

**DATA SHEET** 

## **SPC600VK02**

## ABB Ability™ Symphony® Plus Hardware Selector



The SD Series SPC600 are the newest additions to the Symphony Plus controller family. SPC600 controller features include; modular high-density design, low energy consumption, flexible DIN-Rail column or row mounting, and extreme operating temperature range (-40 to +70 degC).

The SPC600 controllers also are high-performance process controllers that support all types of control requirements including discrete, continuous, sequential and advanced control applications. SPC600 controllers are capable of executing control applications that demanding in terms of both data and computations.

The mounting bases of the SPC600 controllers have (4) RJ45 Ethernet ports PN800A and PN800B 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.

SPC600 supports up to 5,000 Function Blocks, 500 hardwired IO, up to 4 remote IO links. SPC600 is capable of executing closed-loop control logic for up to 500 process IO in less than 250 msec.

**SPC600VK02** is a vertical column mount, redundant controller kit that includes: 2x SPC600 modules + 1x VB705 base + 2x TER810 bus terminators.

## Features and benefits

- SIMPLE: SPC600 controllers provide time proven solutions optimized for processed control
- SCALABLE: SPC600 is optimized for small control applications of up to 500 process I/O
- SEAMLESS: SPC600 controllers connect directly to SD Series IO over the redundant HN800 IO bus
- SECURE: S+ systems using SPC600 controllers have been certified to Security Level 1 as defined by IEC 62443
- SPC600 controllers are configured by the S+ Engineering Tool Suite
- SPC600 hardware is designed for optimum communication connectivity (Ethernet, PROFIBUS DP, IEC 104, etc.)

| General info                    |   |  |
|---------------------------------|---|--|
| Article number                  | 8VZZ001272K1200   |  |
| Life cycle status               | ACTIVE  |  |
| Redundancy                      | Yes   |  |
| SIL                             | No  |  |
| Clock Frequency                 | 250 MHz   |  |
| FBs per controller              | 5000  |  |
| Closed loop control performance | 500 I/O in under 250 msec                                   |  |
| XR communications               | Up to 100 import + 1000 export XR messages per sec          |  |
| DRAM Memory                     | 128 MB RAM  |  |
| NVRAM                           | 512 KB MRAM   |  |
| Flash ROM                       | 4 MB Flash ROM  |  |
| Form factor                     | Full-size (190mm)   |  |
| Mounting                        | Vertical Column   |  |
| HN800 bus length                | 355 mm  |  |
| MTBF (per MIL-HDBK-217-FN2)     | SPC600 PR: B = 248,691 hours, VB710 PR: D = 1,837,354 hours |  |
| MTTR (Hours)                    | SPC600 MTTR = 1 hour, MB710 MTTR = 8 hours                  |  |

| Detailed data                             |   |  |
|---|---|--|
| Processor type                            | MCF54418 @ 250 MHz  |  |
| Module power requirements                 | 3.6 W = 150 mA (typical) @ 24 VDC (+16%/-10%) per module  |  |
| Module power connection                   | TB1 on cHBX01L  |  |
| 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 5000 FBs per segment, 5000 FBs Total per controller                                      |  |
| Max no. of local SD Series IO modules     | 60  |  |
| Max no. of remote IO links per controller | 4   |  |
| Max no. of SD Series IO modules           | Up to 60 IO modules per remote IO link, 120 IO modules Total  |  |
| Max no. of HR Series IO modules           | Not supported   |  |
| Max no. of local HN800 IO modules         | Up to 10 vertical bus segments (columns) each column with up to 8 full-size or 12 compact modules, 64 modules Total |  |
| Max length of electrical HN800 bus        | Up to 30 meters (includes module bases + cables that connect segments)  |  |
| Max length of optical HN800 bus           | Up to 3000 meters using 62.5/125 $\mu m$ multi-mode fiber optic cable with cRBX01 F.O. repeater modules             |  |
| 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                       | 124 PROFIBUS Slaves via (1) pair of PDP800 master modules   |  |
| HART (v5.4) capacity                      | 500 HART signals via SD Series IO modules   |  |
| IEC 61850 capability                      | 20 IEDS via (1) CI850 module  |  |
| IEC 60870-5-104                           | 32 Devices, 1500 Total Points via (2) SCI200 modules  |  |
| DNP 3.0                                   | Up to 32 Outstations via (2) SCI200 modules   |  |
| DeviceNet                                 | Ethernet IP (via SCI200) to DeviceNet adaptor   |  |
| MODBUS TCP                                | 1 Server, 4 Clients, 500 Total Points   |  |

| Environment and certification          |  |  |
|--|--|--|
| 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 (104°F) 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   |  |

| Dimensions              |        |  |
|-------------------------|--------|--|
| Width                   | 103 mm |  |
| Height                  | 218 mm |  |
| Depth                   | 138 mm |  |
| Weight (including base) | 916 g  |  |



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