLC Corp provides gently used 1771-ASB modules with wiring arm and 1 year warranty as our Catalog Number MISC-1771ASBKIT.
2. Install the SoftPLC CPU and connect it via "blue hose" to the first I/O adapter.
3. Connect any other hardware to the SoftPLC as needed (*eg: HMI/SCADA, serial devices, other networks*)

If your original system was redundant, had multiple RIO or DH+ networks, or other specialty functions, [contact](#) us for an engineering review and quote.

Example of a converted PLC-5 program

Convert PID output to PWM or Time Proportioning Discrete

POWER-UP / RESET PERIOD COMPLETE

T4:41
DN

Multiply the capacitance manometer signal by 1.33 to display gas pressure in uBar.

MKS651 CAP. MANOM SIGNAL MKS651 CAP. MANOM SIGNAL

GAS PRESSURE MONITOR 0-100mTorr (or uBar)

BTWO
BLK TFER WRITE (EN)
Rack: 00
Group: 0 (DN)
Slot: 0 (ER)
Params: #N10:60
From: #00
Length: -1277
Continues: N

MUL
R = A * B
A: N15:5
B: 1.33
R: N7:3
73

GAS PRESSURE MONITOR 0-100mTorr (or uBar)

GRT
A > B
A: N15:5
B: 5

GRT
A > B
A: N15:5
B: 0

Compare Target

PGI100 SCREEN SELECTION: 3-PROCESS, 4-PUMPING

Address	Tag	Description
B0003/000000		WATER FLOW INTERLOCK OK
B0003/000001		INTERLOCKS OK
B0003/000002		AUTOMATIC PUMPING CYCLE

Descriptors Properties

Modes Program No Forces Disabled

SLC-500/MicroLogix Conversions

SLC-500 migrations to SoftPLC are unbelievably easy! Minimal hardware changes are required in most cases, if you desire to keep the existing I/O. Rarely does any logic need to be changed, since SoftPLC is a superset of the SLC-500 and PLC-5. The primary differences are in the addressing of digital I/O (*which the automated conversion utility handles*) and the support of third party I/O modules.

Since the MicroLogix has built-in I/O, conversions are normally done for the logic/documentation only, with the hardware being replaced. Options include:

MLX Micro SoftPLC



Smart SoftPLC with Tealware I/O



NeoPAC SoftPLC with A-Series or other I/O



After conversion, there is little re-training of personnel, minimal (if any) re-programming of HMI/SCADA systems and minimal documentation/drawings re-work required.

Application Conversion Steps

1. Email the .RSP file from the RSLogix500 software to SoftPLC Corp
2. We will convert the program and documentation to a single SoftPLC application file that will load into [TOPDOC NexGen](#), the SoftPLC programming software.
3. Download the application to your new SoftPLC controller using [TOPDOC NexGen](#)

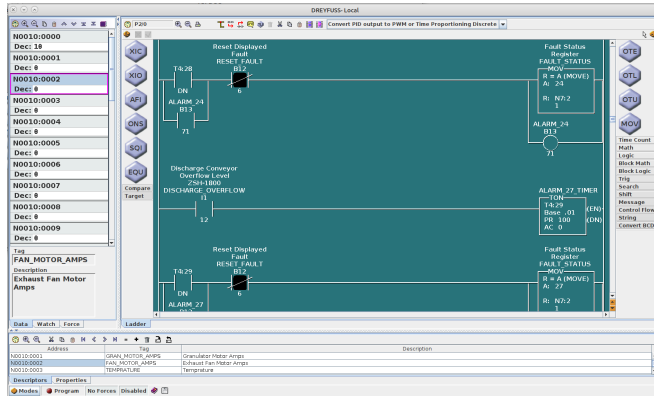
Hardware Migration

1. If keeping the SLC I/O, replace the SLC-500 processor with a 1747-ASB remote I/O adapter. (*If the SLC-500 had extended local I/O, replace any local adapters with remote adapters as well*) SoftPLC Corp provides gently used 1747-ASB modules and 1 year warranty as our Catalog Number MISC-1747ASBKIT.
2. Install the SoftPLC controller and connect it via "blue hose" to the first I/O adapter

3. Connect any other hardware to the SoftPLC as needed (eg: HMI/SCADA, serial devices, other networks)

If your original system had multiple RIO or DH+ networks, or other specialty functions, [contact us](#) for an engineering review and quote.

Example SLC-500 Conversion Report and Logic



SLC to SoftPLC/Tealware Program Conversion Report

Application Name: DREYFUS
Date of Conversion: Mon Oct 24 12:43:13 2005

Address Relocations
(Anything not in this table maintains its original address form)

SLC Address	SoftPLC Address	Tag	Description
O:3.0/0	O0/0	E_STOP_RELAY	Emergency Stop Relay
O:3.0/1	O0/1	MAINTENANCE_MODE_ON	Maintenance Mode Relay
O:3.0/2	O0/2	FAULT	Fault Indicators
O:3.0/3	O0/3	RESET_SCALE_LAMP	Reset Scale Lamp (in P.B.)
O:3.0/8	O0/10	SOUND_FAN_ON	Sound Enclosure Fan Relay M-001
O:3.0/9	O0/11	TALC_MOTOR_LOW_SPEED	Talc Motor Speed Relay M200
O:3.0/10	O0/12	TALC_MOTOR_ON	Talc Motor Relay 200
O:3.0/11	O0/13	TALC_DIVERTER_ON	Talc Diverter Sol. HY-300
O:3.0/12	O0/14	REVERSE_SOL	Conveyor 2 Sol. HY-300
O:3.0/15	O0/15

PLC-2 Migrations

PLC-2 migrations to SoftPLC are unbelievably easy! Minimal hardware changes are required in most cases. Logic conversions are normally 98% or better.

