

Safe-T-Sense Machine Safety Services

Services for machine manufacturers and end users



Your partner for machine safety

SAFETSENSE
Machine Safety



Your partner for machine safety

Our expertise for your success

Machine safety is an important part of any industrial safety program. Reducing risks associated with hazards not only protects personnel who operate automated machines, but also makes good business sense for machine manufacturers and users. We at Safe-T-Sense provide professional solutions to help you fulfill your obligation to provide a safe work environment for your employees, and in turn avoid the costs associated with workplace injuries and illnesses. We'd be delighted to meet with you to discuss how our services can help you achieve your safety objectives and ensure compliance with safety regulations.

Industry experience in the service of safety

Safe-T-Sense has dedicated itself to the safety of people, machinery, and processes for over 20 years. This has given us invaluable experience in all areas of safety engineering spanning all industries. From machine tooling, food and beverage, and automotive assembly, to steel, tire & rubber, packaging and logistics, we are knowledgeable about the potential hazards, and safety requirements, for many types of automated machines.

Knowledge you can trust

Our membership in standards committees keeps us up to date on regulations, standards and future developments. As your partner, we will bring a wealth of reliable advice and support for your safety initiatives. We have the expertise needed to understand and address your specific requirements, and we do so from a neutral, objective standpoint.



Our services

We work with you at every step of the process.

Risk assessment

Conducting a comprehensive assessment is the first step towards a safer machine. The risk assessment identifies the hazards that exist on or near the machine and provides high-level recommendations to reduce the risk to an acceptable level.

Safety concept

The next step after the risk assessment is designing the machine to be safe. We develop a detailed machine safety concept for you based on the risk reduction measures recommended by the risk assessment.

Engineering

We use the risk assessment and safety concept to design or upgrade the electrical, mechanical and fluid power safety controls. The safety control circuit structure will be designed in compliance with the relevant machine safety standards.

Verification with SISTEMA

With the safety concept as a basis, we check the structure and reliability of all safety functions to confirm they achieve the required performance level (PLr) as documented within the risk assessment. Safe-T-Sense uses the SISTEMA software for verification.

Integration

We support you as needed in implementing the solutions that were designed to safeguard your machine.

Validation

Validating the safety concept involves checking the effectiveness of the implemented measures by testing or analyzing the safeguards and safety functions and documenting the results.

Training & custom services

We offer a variety of additional services, including stop time measurements, safe distance calculations, documentation of alternative control measures (ACM), safety training and consultations.



Risk assessment

All manufacturers and end users must perform and document a risk assessment for their machines. The risk assessment is a complete, systematic evaluation of all machine tasks and hazards. It makes economic sense to perform the risk assessment as early as the machine design phase and review and update it as necessary during the life of the machine. Our safety experts assess the risks in close cooperation with you and your team members following the guidance of global and regional safety standards such as ISO 12100, ANSI B11.0 and RIA TR R15.306.

No matter which method is used, the goal is the same – to identify the hazards that exist on the machine and to recommend safeguards that can reduce the level of risk associated with those hazards to an acceptable level. Including personnel that interact with the machine ensures that both their safety and their operational needs are taken into account when recommending each risk reduction solution. The critical success behind a Safe-T-Sense risk assessment is choosing solutions that are both compliant and maintain maximum productivity.

Benefits for you

- + You receive a documented assessment in compliance with the latest regulations and standards.
- + Standardized procedures and documents ensure consistent quality of your assessments.
- + Our risk assessment lays the foundation for your machinery safety.

Key deliverables

- ▶ Assessment of the machine by a machine safety engineer.
- ▶ List of applicable standards.
- ▶ Description of the machine, its use and limits.
- ▶ Recommended safeguards to reduce each hazard to an acceptable level.
- ▶ Visual report to clarify the risk reduction measures.
- ▶ Non-compliance summary to identify items that need immediate attention.



Safety concept

After determining how much risk is present on a machine in a risk assessment, the next step is to create a functional safety concept. The objective here is to define the safety functions that can reduce the risk associated with machine hazards to an acceptable level. The individual risk reduction measures are shown in a machine overview for visual clarification.

We work closely with you to develop technically and economically feasible engineering solutions that can be integrated into your current machine controls. You can be confident that Safe-T-Sense is committed to neutrality in selecting components for this purpose.

