Certificating a safety related part of a control system

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ABSTRACT

Certification is a written evidence for indicating that an object, person or organization has certain characteristics and fulfils certain national or international requirements. This confirmation is usually made in the form of external review, assessment, audit or education. There are different types of certifications. In the first-party certification the product manufacturer or service provider offers assurance that certain requirements have been met. In second-party certification, an association to which the organization or individual belongs can provide the assurance. Third-party certification includes an independent assessment which declares that specified requirements relating to a product, person, process or management system have been met. The accreditation body may allow a notified body to provide verification and certification services. These services are intended to ensure and assess compliance to the previously defined standards and regulations, but also to provide an official certification mark or a declaration of conformity.

This paper highlights the significance and advantages of utilizing third-party certification services to prove the functional safety of programmable electronic system or a safety related part of a control system or a safety related control functions of machinery or other automation systems. Activities and important issues relating to hardware and software safety life cycle process are discussed, based especially on the requirements of IEC 61508 and ISO 13849-1. The focus is especially on the logic units intended to use for safety functions (for example: safety logics, logic units for two-handed control devices, logical processing components for safety system signals used in bus and coach safety).