

# Controllers - SDe Controllers

## ABB Ability™ Symphony® Plus hardware selector

Symphony® Plus SDe Controllers (SPC) are the next generation of time-tested, field-proven SD series controllers. Specifically designed for the evolution, enhancement, and expansion of Harmony Rack (HR) systems, SDe controllers provide flexible, mounting options that allow them to be installed in multiple configurations. In every form, the controllers are form, fit, and functional replacements for HR controllers. Offering complete scalability, the powerful controllers are suitable for small to large applications.

The controllers belong to the ABB Ability Symphony Plus Control and I/O family: the SDe Series – a green portfolio of completely scalable control and I/O products that deliver a total plant automation solution for your process regardless of application type, size, or physical setting. Energy efficient, compact, and providing digital infrastructure to integrate smart field devices seamlessly makes SDe Series the best automation solution for your new installation, upgrade, or expansion.

SDe Series controllers are the latest in a long line of ABB field-proven process controllers and can adapt to a broad spectrum of applications and process requirements. Configured by S+ Engineering, SDe Series controllers feature an extensive library of predefined function codes for easy building block design of complex control strategies to fit any control application, including continuous, sequential, batch, and advanced control.

SDe Series controller subsystems are redundant at all levels - CPU, power, internal bus, I/O networks, communication ports, and plant network. Compliance with international standards assures the highest level of reliability and quality needed to meet the most rigorous global specifications and requirements. Together, they provide users with fast, accurate, uninterrupted control of their process.

Further, SDe Series controllers are designed to specifically address cybersecurity threats as defined by the industry-leading standard IEC 62443. For example, SDe Series controllers are ISA Secure Component Security Assurance (CSA) certified (formally known as Embedded Device Security Assurance, EDSA).

Below is an outline of the range of different SDe Controllers available.



| Specific feature <sup>1</sup>        | SPC810eK01  | SPC810eK02                      | SPC810EMC1K01  | SPC810EMC1K02                      |
|--------------------------------------|---|---------------------------------|--|------------------------------------|
| <b>General info</b>                  |   |                                 |  |                                    |
| Article number                       | 7PAA008646R0100<br>(SPC810eK01)   | 7PAA008646R0200<br>(SPC810eK02) | 7PAA005095R0100<br>(SPC810EMC1K01)   | 7PAA005095R0200<br>(SPC810EMC1K02) |
| Life cycle status                    | Active  |                                 |  |                                    |
| Redundancy                           | No  | Yes                             | No   | Yes                                |
| SIL                                  | No  |                                 |  |                                    |
| Clock Frequency                      | 250 MHz   |                                 |  |                                    |
| FBs per controller                   | 30 000  |                                 |  |                                    |
| Closed loop control performance      | 5000 I/O in under 250 msec (70% Digital, 30% Analog)  |                                 |  |                                    |
| XR communications                    | Up to 100 import + 1000 export XR messages per sec  |                                 |  |                                    |
| DRAM Memory                          | 128 MB RAM  |                                 |  |                                    |
| NVRAM                                | 2.0 MB MRAM   |                                 |  |                                    |
| Flash ROM                            | 4 MB Flash ROM  |                                 |  |                                    |
| Form factor                          | Compact (127mm)   |                                 |  |                                    |
| Mounting                             | MB910e occupies 90 mm on Horizontal DIN-Rail  |                                 | EMB910e using 1-Slot in EMC  | 2x EMB910e using 2-Slots in EMC    |
| HN800 bus length                     | 200 mm  |                                 | 190 mm   | 410 mm                             |
| MTBF (per MIL-HDBK-217-FN2)          | SPC810e PR D: 298,128 Hours @ 30 °C 226,849 Hours @ 40 °C 92,677 Hours @ 70 °C MB910e PR C: 8,568,246 Hours @ 30 °C 7,392,563 Hours @ 40 °C 4,825,271 Hours @ 70 °C |                                 | SPC810e PR D: 298,128 Hours @ 30 °C 226,849 Hours @ 40 °C 92,677 Hours @ 70 °C EMB910e PR C: 8,568,246 Hours @ 30 °C 7,392,563 Hours @ 40 °C 4,825,271 Hours @ 70 °C |                                    |
| MTTR (Hours)                         | SPC810e MTTR = 1 hour, MB910e MTTR = 8 hours  |                                 | SPC810e MTTR = 1 hour, EMB910e MTTR = 8 hours  |                                    |
| Program Language Support             |   |                                 | B90 (BSEQ, CSEQ, & PHASEX FBs), UDF Type 1 & 2   |                                    |
| <b>Dimensions</b>                    |   |                                 |  |                                    |
| Width                                | 90.1 mm (3.55 in.)  |                                 | 35.5 mm (1.06 in.)   | 71.2 mm (2.12 in.)                 |
| Height                               | 141.5 mm (5.57 in.)   |                                 | 177.8 mm (7.0 in.)   |                                    |
| Depth                                | 137.2 mm (5.40 in.)   |                                 |  |                                    |
| Weight (including base)              | 400 grams   | 600 grams                       | 362 grams  | 724 grams                          |
| <b>Environment and certification</b> |   |                                 |  |                                    |
| RoHS compliance                      | RoHS Directive 2015/863   |                                 |  |                                    |
| WEEE compliance                      | DIRECTIVE/2012/19/EU  |                                 |  |                                    |

