Press release

CODESYS Virtual Safe Control, the hardware-independent SIL3 safety controller

Kempten, November 2023: Coded Processing in virtual safety controllers: As of 2024, CODESYS Virtual Safe Control SL will allow for the implementation of SIL3-certified safety controls without certified hardware.

For more than 10 years now, CODESYS can be extended with a certified SIL3 solution based on two-channel, certified hardware with 1oo2. By using virtual controllers, the hardware can now be abstracted.

The software solution creates dual-channel capability through "Diversified Encoding", which is based on "Coded Processing". The application processing is divided into two logical software channels. The first channel runs the original security application, the second runs the same application with coded processing algorithms - this way it can detect errors. Both channels run sequentially one after the other on a CPU core and permanently check against each other, making data and control flow errors more likely to be detected. Diversified Encoding distributes safe inputs to both channels and, conversely, merges outputs from both channels into safe outputs. Data streams generated by secure network or fieldbus protocols are enclosed and addressable in real time. This provides an equivalent solution to physical systems without being tied to hardware.

The certified add-on for safety applications extends the functional part of the CODESYS Development System. The code loaded onto the virtual safety controller is programmed in the safe IEC-61131-3 editor. The CODESYS safety concept which was developed in cooperation with the company SIListra Systems GmbH will be integrated into CODESYS and has been approved by TÜV SÜD. Release and certification for CODESYS Virtual Safe Control as a hardware-independent solution is scheduled for the first half of 2024.

CODESYS at the SPS 2023 trade fair: Hall 7 Booth 677

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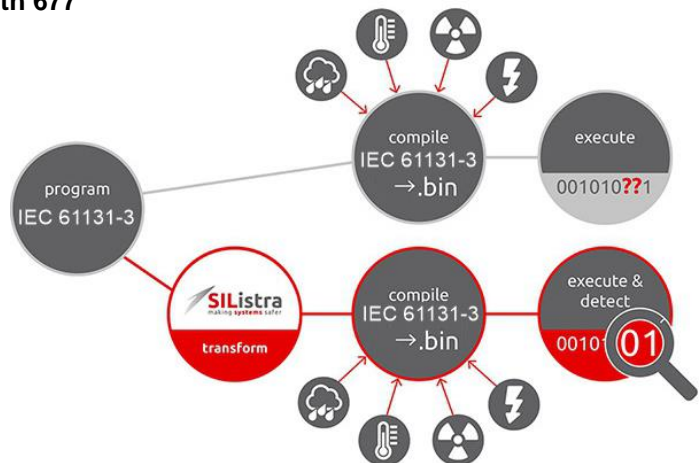Tel.: +49-831-54031-17

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