The converted logic resembles PLC-5/SLC-500/MicroLogix logic, so if personnel are familiar with those models, minimal re-training is required. Existing HMI/SCADA products can communicate to SoftPLC using a PLC-2 compatibility mode, so these often do not require re-programming.

Application Conversion Steps

1. Upload the existing PLC-2 program using [TOPDOC for PLC-2](#). As part of our conversion service, we can either provide a rental of TOPDOC PLC-2 and an Attached Mode Cable, or program entry services when only a hard copy print of the logic is available.
2. Export the documentation from your PLC-2 programming software to text format.

(Note: If you do not have existing PLC-2 software files or cannot provide the text formatted files, we offer an optional low cost service to enter the documentation into TOPDOC PLC-2 from a hard-copy printout, so that it can be converted with the logic.)

3. Email these files (or reports) to us. With our automated PLC-2 to SoftPLC conversion utility, we convert the logic and documentation to a single SoftPLC application file that will load into [TOPDOC NexGen](#). If there is logic that doesn't convert, or needs to be modified, our application engineers will discuss options with you.
4. Download the application to SoftPLC using [TOPDOC NexGen](#)

Mini PLC-2 Hardware Migration

1. Replace the Mini PLC-2 processor with a 1771-ASB remote adapter module. SoftPLC Corp provides gently used 1771-ASB modules with wiring arm and 1 year warranty as our Catalog Number MISC-1771ASBKIT.
2. Install the new SoftPLC and connect it via "blue hose" to the I/O adapter.
3. Connect any other hardware to the SoftPLC as needed (*eg: HMI/SCADA, serial devices, other networks*)

PLC-2/30 or PLC-2/20 Hardware Migration

1. If remote I/O, replace the PLC-2 processor with the SoftPLC controller
2. If local I/O, replace each local adapter (1771-AL) with a remote adapter (1771-ASB). Install the SoftPLC and connect it via "blue hose" to the first I/O adapter.
3. Connect any other hardware to the SoftPLC as needed (*eg: HMI/SCADA, serial devices, other networks*)

If your system had multiple RIO or DH+ networks, or other specialty functions, [contact us](#) for an engineering review and quote.

PLC-3 Migrations

SoftPLC is an extremely powerful controller. Even though the PLC-3 was used for large, complicated applications, a SoftPLC can handle the challenge! Minimal hardware changes are required in most cases. Logic conversions are normally 95% or better.

The converted logic resembles PLC-5/SLC-500 logic, so if personnel are familiar with those models, minimal re-training is required. Many PLC-3's communicated to HMI/SCADA using PLC-2 compatibility mode which is supported by SoftPLC, so these devices often do not require re-programming.

PLC-3 programs may require manual intervention after the bulk of the program has been automatically converted. We will provide a quote for the conversion after we receive the files and an application engineer has reviewed them.

Application Conversion

1. Using your PLC-3 programming software, export the logic to .ACH format (text). If you are using [TOPDOC PLC-3](#) or 6200 software, the .LOB or .PLC formats are also acceptable. If you do not have PLC-3 software, we can include the cost of "renting" TOPDOC PLC-3 as part of your conversion process.
2. Export any documentation from your PLC-3 programming software to text format. If you are using TOPDOC PLC-3 or 6200 software, the .DBF and .CMT formats can be used directly.
3. Email these files to us. With our automated PLC-3 to SoftPLC conversion utility, we will run a test and report the automatic conversion success rate, as well as the quote for the conversion services, including manual intervention.
4. After your approval, we will convert the logic and documentation to a single SoftPLC application file that will load into [TOPDOC NexGen](#).
5. Download the application to the SoftPLC controller using [TOPDOC NexGen](#).

Hardware Migration

1. Replace the PLC-3 processor with the SoftPLC controller, and connect it via "blue hose" to the first I/O adapter.
2. Connect any other hardware to the SoftPLC as needed (eg: HMI/SCADA, serial devices, other networks).

If your original system had multiple RIO or DH+ networks, or other specialty functions, [contact us](#) for an engineering review and quote.

Other Conversions

Other A-B PLC and other vendor's PLC systems can also be converted. We are happy to discuss these with you to explore options, feasibility, and costs.

- A-B Pyramid Integrator (PLC-5/250)
- A-B SoftLogix5
- GE Fanuc 90/70, 90/30
- Schneider/Modicon
- Siemens S5, S7

Do you have something else? It doesn't hurt to ask!

Resources

Data Sheets

- [A-B PLC Migrations Data Sheet](#)
- [Smart SoftPLC Data Sheet](#)
- [SoftPLC NeoPAC Data Sheet](#)
- [MLX-PLC Specifications](#)

Media

- [A-B Control System Migrations \(~16 min video\)](#) [Download](#) or [Watch on YouTube](#)
- [Allen-Bradley PLC Upgrades \(~5 min video\)](#) [Download](#) or [Watch on YouTube](#)
- [A-B Migrations \(~13 min Podcast\)](#) [Listen](#)
- [A-B PLC Upgrades to SoftPLC](#)
- [MLX PLC - MicroLogix Alternative \(~6 min video\)](#) [Watch on YouTube](#)