

Digitalization of Functional Safety - Increasing Productivity while Reducing Risks

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Abstract : Digitalization seems to be everywhere these days. So if one was to digitalize Functional Safety, what would that require: • Ability to directly use data from intelligent P&IDs / process design in a PHA / LOPA • Ability to directly use data from intelligent P&IDs in the SIS Design to support SIL Verification Calculations, SRS, C&Es, Functional Test Plans • Ability to create Unit Operation / SIF Libraries to radically reduce engineering manhours while ensuring consistency and improving quality of SIS designs • Ability to link data directly from a PHA / LOPA to SIS Designs • Ability to leverage reliability models and SRS details from SIS Designs to automatically program the Safety PLC • Ability to leverage SIS Test Plans to automatically create Safety PLC application logic Test Plans for a virtual FAT • Ability to tie real-time data from Process Historians / CMMS to assumptions in the PHA / LOPA and SIS Designs to generate leading indicators on protection layer health • Ability to flag SIS bad actors for proactive corrective actions prior to a near miss or loss of containment event What if I told you all of this was available today? This paper will highlight how the digital revolution has revolutionized the way Safety Instrumented Systems are designed, configured, operated and maintained.

Keywords : IEC 61511, safety instrumented systems, functional safety, digitalization, IIoT

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