

# Safety Instrumented Systems Legacy Systems - SIF Capability Review

Do your plants have safety instrumented systems (SIS) not implemented in accordance with the IEC 61508 and IEC 61511 safety standards?

Have they been developed in a different way to the accepted Industry good practice norms?

ABB's experts have the necessary proficiency to investigate the impact of these international safety standards on such "legacy" systems. A legacy system is a safety related system that has not been implemented in accordance with the compliance requirements of IEC 61508 & IEC 61511.

ABB has developed a methodology for assessing existing safety instrumented functions (SIFs) and transposing the 'as found' information to provide a corresponding level of risk reduction currently being afforded by the SIF. Our in-depth understanding of the principles involved, and experience with practical application, means that we are able to offer a SIF Capability Review to determine what equivalent safety integrity level (SIL) is being afforded by the current design architecture and applied proof testing.

These International safety standards are concerned with the functional safety of instrumented systems and as such the principles of these standards will be what your company, regulatory authorities, licensing bodies and the market is measured against in the context of a 'migration path to compliance'.

## Background to the ABB Approach

Historically, the way in which safety instrumented systems have been applied has varied across industry. To address this issue, ABB, has therefore developed a process of



'base-lining' of what it is reasonable and practicable to expect of such legacy SIFs. The areas of particular interest focus on the difficulty of comparison of older systems against the requirements of the safety standards, and practical steps which can be taken towards compliance.

## The Approach

A Capability Review allows owners and operators of older systems to know exactly where they stand in relation to current accepted good practice, and provides a clear direction for actions required to become compliant. ABB's methodology compares the installed SIFs against the transposed equivalent SIL in terms of architectural constraints, PFDavg failure rates, Safe Failure Fraction and Systematic Capabilities to allow a focused approach to improvements, and highlights which areas for change should be addressed as priorities whilst moving progressively to compliance with the standards.

The SIF Capability review is a structured approach that makes use of existing functional safety documentation for the SIFs under review, and the current arrangements for proof testing. A short site review programme is planned in advance so that evidence is collated and optimal use is made of the time of key client staff. The Capability Review approach starts with review of the design architecture, redundancy, proof testing and supporting data sets for all 'end to end' instrumentation

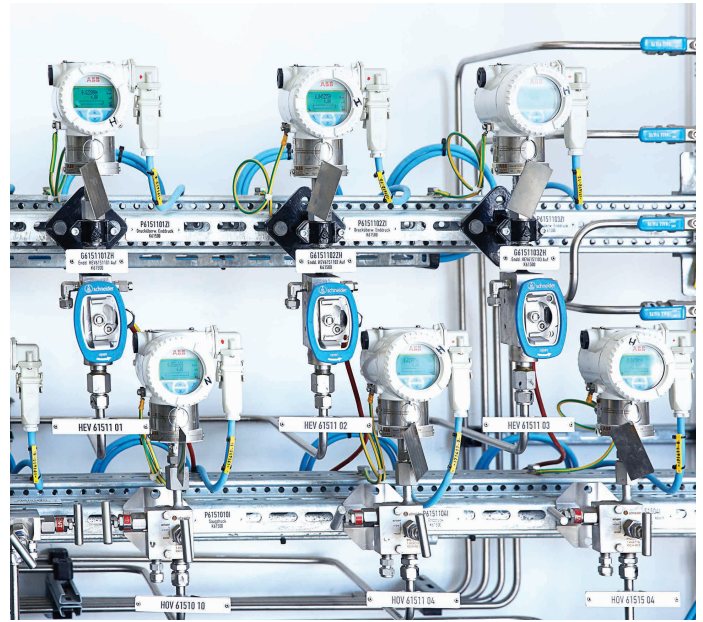


used within the SIF under review. This is followed by comparison of the existing arrangements expressed as an equivalent SIL with industry-consensus practical steps, to yield a report specifying any necessary observations and improvements.

#### Benefits of a Legacy System SIF Capability Review

- ABB offers its clients an extensive knowledge of safety instrumented systems, the legislation concerned, the regulatory perspective and also the standards/criteria against which a company/system will be measured
- Your current SIFs can be transposed into SILs to both support justification for existing arrangements, and help devise a practical improvement plan, selecting the most cost-effective solutions for improvement and alignment to the safety standards
- Demonstration that action is being taken shows the pro-active attitude which is expected by the authorities, public and workforce, and supports company risk management arguments
- Knowing in advance the changes that will have to be made aids planning and avoids ‘surprises’ regarding the ongoing sustainability of the operation

The SIF Capability Review approach means that the areas in most need of improvement are highlighted, whilst in some cases, the demands on resources for proof testing may be relaxed.



#### ABB Services

Where improvements are felt to be appropriate, ABB's services support the entire safety lifecycle, providing safety requirements assessments, development of Functional Safety Management systems, design and procurement of new systems, safety lifecycle support tools and training for your key staff.

#### Assured and certified products, services, delivery and execution

For further information please contact:

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