

Creating safety.
With passion.

NewTec



NTSafetySolutions

Services and platforms for functional safety solutions

www.newtec.de

Services and solutions for the development of functional safety systems

The demand for functionally safe solutions increases since safety is an important attribute nowadays: Not only does it prevent damage to individuals, it also reduces unplanned downtime, thus increasing availability and productivity. The focus on functional safety is an indicator of customer orientation and in many industries – first and foremost the automation, medical engineering or automotive industry – an important element of the business culture.

For safe products, manufacturers and suppliers must provide proof that their product is following safe development processes and that the development standards relevant for the product were met. With NewTec as a partner, you can swiftly and efficiently develop solutions complying with the newest safety standards.

Complex products require structured safety processes

To prevent damage to individuals, the environment and the equipment and to minimise liability risks, systems must be designed in such a way that risks posed by random and systematic faults are prevented as far as possible. For this purpose, manufacturers must ensure compliance with applicable safety standards which has to be assessed by independent third parties.

However, technical products – cars, medical devices, industrial plants, etc. – are becoming increasingly sophisticated, leading to a multiplication of potential sources of faults. Therefore, a structured safety process is vital for the success of any safety-oriented development process.

Reducing time and effort, avoiding risks

Safety developments are always individual solutions specific to their application. Due to their complexity, they are significantly more difficult to plan than non-safety developments.

Faults during the concept phase or implementation can be very costly: increased development time and costs due to a design not optimised for safety, problems during the certification process and expensive belated changes, loss of profit due to delayed market launch and, not least, product liability risks with unforeseeable consequences for the company's finances and reputation.

Using a structured, experience-based approach, the safety experts of NewTec will help you to avoid these risks and reduce the time and effort spent on your functionally safe development.

Your advantages

- Faster product launch
- Reduced development costs
- Reduced risks



How NewTec supports your safety projects

Safety developments are always moving in the area of conflict between various standards and directives (IEC 61508, industry-specific standards), accredited certification bodies which have to assess their implementation, and the available resources (human resources, know-how). NewTec advises and supports you throughout the whole safety product development lifecycle – from the safety concept to the compliance review.

Benefit from our expertise: Safety standards and rules

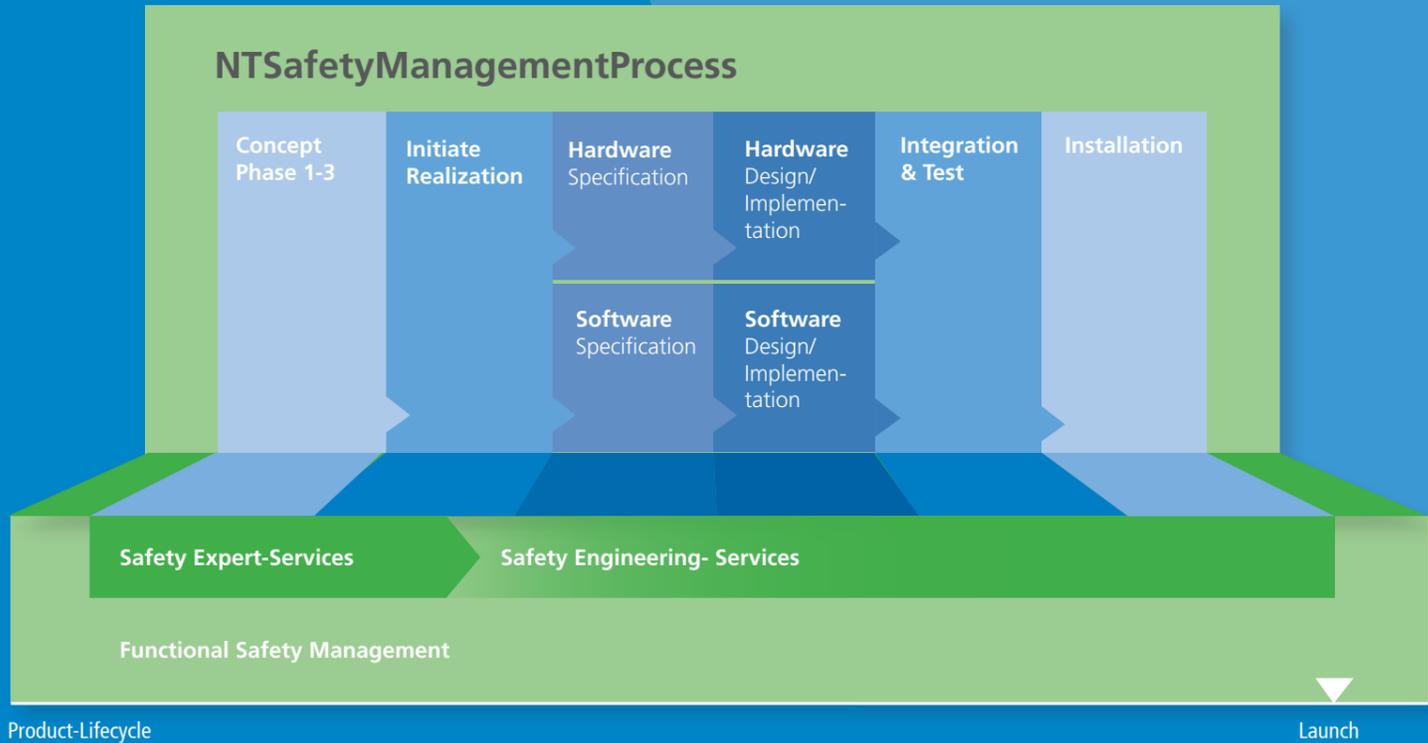
Our safety experts are familiar with all relevant development standards, with the basic safety standard IEC 61508 as well as with industry-specific standards like ISO 26262 for the automotive industry, EN 60601 for medical engineering, EN 50128 for railway vehicles or the industry standards ISO 13849 and EN 62061.

