



Functional Safety and Cybersecurity

TRAINING, CONSULTANCY, ANALYTICS, AUDIT, ASSESSMENT AND CERTIFICATION OF PERSONS,
PRODUCTS AND PROCESSES

SGS

SGS
TÜV
SAAR



Profit from the name and know-how of the world's leading provider of Testing, Inspection and certification services, SGS, as well as from the outstanding acceptance of the SGS-TÜV Brand in a single unit.

NEW SYSTEM DEVELOPMENTS ACROSS VARIOUS INDUSTRIES ARE BECOMING INCREASINGLY COMPLEX. THIS LEADS TO DEMANDS BEING MADE ON MANUFACTURERS AND THEIR SUPPLIERS, PARTICULARLY WHEN SAFETY-RELEVANT FUNCTIONS ARE INVOLVED.

SGS-TÜV Saar GmbH as part of the SGS Group with more than 99500 employees, through its SGS Functional Safety Global Competence Center offers you comprehensive support e. g. in the following industrial sectors.

The reduction of potential safety risks is an essential element of the entire safety lifecycle, from the concept phase and development all the way to putting the product or system out of service. To achieve the requisite product safety and to prevent potential product liability claims, developments should be based on state-of-the-art technology, with respect to standards for example. The

Functional Safety, and in the case of networked systems the Cybersecurity, of relevant products, systems and processes must be ensured. We support you in these areas:

- Automotive
- Artificial Intelligence
- Automation
- Semiconductors

- Machinery
- Process Industry
- Software
- Railway
- Medical Technology
- Agriculture



Use our service portfolio to accompany you on your way to safe and secure products and processes. It encompasses a wide range of training offers, consultancy regarding all the standards relevant to Functional Safety and Cyber Security, testing and certification of your products and processes including the requisite assessments and audits as well as methodical support for safety analytics.

- Consultancy
- Testing/Certifications
- Training & Personal qualification
- Safety Analytics

ACCREDITATION/NOTIFIED BODY

We are accredited by DAkkS - as global reference for the highest requirements for accredited bodies - for Functional Safety, Cybersecurity & SOTIF acting as inspection & certification body. Therefore, we are authorized to evaluate and certify according to international safety standards. This means we help

to secure your product against product liability claims. In addition, SGS-TÜV Saar is listed as a Notified Body for Machinery in the European Union.

STANDARDIZATION ACTIVITIES

Our experts for Functional Safety and Cybersecurity are members of the relevant national and international

standardization committees. This means we help to shape the further development of the state of science and technology for standardization.

RESEARCH PROJECTS

In addition, we closely cooperate with research institutes and government authorities within the scope of funded projects.



Training & Personal Certification

Investments that pay off - invest in your employee's know-how!

TRAINING & PERSONAL QUALIFICATION

Our highly skilled team of trainers is a competent partner in the company-specific training and further education of specialists and executives.

As a global market leader, we offer practical seminars, specialist workshops and training on relevant special fields departments and the resulting requirements:

The offer regarding Functional Safety includes a wide range for:

- Requirements for AI
- Automation
- Automotive
- Machinery
- Process industry
- Agriculture
- Railway
- Medical products
- Semiconductors
- Household/Electrical appliances
- Software

In addition we offer training in the field of Cybersecurity for Automotive, Energy and Industrial manufacturing. Our modular training concept allows you easy adaption to your needs. In addition, our experts are also able to develop specialized workshops tailored to your individual topics of interest.

Furthermore, we offer a personal qualification with exam in two stages, the Professional and Expert in:

- AFSP (Automotive Functional Safety Professional)
- AFSE (Automotive Functional Safety Expert)
- IFSP (Industrial Functional Safety Professional)
- IFSE (Industrial Functional Safety Expert)
- MFSP (Machinery Functional Safety Professional)
- MFSE (Machinery Functional Safety Expert)
- AGFSP (Agriculture Functional Safety Professional)
- PIFSP (Process Industry Functional Safety Professional)
- CICSP (Certified Industrial Cyber Security Professional)
- CACSP (Certified Automotive Cyber Security Professional)
- SC-AFSP (SemiConductor Automotive Functional Safety Professional)
- AISP (Artificial Intelligence Safety Professional)
- AISE (Artificial Intelligence Safety Expert)
- CICSE (Certified Industry Cyber Expert)
- CACSE (Certified Automotive Cyber Security Expert)
- SC-AFSE (SemiConductor Automotive Functional Safety Expert)
- PIFSP (Process Industry Functional Safety Professional)
- PIFSE (Process Industry Functional Safety Expert)
- AGFSE (Agriculture Functional Safety Expert)
- SOTIF PRO (SOTIF Professional)
- SOTIF EXP (SOTIF Expert)

All of our trainings and personal qualifications can also be performed worldwide in-house.