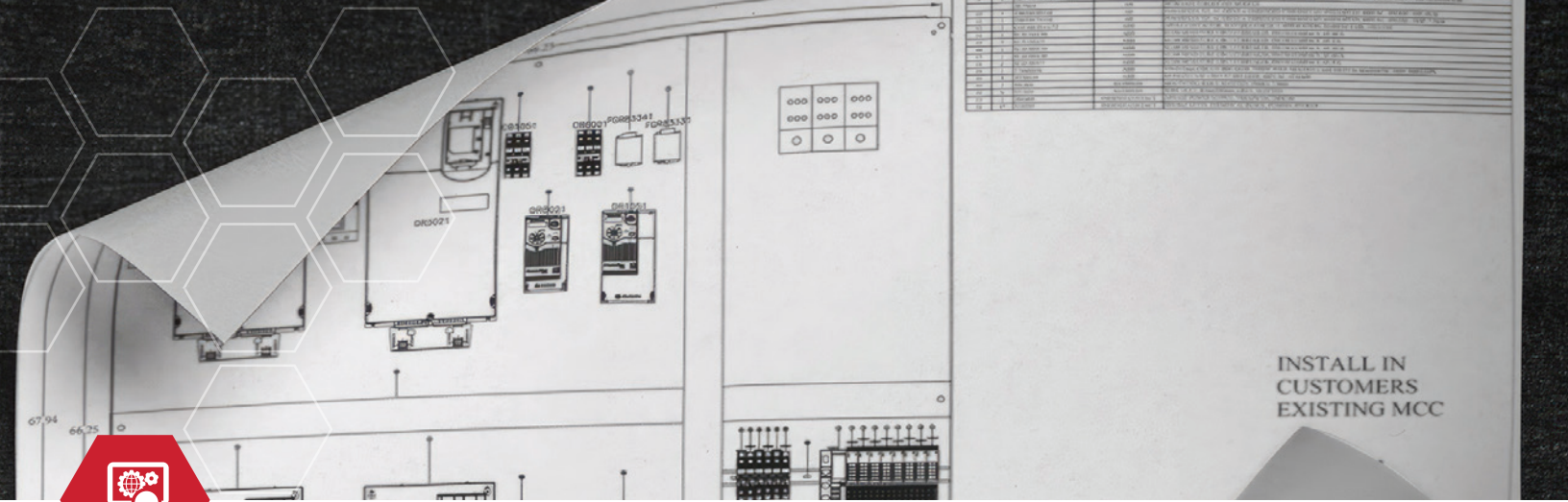
Documenting a detailed safety concept increases efficiency and accuracy in the engineering phase.

Benefits for you

- + A technically optimized functional safety specification tailored to your requirements.
- + Selection of practical safety measures saves you time and money.
- + Assurance that your safety system complies with the latest regulations and standards.

Key deliverables

- ▶ Solutions for ensuring machinery safety over the long term.
- ▶ Development of suggestions for protecting the respective hazard using state-of-the-art mechanical, electrical, pneumatic, and hydraulic technologies.
- ▶ Specification of the safety functions.



Engineering

Safe-T-Sense can perform all design, conversion, or retrofitting engineering work for your machine.

A trained and qualified safety engineer will develop the electrical, mechanical, and fluid power safety architecture. The engineering package will also include designing your safety program and HMI configuration.

The safety upgrade follows the functionality defined in the safety concept. The system architecture is engineered in compliance with all requirements including Type C and other machine safety standards and customer specifications.

Benefits for you

- + Assurance that your machine meets local and regional requirements.
- + Using our expertise for your engineering saves you time and money.

Key deliverables

- ▶ Design of mechanical, electrical fluid power and control equipment, including the safety related I/O list, BOM, layout drawings and wire/cable runs.
- ▶ Software configuration for PLC and HMI, or safety relay logic flow chart.
- ▶ Verification of your design and creation of a safety validation plan for the implemented safety functions.



Verification

It must be verified whether the safety functions planned for the machine achieve the required performance level. Safe-T-Sense uses the manufacturer-independent SISTEMA software from the Institut für Arbeitsschutz (IFA) for this purpose. The SISTEMA calculations can quickly and reliably determine whether the planned safety measures meet the reliability requirements (i.e., performance level as defined by ISO 13849-1). Our experts are well versed in using this software.

