

Safety engineering made easy



From Simatic controllers and HMI, to Sinamics drives, to fail-safe communication via Profinet and AS-Interface – with TIA Portal, only one engineering environment is necessary for configuring and programming. This makes the integration of safety systems into production machines even easier.

Modern machines and plants are characterized by significantly higher productivity since freely programmable controls and distributed devices are used, especially for demanding applications. However, until recently, different products and systems were often used for safety-oriented tasks. Especially for complex safety tasks, the efficiency of an automation solution can be significantly increased if the safety-oriented functions are seamlessly integrated into the standard functions.

Intuitive programming with modules

This is also true of engineering using TIA Portal with Step 7 Safety Advanced. In this process, all the configuration and programming tools required for

Advantages of Step 7 Safety Advanced V12

- Uniform configuration of F-systems and standard automation systems
- FBD or LAD as programming languages for creating the safety program
- Integrated library with TÜV-certified function blocks
- Safety Administration Editor to support the management, display, and modification of safety-relevant parameters
- Standardized and consistent marking of all safety-relevant resources
- Increase in efficiency thanks to optimized compilers
- Autonomous prioritization and timing options for fail-safe runtime groups
- Extension of the security level concept regarding separate security level for the safety configuration
- Functional signature for user program

creating safety-oriented programs are integrated into the Step 7 operator interface and use a shared project structure. Whether a controller needs to be programmed or an HMI monitor or network connections configured, TIA Portal helps both new and experienced users work as productively as possible. In TIA Portal, the user is led intuitively through each engineering step. The modules are clearly arranged by topic in the hardware catalog on the right, and a structured tree offers all the parameters directly in the program editor.

With the Simatic Step 7 Safety Advanced V12 option, the user can take advantage of all the benefits of TIA Portal for fail-safe automation. Thanks to the intuitive operation and the same operating concept as used for standard programs, it doesn't take long to get up to speed in creating fail-safe programs. The safety-oriented programs are created in the FBD and LAD languages. No additional engineering expertise is required, as the programming takes place in the familiar Step 7 environment. In addition, a library with precompiled TÜV-certified modules is available for the easy implementation of safety-oriented functions. The library concept supports the company's in-house standardization and simplifies the validation of safety-oriented applications. Error recognition functions and safety checks are supported during the generation of the safety program, as is the comparison of safety programs. A standard program can also run on the CPU at the same time as the safety program.

Migration of Step 7 Distributed Safety possible

Creating safety-oriented programs is also possible as before with Step 7 and Distributed Safety. With the Distributed Safety engineering tool, safety-oriented automation applications can be created with Step 7 V5.5 in FBD or LAD. Using F-Call, the safety program is called from the standard user program (e.g. from a cyclic interrupt OB such as OB 35). The programs created with Step 7 Distributed Safety can be migrated into TIA Portal at any time.

Safety in drive technology

TIA Portal also enables the engineering of fail-safe drive technology. The relevant safety functions of the drive can be configured via graphic masks using Startdrive. This ensures perfect interaction between converter and control. ■

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