

FUNCTIONAL SAFETY

INTEGRATED SOLUTIONS TO REDUCE SYSTEMIC RISK

Functional safety works to ensure the proper performance and well-being of a system. Intertek's Functional Safety services support the care of your process through each step, resulting in an optimized and secure system and product.



Functional safety is a systematic analysis that evaluates all of a product's systems as an entire working unit to determine how the product's hardware and software interact, as well as how the product responds to user inputs and the environment in which it is expected to function. It then extends to the use of electronic and other types of systems to mitigate risk for a process, typically accomplished through equipment with sensory, logic, and acting elements.

These systems can include calculations and analysis involving **Performance Levels (PLs)**, **Safety Integrity Levels (SILs)**, **Failure Modes and Effects Analysis (FMEA)**, the **IEC/EN 62061** and **ISO 13849**, **ISO 26262**, **IEC 61508** and **IEC 61511** standards, and more.

Functional safety is applicable to all industries and is increasingly in demand as manufacturers and end-users look to further mitigate risk. Functional safety services can apply to:

- Companies/Designers/Inventors taking a product to specific markets

- Manufacturers looking to meet particular European directives, requirements, or recommendations from trade unions, insurers, or regulatory bodies (e.g., OSHA) related to functional safety evaluations
- Product designers and businesses looking to assure the safe and successful creation and operation of their products

Intertek can help you in the development, creation, implementation, and operation of a quality functional safety system. A robust and efficient system requires knowledge and integration of:

- Regulatory standards, such as IEC/EN 62061, ISO 13849, IEC 61508 and IEC 61511
- Planning and design elements
- Risks and hazards
- Management plans
- Performance Levels (PLs)
- Safety Integrity Levels (SILs)
- Failure Modes and Effects Analysis (FMEA)
- Designated personnel responsibility
- Rigorous documentation

Functional safety is part of the overall safety that depends on a system or equipment operating correctly in response to its inputs. - IEC 61508.



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Functional Safety Standards

- Basic Standard: IEC 61508
- Process: IEC 61511
- Machinery
 - IEC 62061
 - ISO 13849
 - IEC 61800-5-2
 - IEC 61496
 - Machinery Directive
- Programmable Controllers
 - IEC 61131-6
- Safety Fieldbuses
 - IEC 61784-3
- Household Appliances
 - IEC 60730-1 (Annex H)
 - IEC 60335-1 (Annex R)
 - ANSI/UL 1998
- Burner & Fire Detection
 - EN 13611
 - EN 54
 - EN 298
- Security
 - IEC 62443
- Vehicles
 - ISO 26262
 - ISO 25119
 - ISO 15998
- Railway
 - EN 50126
 - EN 50128
 - EN 50129
- Elevator/Lift & Escalator
 - EN 81
 - EN 115
 - ISO 22201
 - B44/ASME
 - A17.1
- Nuclear Power Plant (NPP)
 - IEC 61513
 - IEC 61226
 - IEC 60880
 - IEC 62138
 - IEC 60947
 - IEC 62566
 - IEEE 1012



Benefits of Functional Safety Compliance

Benefits to your business and operations:

- Getting to market faster with a greater knowledge of process and product feasibility and viability
- Reduction of costs in price and time through fewer failures and rework
- Compliance to all relevant and needed standards and specifications
- Maintaining staff that is empowered with relevant skills and insight to run smoother, faster product rollouts through on-site, virtual, and custom training
- Expanding and streamlining global expansion by reaching more markets with fewer models

The Intertek Advantage

Intertek's expertise and experience in developing and guiding functional safety systems offers you unparalleled knowledge to fulfill these needs. Services include:

- Product and testing design troubleshooting and recommendations
- R&D support
- Identification of, and solutions to, regulatory and certification requirements
- Safety chain management (auditing, inspections, quality management, manufacturing efficiencies/operation excellence, documentation support)
- Performance and safety assessments
- System-level plan development, including analysis on integrated components

- Component/vendor selection and qualification
- Integrations management (streamlining process and documentation)
- Process optimization

About Intertek

Intertek is a leading Total Quality Assurance provider to industries worldwide. Our network of more than 1,000 laboratories and offices and over 44,000 people in more than 100 countries, delivers innovative and bespoke Assurance, Testing, Inspection and Certification solutions for our customers' operations and supply chains. Intertek Total Quality Assurance expertise, delivered consistently with precision, pace and passion, enabling our customers to power ahead safely.

FOR MORE INFORMATION



Americas
+1 800 WORLTLAB (967 5352)
+1 251 459 6173

Europe
+44 1372 370900

Asia
+852 2173 8888



icenter@intertek.com



intertek.com/functional-safety