



**SIEMENS**

TIA Portal –  
the new  
version

# Totally Integrated Automation Portal

One integrated engineering framework for all automation tasks.

[siemens.com/tia-portal](https://www.siemens.com/tia-portal)

Answers for industry.

# What customers say ...

## USA – Crawford Technical Systems

"The Siemens hardware and TIA Portal software is helping us be the dominant player in our industry. We credit the TIA Portal with reducing our engineering time by at least 50%."

## China – New Baima Mining LLC

"We feel confident that TIA Portal software from Siemens has been of great use thanks to its speed and its powerful functions."

## The Netherlands – Dijkstra Koudetechniek B.V.

"Using TIA Portal software we are able to save up to 20% engineering time for small plants. With bigger systems you can even achieve an increase of 70%. This is made possible among others thanks to reuse of existing software."

## Italy – Breton

"The TIA Portal has had a positive effect on my work, with a time saving of about 20–25%, in the generation of projects; above all, thanks to the functions of the new editors, Drag and Drop, detection of variables, auto-completion of variables."

## Argentina – SoP Liesa

"With Totally Integrated Automation and the TIA Portal, we succeeded in having a more efficient engineering process through integrated tools across the whole Siemens portfolio. This is an extremely important highlight in highly competitive OEM markets."

## TIA Portal – the integrated engineering framework for Controller, HMI and Drives



PROFINET

With the Totally Integrated Automation Portal (TIA Portal), Siemens follows a vision of providing an engineering framework for implementing automation solutions in all industries around the globe.

From designing, commissioning, operating and maintaining to upgrading automation systems, TIA Portal saves engineering time, cost, and effort.

# SIMATIC STEP 7 V12

## One engineering for all SIMATIC controllers

SIMATIC STEP 7 in the TIA Portal is the software for the configuration, programming, testing, and diagnosis of all SIMATIC controllers. With a wealth of user-friendly functions, SIMATIC STEP 7 ensures significant cost savings for all automation tasks.

### Full symbolic programming

- Reduces complexity of programming and data management

### Powerful and intelligent editors

- Considerable time savings in project development using LAD, FBD, STL, SCL, Graph

### Innovations in the programming languages

- Single Calculate Box instruction for complex algorithms
- Implicit type-conversion for reduced programming
- Indirect addressing in all programming languages
- Data blocks > 64 kB up to 16 MB

### Motion integration

- Implementation and data communication of drive axes
- Easier programming of axis movements with PLCopen blocks

### Trace

- Graphical representation of program variables and I/O signals for efficient real-time diagnosis and optimization

### Diagnostics

- No user programming required for system diagnostics

## Consistent program download and upload

- When downloading, all program changes are loaded automatically
- When uploading, all tag names and comments are loaded to an empty PG

## Integrated code protection

- Better protection of intellectual property due to know-how and copy protection
- Extended access protection for CPU
- Support Ethernet Security CPs

## Comprehensive online/offline comparisons

- All hardware and software components can be compared online next to offline. This ensures fast recognition of potential differences.



Technology integrated for perfect drives integration via Motion Control functions and PROFIdrive

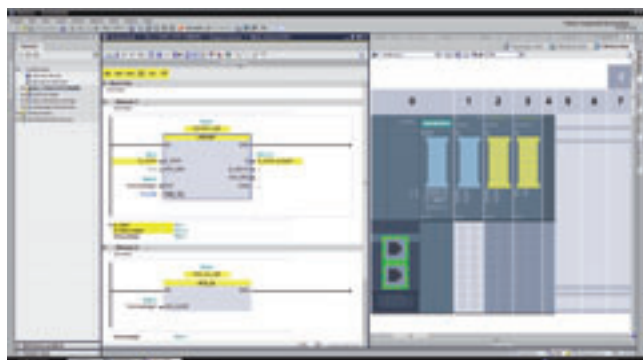
# SIMATIC STEP 7 Safety Advanced V12

## One engineering for standard and fail-safe automation

Common Look and Feel for all fail-safe components, F-modules library for all safety functions and a central Safety Administration Editor to display, declare and change safety parameters allow a fast access into the Safety Engineering.

### Innovations for efficient programming

- Performance increase due to optimized compilers
- Inherent prioritization and timing-options for fail-safe runtime group
- Extension of protection level concept with separate protection level for safety configuration
- Functional signature for user program



Split-Screen Safety Engineering and Hardware Configuration (HWCN)

## One software framework for all controllers, HMIs, and drives

The TIA Portal is advanced software technology packaged in an intuitive user interface. Whether it involves programming a controller, developing an HMI screen or parameterizing a drive, TIA Portal helps new and experienced users to work as intuitively and as effectively as possible.

