

# SPC810ev2K02

## ABB Ability™ Symphony® Plus Hardware Selector



The SPC810ev2K02 is the latest addition to the Symphony Plus controller family. SPC810ev2K02 controller features include; a modular high-density design, low energy consumption, flexible DIN-Rail column or row mounting, and extreme operating temperature range (-40 to +70 °C).

The SPC810ev2K02 controllers also are high-performance process controllers that support all types of control requirements including discrete, continuous, sequential, and advanced control applications. SPC810ev2K02 controllers are capable of executing control applications that are demanding in terms of both data and computations.

SPC810ev2K02 controllers have (4) RJ45 Ethernet ports PN800A and PN800B (located on PBA812 Process Bus Adaptor) for connection to the PN800 Plant Network, EN 2A for connection to an optional SNTP network that provides precise time synchronization, and EN 2B for connection to MODBUS TCP networks. Both EN 2A & 2B ports are located on the module front plate.

**SPC810ev2K02 supports up to 30,000 Function Blocks, 1000 hardwired IO, and up to 8 remote IO links.**

SPC810ev2K02 is capable of executing closed-loop control logic for up to 5000 process IO in less than 250 msec.

**SPC810ev1K02** is a Harmony Rackmount, redundant controller kit that includes: 2x SPC810ev modules + 2x PBA812 Process Bus Adaptors + 2x TER800 bus terminators.

## Features and benefits

- **SIMPLE:** SPC810ev2K02 controllers provide time-proven solutions optimized for processed control
- **SCALABLE:** SPC810ev2K02 is optimized for medium-sized control applications of up to 5000 process I/O
- **SEAMLESS:** SPC810ev2K02 controllers connect directly to Harmony Rack IO over IOX-BUS. PBA812 enables the controller to connect to NTMP01 TUs for serial interfaces.
- **SECURE:** S+ systems using SPC810ev2K02 controllers have been certified to Security Level 1 as defined by IEC 62443
- SPC810ev2K02 controllers support high speed, synchronous, PTP controller communications over the CW800 bus.
- SPC810ev2K02 controllers are configured by the S+ Engineering Tool Suite.
- SPC810ev2K02 hardware is designed for the optimum evolution/replacement of MFPxx and BRCxxx HR Controllers.

---

**General info**

Article number	7PAA006320R1200 (SPC810ev2K02)
Life cycle status	ACTIVE
Redundancy	Yes
SIL	No
Clock Frequency	250 MHz
FBs per controller	30000
Closed loop control performance	5000 I/O in under 250 msec
XR communications	Up to 300 import + 3000 export XR messages per sec
DRAM Memory	128 MB RAM
NVRAM	2.0 MB MRAM
Flash ROM	4 MB Flash ROM
Form factor	HR Module
Mounting	HR (2-slots in MMU)
HN800 bus length	355 mm
MTBF (per MIL-HDBK-217-FN2)	SPC810ev PR: D = 230,710 hours @ 40 °C
MTTR (Hours)	SPC810ev2K02 MTTR = 1 hour

---

---

**Program Language Support**

B90/UDF (Batch 90 & UDF Programming)	B90 (BSEQ, CSEQ, & PHASEX FBs), UDF Type 1&2
SGS (Symphony Gateway Software)	Up to 8 Servers, 128 Clients and 10.000 Total Points
ANSI "C" programming	One (1) "C" program per controller, One (1) instance in each of up to eight (8) segments

