SoftPLC NeoPAC Controllers

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Overview

NeoPAC SoftPLC models include the functions/features of all SoftPLC controllers, including:

- Deterministic, high speed program execution
- “Unlimited” user logic and data table memory
- Ladder logic and data table addressing similar to Allen-Bradley PLC-5/SLC-500
- Fully documented applications, all documentation resides in the controller
- Supports user functions written in C++
- Compatible with all HMI/SCADA products
- Industry standard protocols for communications and I/O *(eg: ModbusTCP/UDP, Ethernet/IP, Modbus RTU/ASCII, DF1, and others)*
- Embedded web server option

Hardware Features

- (1) GB Ethernet and (2) USB communication ports(s)
- (2) option ports that can be any mix of RS-485 serial or Allen-Bradley "blue hose" port for Remote I/O or DH+
- 512MB RAM minimum
- 8GB on-board flash
- DIN-rail mount, metal enclosure
- option for internal WiFi or Bluetooth

Specifications

- CPU - 64bit quad-core ARM Cortex
- Memory - 512MB RAM minimum
- Storage - 8GB onboard flash, MicroSD slot *(no MicroSD included)*
- (2) USB 2.0 host ports with USB A connectors
- GB Ethernet port, RJ-45 connector (10/100/1000)
- Power by +24 VDC through terminal block connector (eg: using Cat No ICO-PSH1524)
- Size (HxWxD) - 3-7/8" x 1-3/4" x 2-7/8" (99 x 44 x 73 mm)
- DIN-rail mounting, metal enclosure

NeoPAC Models

A NeoPAC consists of a base model (Cat No SNS2-x or SNG2-x) with a selected Runtime License size(-x), to which you can add selected factory installed options. Items to be specified include:

- SoftPLC Runtime License Size
- Communication Interface Port Options
- Other Options

Each NeoPAC system is assembled and configured with all of your selected options, then undergoes a system-level test prior to shipment.

Runtime License Size Options

There are (4) available SoftPLC firmware runtime sizes, where runtime size determines the maximum supported number of Ethernet/IP bytes, ModbusTCP servers, logical A-B racks and digital I/O points *(analog I/O is limited only by hardware, not firmware)*. The table below summarizes these choices. Details on these limits are in the communication driver manuals for each protocol.

Specify the size by appending the suffix to the base model Catalog Number. For example, a 1K license would be model SNS2-1K.

Cat No Suffix	ModbusTCP Servers	Ethernet/IP Bytes	Logical A-B Racks	Discrete Inputs^	Discrete Outputs^
LT	2	64	1	128	128
1K	16	512	8	1024	1024
2K	32	1024	16	2048	2048
8K	127	4096	64	8192	8192

^ Select the size based on the larger value in either category. For example, a system with 130 inputs and 24 outputs would require a 1K version. An exception is for A-B RIO which is dictated by logical racks per the A-B RIO definition, details can be found in the A-B RIO driver documentation.

Configurable Communication Ports

These optional interfaces must be factory installed. Select up to 2 per NeoPAC, ordering by Catalog Number.

Catalog Number	Protocol	Description
SPO-485	RS-485 (isolated 2-wire)	Software configurable protocols (ie: Modbus, ASCII)
SPO-BH	A-B RIO Master	Allows SoftPLC to act as RIO scanner
	A-B RIO Slave	Allows SoftPLC to act as RIO adapter
	A-B DH+	A-B Data Highway Plus

Other Factory Installed Options

Order the following as separate line item(s) by Catalog Number. SoftPLC Corp. will manufacture the unit to include these options.

Hardware Options		
SPO-WIFIMOD	Wifi Antenna Extension & Case Modification	enables use of WiFi 802.11 b/g/h
SPO-EXTEMP	Extended Temperature Option	extends operating range to -20~70°C
Software Options		
SPZ-WEB	SoftPLC Embedded Web Server	
SPZ-EML	Send Email/Text Message Package	adds ability to send Email messages

MLX NeoPAC Models

Also available in the MLX SoftPLC family are the MLXP3xx-SNS2 NeoPAC models. These consist of a NeoPAC CPU and an MLXP3xx I/O block. This combination is a compact controller system, suitable for many small applications and specifically targeted as an option to an Rockwell Automation MicroLogix. Detailed MLXP3xx Specifications.