**Save projects** > saving incomplete software is also possible

**Project tree** > conveniently organized project structure with all objects

**Diverse wizards** > adding CPUs, HMI panels, drives, and technology objects quickly and in structured fashion

**Devices and networks** > graphic network overview of all hardware components based on PROFIBUS, PROFINET, and AS-i

**Safety Administration Editor** > for central visualization, configuration and change of safety parameters

**Structured program setup** > conveniently organized program structure

**Tag definitions** > immediately available in all editors once defined

**Consistent symbols** > program with symbolic names within the whole project as object

**PLC Data Types** > conveniently arranged display of user-defined types

**Drives integration** > consistently configurable

**Drag & Drop** > easy data handling from one editor to another

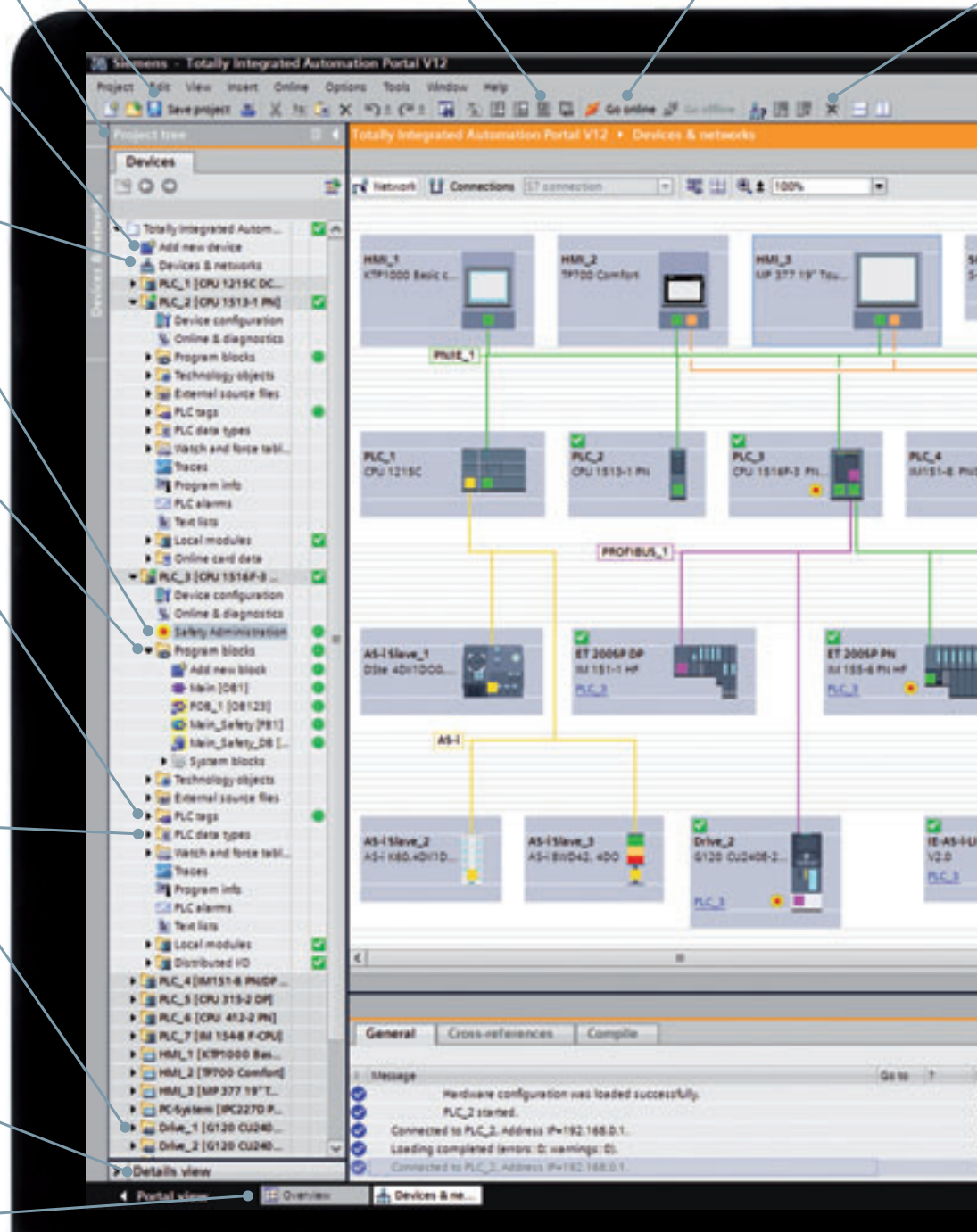
**Detail window** > displays all details from selected object of the project tree

