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# A Study on the Functional Safety Analysis of Stage Control System Based on International Electronical Committee 61508-2

**Authors :** Youn-Sung Kim, Hye-Mi Kim, Sang-Hoon Seo, Jaden Cha

**Abstract :** This International standard IEC 61508 sets out a generic approach for all safety lifecycle activities for systems comprised of electrical/electronic/programmable electronic (E/E/PE) elements that are used to perform safety functions. The control unit in stage control system is safety related facilities to control state and speed for stage system running, and it performs safety-critical function by stage control system. The controller unit is part of safety loops corresponding to the IEC 61508 and classified as logic part in the safety loop. In this paper, we analyze using FMEDA (Failure Mode Effect and Diagnostic Analysis) to verification for fault tolerance methods and functional safety of control unit. Moreover, we determined SIL (Safety Integrity Level) for control unit according to the safety requirements defined in IEC 61508-2 based on an analyzed functional safety.

**Keywords :** safety function, failure mode effect, IEC 61508-2, diagnostic analysis, stage control system
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