

OIL, GAS AND CHEMICALS

# ABB SafetyInsight™ SIF designer module

## Developing safe and optimum SIF designs

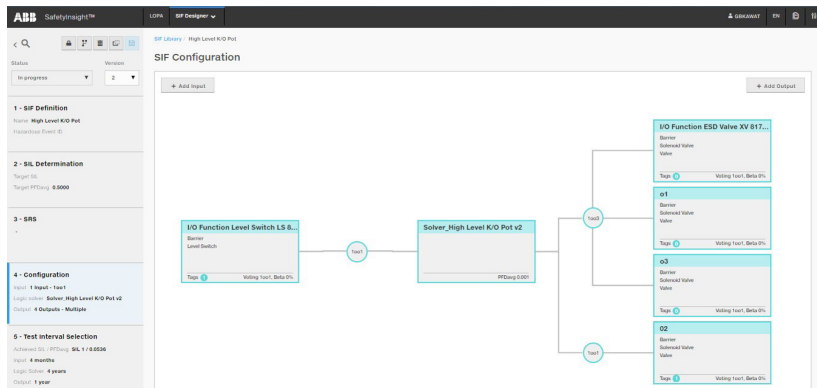


ABB SafetyInsight™ Safety Instrumented Function (SIF) designer helps oil, gas and chemical companies develop optimum safety system designs to ensure safe, reliable and profitable operations.

### Overview

ABB SafetyInsight™ SIF designer helps functional safety engineers develop safety systems that meet IEC 61508 (Ed. 2.0) and IEC 61511 (Ed. 2.0) compliance requirements and optimize the associated operations and maintenance activities. ABB SIF designer provides a comprehensive set of credible, field-based reliability data for use in the development of the SIF configurations. This helps avoid the pitfall of simply using failure rate data as indicated on device certificates alone.

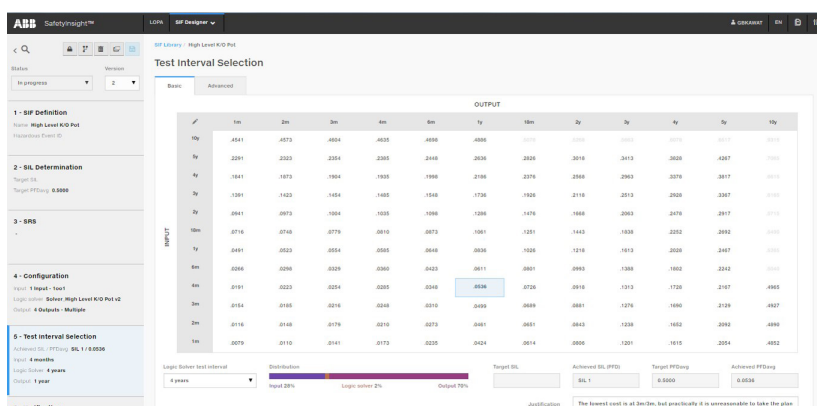
For new projects, the engineer can quickly evaluate different design configurations and proof-test regimes to develop the optimal SIF designs. For existing installations, SIF designer enables streamlined validation of the existing SIFs and quick evaluation of different options to optimize the existing inspection and proof-test burden.

Engineers can combine SIF designer with the additional SafetyInsight™ modules within the ABB Safety Life Cycle Management solution to enable 'closing of the loop.' This allows the necessary revalidation of the SIF design to be based on actual operational SIF performance (a key requirement of IEC 61511 (Ed. 2.0)).

### Benefits

Facilitates the development of an optimum design configuration that minimizes process interruptions and maintenance burden

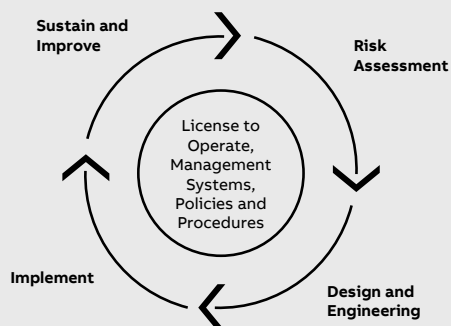
- Helps avoid the development of under-engineered SIFs, which result in higher operational risk
- Saves engineering effort required with an efficient, intuitive and structured approach to documenting each SIF
- Ensures compliance with IEC 61508 (Ed. 2.0) and IEC 61511 (Ed. 2.0) for the specification and design of each SIF
- Provides cost savings in the safety system delivery
- Provides an audit trail that allows for SIFs to be managed throughout safety life cycle
- Provides a digital platform to enable connectivity that significantly reduces:
  - Effort required to gather actual SIF performance data
  - Effort to compare design assumptions with the actual SIF performance and revalidate the proof-test interval as required by IEC 61511 (Ed. 2.0)
  - Costs to implement supporting operation and maintenance applications to ensure safety systems remain effective