Simple machinery safety calculation

SISTEMA calculates the reliability for each safety function based on the circuit structure, number of operations, diagnostic coverage and other safety related data to ensure the achieved performance level meets or exceeds the required performance level.

Benefits for you

- + You receive a reliable evaluation of whether the planned safety measures comply with the performance requirements according to ISO 13849-1.
- + A reliable partner with proven experience in using SISTEMA.

Key deliverables

- ▶ Confirmation of the achieved performance level as calculated by SISTEMA software.
- ▶ Reliable, clear documentation of results.



Integration

With the safety system designed, Safe-T-Sense can manage all aspects of the safety upgrade, which includes procuring and delivering materials and coordinating their installation on site.

After installation is completed and the machine has been commissioned, Safe-T-Sense validates the safety system. We conclude by training your machine operators and maintenance personnel on how to operate and troubleshoot the newly installed safeguards.

Benefits for you

- + Project management from a single source with one central point of contact saves you valuable time and money.
- + We can coordinate with electrical and mechanical contractors and carry out the entire process on your behalf.
- + Our experience will help you avoid additional costs and machine downtime.

Key deliverables

- ▶ Functional safety management based on the V-Model in compliance with ISO 13849-1.
- ▶ Electrical installation, mechanical assembly, and trial operation on site.



Validation

Validation is a critical step in the machine safety compliance process. It is used to check whether the fully equipped machine is safe and the installed safeguards function as expected. This final check ends with confirmation that your machine complies with all safety requirements. Our experienced machine safety experts guarantee an efficient and neutral safety evaluation.

The machine safety check is preceded by validation planning, during which we consider every hazard from the risk assessment along with the safeguard implemented for it. Our experts develop a comprehensive plan to check the proper installation, functionality and reliability of the engineered solutions.

Benefits for you

- + Review of the safety functions defined by the risk assessment and safety concept.
- + Our safety engineers will document that your machine is functional and the safety functions are suitable for production.
- + Standardized documentation, as well as state-of-the-art testing and measuring equipment, guarantees high efficiency when executing the validation plan.

Key deliverables

- ▶ Preparation of a detailed inspection plan based on the risk assessment and the installed risk reduction measures.
- ▶ Standardized testing procedures performed at your facility and/or the final destination for the machine.
- ▶ Final report documenting test results and program data.



SAFETSENSE Machine Safety					
Next Inspection					
1	2	3	4	5	6
2024					
7	8	9	10	X	12
⚠ Protocol Report					
P2023-064-L001					

Inspection of electro-sensitive protective equipment (ESPE)

Manufacturers and end users are obligated to inspect ESPE, such as light curtains, light grids or laser scanners. This involves validating the proper mounting, the correct integration into the machine control system, and the response time of these safety devices. This must be done at periodic intervals and after any changes (e.g. replacement).

These measurements are carried out by a qualified safety engineer using a specially calibrated safety meter that will monitor the device and measure the amount of time it takes for the hazardous motion to come to a complete stop. A deviation of the slowest stop time along with an analysis of the depth of penetration are used to calculate the safe distance in compliance with applicable standards.

Benefits for you

- Check of ESPE such as light curtains, light grids and laser scanners performed by authorized persons.
- Confirmation that ESPE is in good condition, installed correctly, and functioning properly.
- Measurements are performed using calibrated measuring equipment.

Key deliverables

- ▶ Compilation of a standardized inspection report.
- ▶ Measured minimum safe distance for each safety device and safe stop time for the machine.
- ▶ A test seal is affixed to the machine, verifying the successful inspection and the date the next inspection should be performed.



Training & custom services

A partnership with Safe-T-Sense gives you the benefit of our expertise and experience to not only solve your machine safety issues, but to also close gaps in your team's safety knowledge through customized training.

Targeted training provides safety in addition to numerous other benefits. We offer practical training courses all about machinery safety, developed and accompanied by machine safety specialists. Our courses will teach you about the key regulations and standards and how to apply them in order to keep your machines up to date with the latest safety requirements. We are committed to advancing the knowledge of machine safety.

Benefits for you

- + Expert knowledge straight from the specialists.
- + Training based on cutting-edge industry practice.
- + Applications of current regulations and standards based on actual machines.
- + Courses conducted in house on request.

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