Additional information on dates, fees, training locations and contents is available at:

www.sgs-tuev-saar.com/en/trainings-certifications/certifications/personal-certifications



Consultancy

Save time and costs. We support you in developing and optimizing concepts, products and processes.

CONSULTANCY

The controllability of the fault potential of complex safety-relevant systems requires a stringent approach during development. In addition to development know-how, it is particularly important to generate complementary safety processes and to integrate them into the project structure as well as with organizational culture.

Our consultancy services encompass the full scope of Functional Safety. Our portfolio extends across all phases of the development cycle,

from concept all the way to production and, ultimately, putting products and systems out of service again. We offer you support in developing process and organizational structures (FSM) and with respect to hardware, software and system development all the way up to integration into the overall product.

Additionally we support you in the area Cybersecurity - both for automotive and industrial applications like ISO 21434 and IEC 62443.

You benefit from the expertise and years of experience of our consultancy team and the know-how of our specialists in the various industrial sectors such as Automotive, Automation, Machinery, Software and Semiconductors in areas like

- Implementation of safety and security requirements into existing development processes
- Safety management
- Elaboration of safety concepts and systems
- Interface management, system owner/supplier





Analytics

SAFETY ANALYTICS AND RELIABILITY

The performance of safety and reliability analyses is essential to the development of safety-relevant systems. They make valuable results available for the entire development process. The identification of faults and their root causes as well as potential weak areas and their effects on the safety objective are examples of such results. Our analytics experts will support you with relevant know-how and methodologies.

The analysis method to be used is selected in terms of its suitability to provide the optimum analysis results for the specific project and adapted accordingly. This allows the special characteristics of the system in the various phases of the safety lifecycle to be adequately addressed. We support you in any aspect of **safety and security analysis**.

METHODOLOGIES WE CAN USE TO SUPPORT YOU INCLUDE

- FMEA (Failure Mode and Effects Analysis)
- FTA (Failure Tree Analysis)
- DFA
- Markov Analysis
- HAZOP Analysis
- ETA (Event Tree Analysis)
- RBD (Reliability Block Diagram)
- Analysis" & Penetration tests
- Vulnerability Analysis to Cybersecurity
- DFT
- Fault injection
- FIT calculation

Additionally we offer you EXAR® licences for the independently performing of analyses. Furthermore we provide support for calculating failure rates resp. MTBF (Mean Time Between Failures) and generating reliability predictions.



Evaluation

Extensive expert know-how and global network for the safety of your products and processes.

