Type Examination Certificate

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PLUS+1 Development tools, version 7.1.X

Holder / Issued for / Manufacturer

Danfoss Power Solutions AB, Teknikgatan 1, SE-34334 ÄLMHULT, Sweden

Product name and description

The PLUS+1 development tools, version 7.1.X are support tools used for code generation, where high level graphical symbols are transferred to source code and in addition supports the assembling, linking and downloading of the source code to the hardware and reading/writing of information from/to the hardware. The PLUS+1 Development tools, version 7.1.X, consists of two main parts, namely:

- GUIDE tool, that handles the translation of graphical symbols to executable code
- Service Tool, that handles the download of executable code to the hardware and reading/writing of information from/to the hardware

Certification

The product described above fulfils the requirements placed on support tools for use in the development of application software according to the standard IEC 61508:2010 *Functional safety of electrical/electronic/programmable electronic safety-related systems, Part 1 and 3* within the following limitations:

- IEC 61508 tool requirements for GUIDE version 7.1 are fulfilled for graphic code, Structured Text code but not for externally developed C-code
- IEC 61508 tool requirements for Service Tool version 7.1 are fulfilled as long as it is not used as a *software on-line support tool* as defined by IEC 61508

The certification is based on a functional safety assessment according to IEC 61508:2010 described in SP report 5P00422:A supplemented with a separate evaluation of the PLUS+1 Development tools described in SP report 5P00422:B and the user documentation in the currently valid revision.

Marking

Each sample that conforms in all respects with the original item certified may display the text "Type-examined by SP". In addition, manuals and marking shall also show the number of the standard, the reached SIL (Safety Integrity Level) of the item, the number of this certificate and the serial number or equivalent of the item.

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Validity

This certificate is valid until not later than 28th February 2018

Miscellaneous

Other terms and conditions are set out in SP's certification rules for type-examination, SPCR 123.

SP Technical Research Institute of Sweden
Certification

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