---

<b>Detailed data</b>	
Processor type	MCF54418 @ 250 MHz
Module power requirements	4.125 W = 850 mA (typical) @ 5 VDC per module & PBA811
Module power connection	+5v connection on MMU
Overvoltage category	Category 1 for power. Tested according to IEC/EN 61010-1
Built-in back-up battery	No battery required!
Controller switch over time	1 controller scan cycle
No. of Segments (or Tasks) per controller	Configurable from 1 (min & typical) to 8 (max)
Segment (or Task) cycle time	Configurable from 1 msec (min), 250 msec (default / typical), 30 sec (max)
No. of FBs per Segment (or Task)	Min 2 FBs per segment, Max 30000 FBs per segment, 30000 FBs Total per controller
Max no. of local SD Series IO modules	n/a
Max no. of remote IO links per controller	n/a
Max no. of SD Series IO modules	n/a
Max no. of local HN800 IO modules	n/a
Max length of electrical HN800 bus	n/a
Max length of optical HN800 bus	n/a
PN800 Plant Network capacity	Up to 250 network segments per system, up to 250 nodes per segment
Controller PN800 node address	SPCxxx controller node address must be an even number between 2 and 248
Control Network protocol	PN800 Plant Network a.k.a "INFI-Net over Ethernet" based on Ethernet TCP
Recommended Control Network backbone	100 MBps or 1.0 GBps Ethernet TCP
Real-time clock stability	50 ppm (clock is re-synchronized every 2 sec)
Standard time precision	10-20 msec via time master node on PN800 Plant Network
Enhanced time precision	1 msec via time master on dedicated SNTP network (EN 2A)
PROFIBUS capability	992 PROFIBUS Slaves via (2) pairs of PDP800 master modules
HART (v5.4) capacity	2000 HART signals via SD Series IO modules
IEC 61850 capability	16 IEDS via (8) CI850 modules
IEC 60870-5-104	128 Devices, 1500 Total Points via (8) SCI200 modules
DNP 3.0	Up to 128 Outstations via (8) SCI200 modules
DeviceNet	Ethernet IP (via SCI200) to DeviceNet adaptor
MODBUS TCP	8 Servers, 128 Clients, 10000 Total Points

<b>Environment and certification</b>	
Temperature, Operating	-40 to +70 °C Tested according to IEC/EN 60068-2-1, IEC/EN 60068-2-2
Temperature, Storage	-40 to +85 °C Tested according to MIL-STD-810G
Relative humidity	20 % to 95 % @ 40 °C non-condensing. Tested according to IEC/EN 60068-2-78, IEC/EN 61298-3
Vibration (operational sinusoidal)	5 to 60 Hz 0.137 mm (0.0054 in.), 60 to 150 Hz 1.0 G. Tested according to IEC/EN 60068-2-6
Vibration (transportation)	10 to 500 Hz. Tested according to MIL-STD-810G
Shock (storage)	15 G, 11 msec. Tested according to IEC/EN 60068-2-27
Drop	100 mm. Tested according to IEC/EN 60068-2-31
Protection class	IP20 according to EN 60529, IEC 529
Altitude (operational)	Sea level to 3,048 meters (10,000 ft.) Tested according to MIL-STD-810G
Altitude (storage)	Sea level to 12,192 meters (40,000 ft.) Tested according to MIL-STD-810G
Air quality	ISA S71.04 G1, ISA S71.04 G3 compliant versions SPCxxxA are also available
ESD immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-2, Severity level 3
Surge immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-5, Severity level 3
Electrical fast transient immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-4, Severity level 3
Radiated RFI immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-3, Severity level 3
Conducted Immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3
Magnetic field immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-8, Severity level 4
Radiated emission	Tested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipment
Conducted emission	Tested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipment
Voltage dips and interruption immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-11
CSA non-hazardous locations	Certified for use as process control equipment in an ordinary (non-hazardous) location
CSA hazardous, nonincendive locations	Class I, Division 2, Groups A, B, C, D
CE Mark	CE Mark EMC directive 2004/108/EC & Low Voltage Directive 2006/95/EC
RoHS compliance	RoHS Directive 2015/863
WEEE compliance	DIRECTIVE/2012/19/EU

<b>Dimensions</b>	
Width	35.6 mm (1.06 in.)
Height	177.8 mm (7.0 in.)
Depth	298.5 mm (11.75 in.)
Weight (including base)	1.00 kg (35.27 oz.)

—  
[solutions.abb.com/symphonyplus](https://solutions.abb.com/symphonyplus)  
[solutions.abb.com/controlsystems](https://solutions.abb.com/controlsystems)

—  
800xA and Symphony Plus is a registered trademark of ABB. All rights to other trademarks reside with their respective owners.

We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not assume any responsibility for any errors or incomplete information in this document.

We reserve all rights to this document and the items and images it contains. The reproduction, disclosure to third parties or the use of the content of this document – including parts thereof – are prohibited without ABB's prior written permission.

Copyright© 2024 ABB All rights reserved