SGS
Tüv
SAAR

AI - SAFETY
COMPLIANT

ARTIFICIAL INTELLIGENCE
ISO PAS 8800
www.sgs-tuev-saar.com

SGS
Tüv
SAAR

AI - SAFETY
READY

ARTIFICIAL INTELLIGENCE
ISO PAS 8800
www.sgs-tuev-saar.com

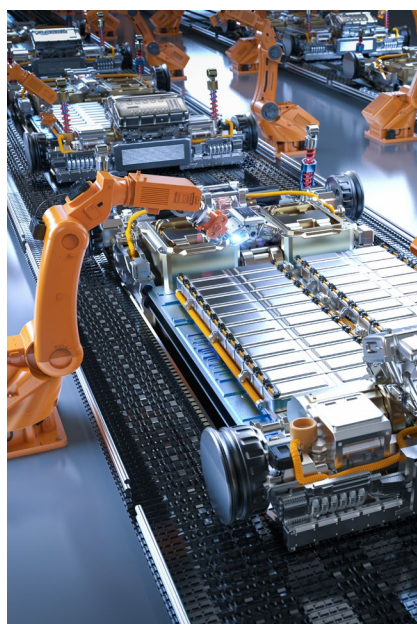
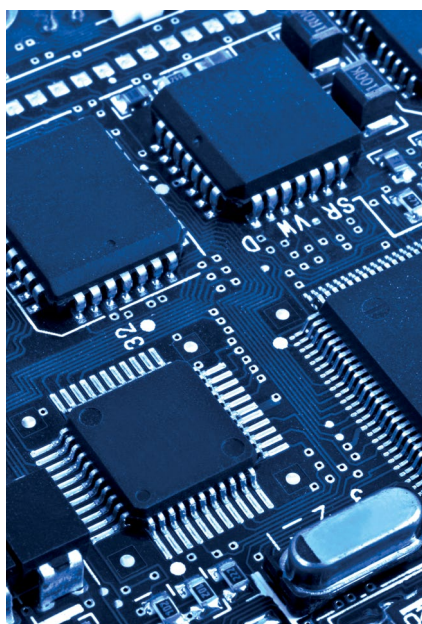
ASSESSMENTS/AUDITS/CERTIFICATION

As an accredited testing and inspection body for Functional Safety and Cybersecurity, we evaluate your concepts, systems, products and processes in the field of Functional Safety and Cybersecurity for you.

In addition to concept reports and technical reports, we issue certificates and certification marks if required. You profit from strong brands in a single unit.

IN THE AREA OF EVALUATION AND CERTIFICATIONS WE OFFER YOU SERVICES AT ALL LEVELS

- Evaluation of systems
- Evaluation of software
- Qualification of software based development tools
- Evaluation of hardware
- Safety assessments and audits
- Evaluation & Certification for the whole Semiconductor world - from IP to SoC
- Certification of components, systems and processes
- Certification according to the Machinery Directive 2006/42/EC
- Safety & Security Evaluation and Certification



Benefits



YOUR BENEFITS AT A GLANCE

SERVICE FROM A ONE-STOP-SHOP

As a full-service provider, we support you in developing and evaluating your products (full systems, sub-systems, software, semiconductors etc.) and processes for optimal acceptance and product validation in international markets.

THE WORLD'S LEADING TEST SERVICES, TIC PROVIDER , DIGITAL TRUST

SGS, the world's leading testing, inspection and certification provider founded SGS-TÜV Saar together with TÜV Saarland e. V. You benefit in any case from the know-how and image of the companies taking part in this joint venture in local and international markets. Our Functional Safety & Cybersecurity network is part of SGS DIGITAL TRUST with its market leading high tech services.

PROTECTION AGAINST PRODUCT LIABILITY CLAIMS

Based on our accreditation for safety engineering according to ISO/IEC 17065 and ISO/IEC 17020 we protect you against product liability claims if required.

GLOBAL EXPERTISE FOR FUNCTIONAL SAFETY AND CYBERSECURITY

As global market leader, we serve you locally and globally with our Global Competence Center in Germany and global expert team network for Functional Safety and Cybersecurity.

GLOBAL COMPETENCE CENTER IN GERMANY

SGS-TÜV Saar GmbH
Benzstraße 28
82178 Puchheim near Munich

phone: +49 89 787475 - 271

mail: de.backoffice.fs@sgs.com

Branch Dortmund

phone: +49 231 9742 – 7301

mail: de.backoffice.fs@sgs.com

INTERNATIONAL CONTACTS

China

mail: cn.fs@sgs.com

India

mail: in.fs@sgs.com

Japan

mail: jp.fs@sgs.com

Korea

mail: kr.fs@sgs.com

Taiwan

mail: tw.fs@sgs.com

www.sgs.com

www.sgs-tuev-saar.com/fs

WWW.SGS.COM
WWW.SGS-TUEV-SAAR.COM

SGS IS THE WORLD'S LEADING TESTING, INSPECTION AND CERTIFICATION COMPANY.
AS A JOINT VENTURE OF SGS AND TÜV SAARLAND E. V., SGS - TÜV SAAR ENSURES THE
RELIABILITY AND QUALITY OF PROCESSES, PRODUCTS AND TECHNICAL SERVICES.

SGS

When you need to be sure