Why NewTec

- **Expert help throughout the whole product development process** from consultation and concept development to engineering and training
- **Less time and effort spent on successful safety concepts** thanks to proven and tested platforms with numerous certifications
- **Close partnership with certification bodies** (such as TÜV [German Technical Supervisory Association] Süd and TÜV Austria) and experience gained in numerous successful certification processes
- **Comprehensive safety competence**
Expertise and experience with development processes and safety standards

NTSafetySolutions

- Integral safety process management
- Application-specific platforms for safety developments
- Expert services
- Safety engineering



NTSafetyManagementProcess

- Objective: structured support of safe product development
- Synchronisation of system and safety development
- 4 roles: project manager, functional safety manager, safety developer, system developer
- 6 phases: concept phase; start of realization; hardware and software specification, design and implementation; integration & test; installation
- Required results / documents for each stage
- Geared towards the basic safety standard IEC 61508

Integrated process consultation: NTSafetyManagementProcess

“Safety by design” throughout the whole product development lifecycle

NewTec’s tried and tested safety management process – NTSafetyManagementProcess – will supplement your existing product engineering processes with a comprehensive, structured approach. This allows for effective synchronization of product development and safety development, marrying all requirements arising from system development, safety and also security, if applicable, and efficiently implementing them while strengthening the safety culture in the company. We will also advise your team in introducing a safety management process or reinforce your project team.

Safety process consultation by NewTec

Comprehensive process management from the concept to the launch:

- Implementation of a structured safety process
- Integration of the safety process into your product engineering process
- Training of safety process owners
- Safety consulting
- Safety culture

From a safety process to a safety culture

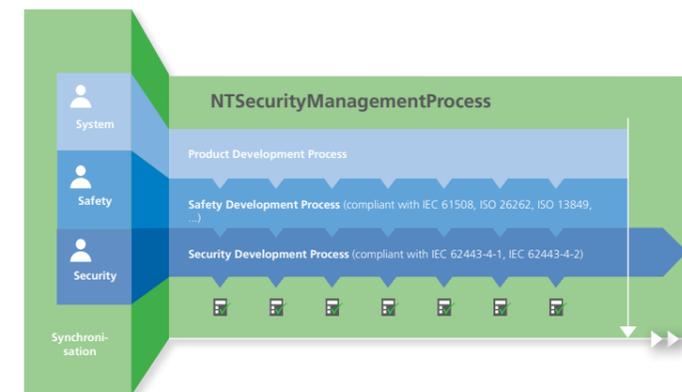
In the long run, a safety culture in your company facilitates and accelerates safety developments since they are closely interlocked with all other processes of product development (product concept, system development, security development, project management, etc.). A safety culture means that a company has internalised the basic principles of safety by design and has developed a proactive attitude towards safety.