Accessories

The items below are popular optional hardware accessories for use with the NeoPAC.

Catalog Number	Description	Image
ICO-PSH1524	DIN-rail P/S, Output 24VDC, 15W; Input: 100~240VAC	
ICO-PSH3024	DIN-rail mount P/S, 24VDC output, 30 Watts, 85-264VAC input	
SPO-USB232KIT	SoftPLC USB to RS-232 serial support kit (cable/firmware)	
SPO-USB485KIT	SoftPLC USB to RS-485 serial support kit (cable/firmware)	
SPO-UCONCBL	Smart/NeoPAC Serial Console Access Cable (10') *Used for troubleshooting in the event the Ethernet port is not accessible*	
SPO-CKIT	Spare Connectors Kit for Smart/NeoPAC option ports (1 P/S, 2 serial/bluehose)	

I/O and System Configurations

NeoPAC SoftPLC's can be used with a variety of I/O and other devices. Any Ethernet, serial, or USB remote I/O can be used providing a SoftPLC driver exists. Many drivers exist, or can be developed using the SoftPLC Programmer's Toolkit. Multiple I/O types can be used with a single controller.

The NeoPAC SoftPLC has multiple I/O interfaces and can support virtually unlimited I/O points. The NeoPAC's built-in Ethernet and USB ports, and optional RS-485 ports can be configured to communicate to I/O products from dozens of vendors, over a number of protocols.

Also, Rockwell Automation/Allen-Bradley Remote I/O **(A-B RIO)** is supported with up to 2 optional internal interfaces. A NeoPAC SoftPLC can act as an A-B RIO master and/or slave, or communicate on DH+.

Serial Options

Up to 2 ports for Serial I/O is supported via the embedded RS-485 port option (Cat No SPO-485). You can also use the USB ports for serial protocols. For RS-232, use the SPO-USB232KIT, and for RS-485 use the SPO-USB485KIT. These kits include industrial USB to serial converter cables and firmware configuration.

- Modbus - any compatible devices - I/O, meters, drives, or other process equipment
- COMGENIUS supports ASCII string type protocols
- Other serial I/O drivers (eg: A-series)
- Write your own serial interface with the SoftPLC Programmer's Toolkit

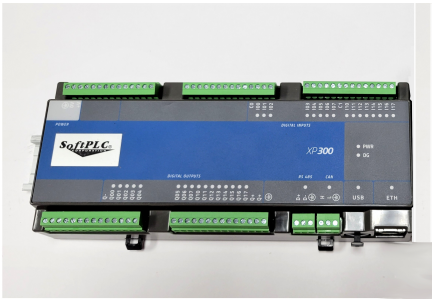
Ethernet Options

- ModbusTCP/UDP to compatible I/O systems and devices *(including Tealware)* on up to 127 remote slaves
- Ethernet/IP™
- Write your own Ethernet interface with the SoftPLC Programmer's Toolkit

MLXP3xx I/O

The MLXP3xx-SN2 models include a SoftPLC NeoPAC CPU and an MLXP3xx I/O block. This combination is a compact micro controller system, suitable for many small applications and specifically targeted as an option to an Rockwell Automation MicroLogix.

The MLXP3xx I/O can be used with any SoftPLC CPU, connected via Ethernet using ModbusTCP. Detailed MLXP3xx Specifications.

Catalog Number	Description	Image
MLXP300	(16) digital inputs + (16) digital outputs	
MLXP325	(16) digital inputs + (16) digital outputs + (5) analog inputs + (2) RTD inputs + (4) analog outputs	

Resources

Data Sheets

NeoPAC SoftPLC Model SN2 Data Sheet

SoftPLC Gateway Data Sheet

Manuals

NeoPAC Quick Start Guide

Smart/NeoPAC SoftPLC & TOPDOC NexGen User Guide (version 5)

Videos/Podcasts

A-B Control System Migrations *(~16 min video)* Download or Watch on YouTube

What is a SoftPLC? *An overview of SoftPLC® Controllers* Download or Watch on YouTube.

Allen-Bradley PLC Upgrades *(~5 min video)* Download or Watch on YouTube

A-B Migrations *(~13 min Podcast)* Listen

MLX PLC - MicroLogix Alternative *(~6 min video)* Watch on YouTube