<sup>1</sup> For detailed information on each module, please visit: [symphonypushhardwareselector.com](https://www.symphonypushhardwareselector.com)



| Specific feature <sup>1</sup>        | SPC810ev1K02                                       | SPC810ev2K02                   |
|--------------------------------------|--|--------------------------------|
| <b>General info</b>                  |  |                                |
| Article number                       | 7PAA006320R0200 (SPC810ev1K02)                     | 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 (1-Slot in MMU)                                 |                                |
| HN800 bus length                     | 355 mm   |                                |
| MTBF (per MIL-HDBK-217-FN2)          | SPC810ev PR: D = 230,7107 hours @ 40 °C            |                                |
| MTTR (Hours)                         | SPC810ev1K02 MTTR = 1 hour                         | SPC810ev2K02 MTTR = 1 hour     |
| <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.)                                |                                |
| <b>Environment and certification</b> |  |                                |
| RoHS compliance                      | RoHS Directive 2015/863                            |                                |
| WEEE compliance                      | DIRECTIVE/2012/19/EU                               |                                |

<sup>1</sup> For detailed information on each module, please visit: [symphonyplushardwareselector.com](https://www.symphonyplushardwareselector.com)

# Accessories



| Specific feature <sup>1</sup>        | PBA811A                 | PBA812A       | TER800           | TER810 |
|--------------------------------------|-------------------------|---------------|------------------|--------|
| <b>General info</b>                  |                         |               |                  |        |
| Article number                       | 7PAA001437R11           | 7PAA001438R11 | TER800           | TER810 |
| Life cycle status                    | Active                  |               |                  |        |
| Redundancy                           | Yes                     |               | No               |        |
| SIL                                  | No                      |               |                  |        |
| <b>Dimensions</b>                    |                         |               |                  |        |
| Width                                | 31 mm (1.22 in.)        |               |                  |        |
| Height                               | 94 mm (3.70 in.)        |               |                  |        |
| Depth                                | 131 mm (5.16 in.)       |               |                  |        |
| Weight (including base)              | 140 g (4.93 oz.)        |               | 136 g (4.80 oz.) |        |
| <b>Environment and certification</b> |                         |               |                  |        |
| RoHS compliance                      | RoHS Directive 2015/863 |               |                  |        |
| WEEE compliance                      | DIRECTIVE/2012/19/EU    |               |                  |        |

<sup>1</sup> For detailed information on each module, please visit: [symphonyplushardwareselector.com](https://www.symphonyplushardwareselector.com)

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