This affects the whole company – from the management deciding on rules and exemplifying values, to the establishment of safety and quality assurance processes (e.g. FMEA) and to know-how and awareness of employees. Our experts help you establish the necessary changes in your company.

Safety & Security: If it’s not secure, it’s not safe.

In networked systems – think industry 4.0 – safety includes both: functional safety (from failures) and IT security (protection against attacks and manipulation). Both aspects strongly influence each other: malfunction may also be caused by hackers or malware, measures of functional safety can endanger security, and vice versa. Reliability of the network is also relevant for safety – think the transfer of real-time data for control.

While developing systems relevant for safety, our safety and security management processes strive for all requirements arising under a safety and security point of view being considered and conciliated in particular so that there will be no unpleasant surprises at a later time – “safety & security by design”.



NTSecurityManagementProcess

Synchronisation points at important places in the development process allow for the visualisation and solution of existing discrepancies between system, safety and security requirements. The process is geared to proven and tested best practices, the requirements of the **Bundesamt für Sicherheit in der Informationstechnik** [German Federal Office for Cyber Security] (BSI) and the international basic standards for safe and secure system development, IEC 62443 (security) and IEC 61508 (safety). We have coordinated our security management process closely with the T.V to facilitate and accelerate certification.



Faster on the market: services and platforms for your safety development

We are offering a wide range of expert and engineering services for fast and safe implementation of specific solutions. In addition, you can build your individual solution on our application-specific platform solutions with reference designs.

Whether we support you in your own development or perform engineering for you – we will accompany you to a solution ready to go into mass production and meeting all relevant standards and rules. This way, your innovative products will be on the market much faster.

Your advantages

- Immediately operable with little effort
- Saving costs for development and certification
- Reduced time-to-market

Services for your product development

Safety-oriented developments including market approval and integration can require a lot of time and expenses and require specific know-how. NewTec's comprehensive expert and project services will facilitate and accelerate your product development.

In addition, we will support you during certification, market approval and integration, will train your employees on safety topics and also support you in setting up the required change management expertise needed to develop your own safety culture.

Expert services

- Analysing your existing safety process environment and identifying gaps
- Implementing safety processes and supporting their compliance
- Creating safety concepts, safety plans, V&V plans (verification and validation), safety requirements specifications
- Accompanying the market approval process with concept review by the TÜV (TÜV SÜD/TÜV Austria...)
- Interim functional safety manager: Supporting the creation of the required documentation until an internal FSM is appointed by the company
- Training for process owners in the area of functional safety
- Training for project participants in the fields of safety, requirements & systems engineering and safety management

Safety-Engineering

- Hardware development from specification to serial hardware
- Firmware development for FPGA and CPLD for functionally safe systems
- Software development for functional safety systems
- Requirements engineering in all development phases
- System engineering and supervision throughout all project stages from kick-off to completion of the project

Safety platforms: your turbo for the development of safe products

The prerequisite for successful safety projects is a customised safety concept which is judged positively by the certifying body on the first try if possible. With NewTec, you can ensure that your concept is going into the right direction.

Use the development advantage! With NewTec, you do not start from scratch but have access to basic safety concept based on application-specific platforms with exemplary safety concept approval. NewTec's safety development platforms include immediately operational hardware and software components for safe product developments – e.g. in the fields of automotive, transport, industry and medical engineering. The efficient reference designs for various safety applications are ready to copy and can be easily adjusted to your individual requirements. How-to guides and detailed documentations facilitate implementation of all safety standards.

Your toolbox for functionally safe solutions up to SIL 3:



NTSafeDriveMonitor: Expanded safety functions for drives

The safety development platform NTSafeDriveMonitor supports servo drive manufacturers in integrating additional safety functions up to SIL 3.



SafeFlex: FPGA-based safety solutions

The SafeFlex Functional Safety Development Kit is a development environment for FPGA-based safety applications up to SIL 3; PL e category 4 with TÜV-reviewed evaluation board, IP cores, development tools, documentations and step-for-step guides.



