HIMA

SMART SAFETY.

Safety Lifecycle Management
Comprehensive IEC 61511 Compliance

Safety Lifecycle Manager

Conformance to IEC61511

MANGAN Software Solutions

SLM®
Safety Lifecycle Manager

COMPREHENSIVE COMPLIANCE WITH IEC 61511

IEC 61511 defines requirements regarding the application and Implementation of safety instrumented systems (SIS) in the process Industry. It describes functional safety (FS) requirements in process plants via a life cycle approach, from concept, through design, installation, operation, maintenance and decommissioning. Understanding and properly applying those regulations is essential not only for compliance, but more importantly for protecting people, assets and the environment.

IEC 61511 LIFECYCLE

01 Risk Analysis & Protection Layer Design
Clause 8

02 Allocation of safety functions to protection layers
Clause 9

03 Safety requirements specification for the safety instrumented system
Clause 10

04 Design and engineering of safety instrumented system
Clause 11, 12, 13

05 Installation, commissioning and validation
Clause 14, 15

06 Operation and maintenance
Clause 16

07 Decommissioning
Clause 17

08 Modification
Clause 18

09 Verification
Clause 7, 12.5

10 Management of Functional Safety, Audits & Assessment
Clause 5

11 Safety Life-cycle Structure & Planning
Clause 6, 6.2

Process Safety is defined as a disciplined framework for managing the Integrity of operating systems and processes handling hazardous substances through application of design principles, engineering, and operating practices. It aids in the prevention and control of Incidents that have the potential to release hazardous materials or energy. It is first introduced by OSHA and looks at all the processes involved in handling, using, storing, moving, or manufacturing highly hazardous chemicals.

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SLM is the only **TÜV Rheinland** certified platform to **IEC 61508** and **61511 ed. 2,** designed to reduce your compliance burden.

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Functional Safety
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IEC61511 CLAUSES	COMPLIANT SLM MODULES
CLAUSE # 5 1. Management of Functional Safety 2. Audits and Assessments	FUNCTIONAL SAFETY The Functional Safety Assessment (FSA) module is used to assess and audit compliance. ACTION ITEM TRACKER The Action Item Tracker module is used to document actions that need to be closed and to track them to ensure completion.
CLAUSE # 6 1. Safety Lifecycle Requirements	SLM® Safety Lifecycle Manager SLM connects all of the lifecycle phases from analysis through operate and maintain along with functional safety planning capabilities.
CLAUSE # 7 1. Verification	SLM® Safety Lifecycle Manager SLM comes complete with a library of interactive verification checklists with feedback which can be modified by the user and added to most objects.
CLAUSE # 8 1. Hazard and Risk Assessment	HAZOP The Global module is used to create dynamic risk matrices which are used to calculate risk and LOPA results. The global module can also be used to generate HAZOP and LOPA templates to ensure consistency and efficiency. The HAZOP module is used to perform or to import HAZOP studies. Results are integrated with process equipment and LOPA studies. Users can see the Operate and Maintain health of IPLS and all of the studies associated with each piece of process equipment.
CLAUSE # 9 1. Allocation of Protective Functions to Protection Layers	LOPA The LOPA module is used to facilitate or import LOPA studies. Scenarios are integrated with process equipment, SRS objects and Operate and Maintain performance. RISK SIL GRAPH Risk graph can be used as an alternative to LOPA for determining SIL requirements. BowTie The bowtie module can be used to graphically visualize risk scenarios with both preventive and consequence reduction protection layers. Each barrier/protection layer can be qualitatively assessed using build in checklists as demonstrated by MSS.
CLAUSE # 10, 12 1. Safety Requirements Specification	SIS The Instrumented Systems module can be used to document all IEC61511 specified Safety Requirements Specifications (SRS) along with other data. This module is also used to create detailed SIF, HIPS, Interlock and alarm models which are integrated with the operations and maintenance module and process equipment.

IEC61511 CLAUSES	COMPLIANT SLM MODULES
CLAUSE # 11, 12 1. Design and engineering of safety instrumental system	 SIS The instrumented systems module is used to document design requirements for all instrumented protection layer functions.  NON-INSTRUMENTED Non-instrumented and relief systems modules can be used to document design requirements for all non-instrumented protection layers.  OPERATE/ MAINTAIN Operate and Maintain modules can be used to document detailed design requirements for devices (data sheet information).  FUNCTIONAL SAFETY The FSA module can be used to perform an FSA Phase 2 which assesses design compliance before proceeding with installation.  RELIEF SYSTEMS Relief Systems module allows users to manage engineering data in one system.
CLAUSE # 13, 14, 15 1. Factory acceptance testing, installation and commissioning and safety validation of safety instrumented systems	 OPERATE/ MAINTAIN Operate and Maintain modules can be used to document detailed design requirements for devices (data sheet information).  FUNCTIONAL SAFETY The functional safety module (FSA) is used to assess and audit the completeness and effectiveness of testing and installations.
CLAUSE # 16 1. Operations and maintenance	 OPERATE/ MAINTAIN Operate and Maintain modules can be used to document detailed design requirements for devices (data sheet information).  FUNCTIONAL SAFETY The functional safety module (FSA) is used to assess and audit the completeness and effectiveness of testing and installations.
CLAUSE # 18 1. SIS Decommissioning	 OPERATE/ MAINTAIN The Operations and Maintain module is used to create change events including Out of service, Commissioned and Decommissioned, Replacement and Demolished with an association with an MOC study.
CLAUSE # 17 1. SIS Modification and Management of Change	SLM® Safety Lifecycle Manager The Operations and Maintain module is used to create change events including Out of service, Commissioned and Decommissioned, Replacement and Demolished with an association with an MOC study.
CLAUSE # 19 1. Information requirements	SLM® Safety Lifecycle Manager SLM includes automatic data verification, data import functionality, automatic revision tracking, user access restrictions, cyber security penetration protections, verification checklists, document linking and attachment and document management.