## Features

- Intuitive graphical interface facilitates the recording of the Safety Requirement Specification (SRS) and the design of Safety Instrumented Systems (SIS) in accordance with IEC 61508 and IEC 61511 standards
- Comprehensive set of equipment reliability based upon a detailed analysis of various data sources produced from operating data
- Comprehensive set of manufacturers certification dataset, with the ability to make the necessary adjustments to avoid under engineering the SIF
- Multiple testing options help meet the required risk reduction / probability of failure on demand (PFDavg), allowing you to select the optimum SIF design and testing regime
- Forms part of an integrated set of applications covering all safety life cycle phases, which provides a single platform to manage all safety life cycle information throughout the life of each SIF

## ABB Safety Life Cycle Management



Above: ABB SafetyInsight™ are the intelligent applications associated with ABB Safety Lifecycle Management solution.

\* Industrial Internet of Things

## Part of ABB Safety Life Cycle Management

ABB Safety Lifecycle Management provides intelligent applications, services and technology to ensure our customers can manage the risks associated with operating high hazard processes. ABB SafetyInsight™ are the software applications within ABB Safety Lifecycle Management. Other related ABB SafetyInsight™ application include:

### Risk assessment:

- Ensures team engagement through intuitive and structured wizards that guides the team through each assessment, along with bow-tie representation of each MAH
- Reduces study time through efficient, intuitive and structured approach to documenting each MAH
- Reduces engineering effort required when transitioning between the different lifecycle phases i.e. Hazard Identification, LOPA, SRS, SIF design

### Sustain and improve:

- Demand reporting:
  - Automatic independent verification of events associated with a trip, which enables quicker startup
  - Provides evidence of successful operation, which can reduce maintenance burden and shorten Turn-Arounds (TARs)

- Collation of demand data to validate risk assessment assumptions and identify opportunities to reduce demands on safety systems
- Bypass management: enables safe management of the bypassing of safety-related device
- Instrument reliability: automatically captures actual instrumentation and equipment reliability data, including independent verification of all valve operation and collation of data from Computerized Maintenance Management Systems (CMMSS) such as SAP\*

The risk assessment and SIF designer modules are the next generation of ABB's Trip Requirements and Availability Calculator (TRAC), which has been used in the process industry since 2002. Integration of these engineering tools with ABB SafetyInsight™ sustain and improve modules provides the digital platform to enable the use of the engineering data to contextualize the vast amount of data being generated by Industrie 4.0 / IIoT\*. These actionable insights provide decision support to operation and maintenance staff, to help ensure safety systems remain effective and provide the means to efficiently 'close the loop' to optimize the cost of safety.

## Why choose ABB?

- ABB's is a world leader in providing process safety services and our operational heritage allows us to understand the practicalities of operational environments so we can offer pragmatic solutions
- ABB provides you with applications and services that support a full safety life cycle management approach, with a focus on operation and maintenance activities that reduce costs
- ABB has more than 20 global, in-country, TÜV-certified safety execution centers - more than any other company in the industry
- SIL 3 capable systems, processes and competency assurance for SIS

## Intelligent services and support

- Process and functional safety benchmarks, assessments and audits
- Hazard identification and risk assessment, including SIL determination
- Safety requirement specification development, SIS detailed design and delivery
- Functional safety and alarm design and engineering
- Process and functional safety policies and management systems
- Incident and demand investigation and near miss and learning opportunities
- Impact review following comparison of actual design experience against initial design assumptions
- Wide range of end-user focused training courses that cover awareness level to in-depth technical training
- Corrective and preventative care services for the sustainable operation and maintenance of SIS
- Proven upgrade and evolution services for SIS controller technology platforms

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