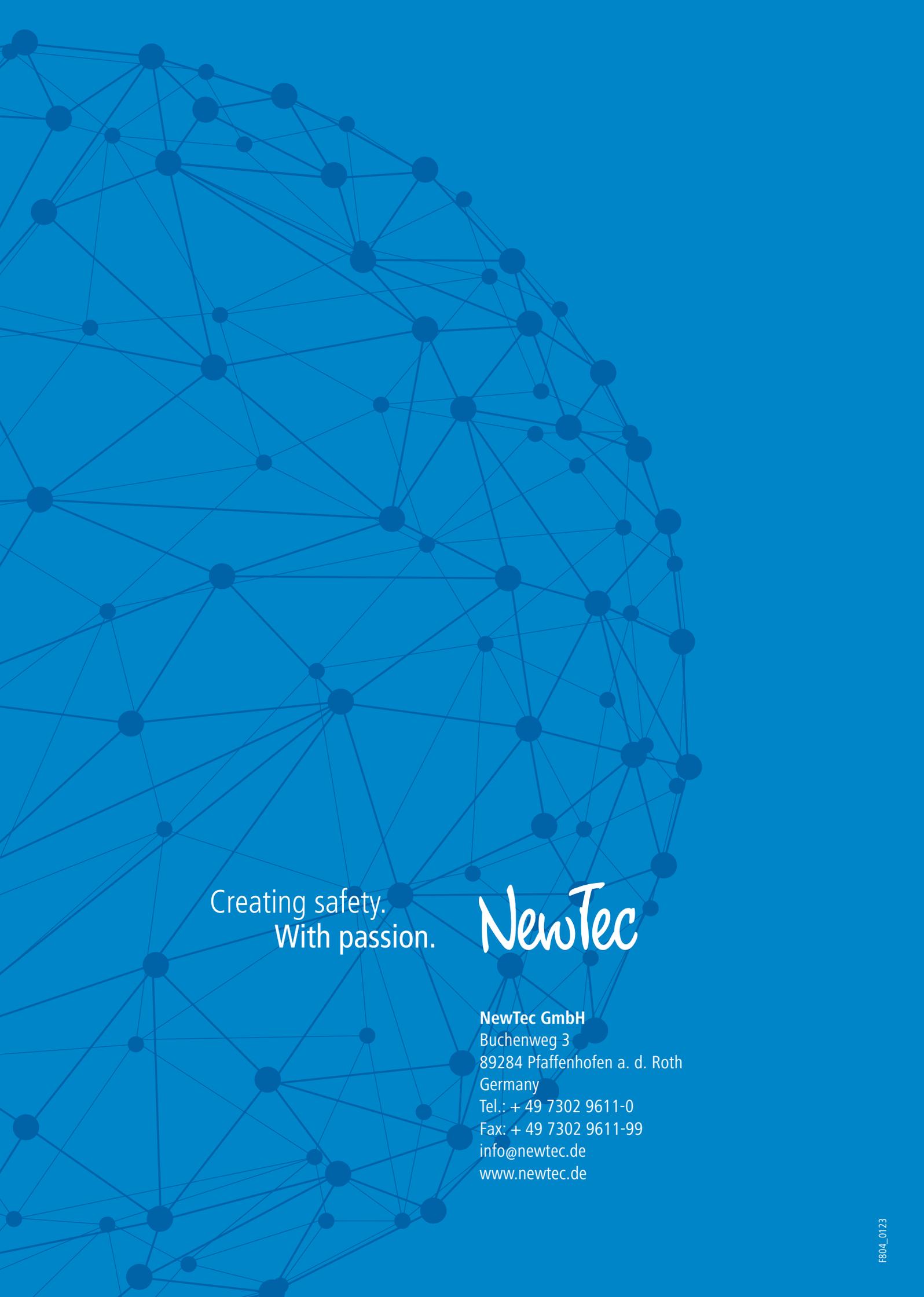
NTMicroDrive: Safe control of electric engines

The comprehensive software package for the embedded controller HVC 4223F of TDK-Micronas reduces the workload for the development of safe motor control applications (SIL 2 / ASIL A).



NTBatteryManagementSystem (NTBMS): Solutions for safe battery management

The development platform including reference design and safety support package allows battery manufacturers to quickly and cost-efficiently provide ISO-26262 and ASIL-C-compliant battery management solutions.



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NewTec GmbH

Buchenweg 3

89284 Pfaffenhofen a. d. Roth

Germany

Tel.: + 49 7302 9611-0

Fax: + 49 7302 9611-99

info@newtec.de

www.newtec.de