**Window switcher** > to switch between opened editors

**Centralized data management** > validation of all engineering data

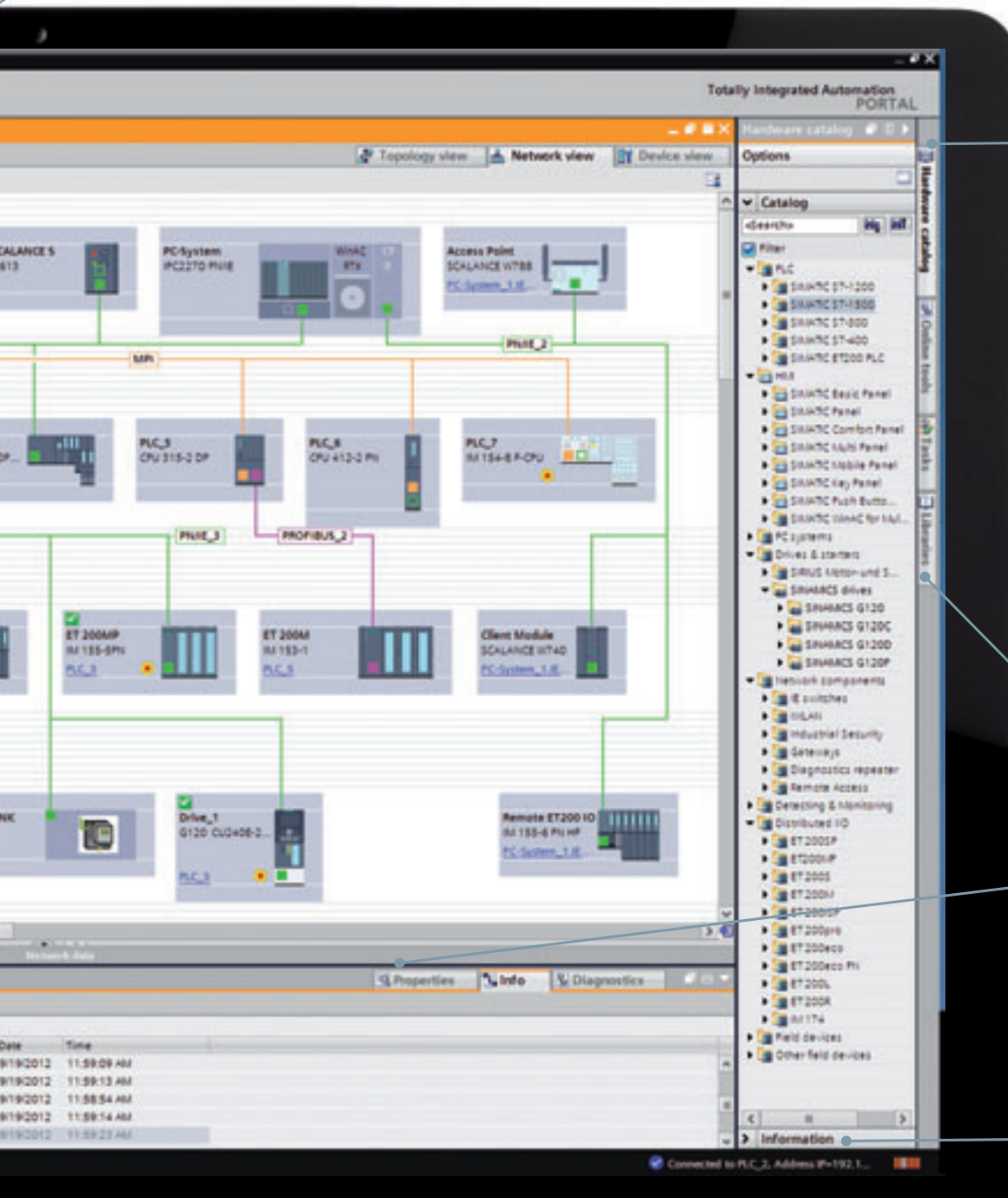
**Simulation** > integrated as a standard feature

**Online/offline comparison** > quickly visualize differences



**Cross-references >**  
project-wide overview using  
tags and objects

**IntelliSense >**  
easy object selection



**Intuitive tab pages >**  
follows the selected  
editor

**Global Library  
concept >** reusing of  
project parts

**Property window >**  
displays all relevant  
parameters of the  
selected object

**Information  
window >** displays  
detailed information  
of the selected object  
in the tab accordingly

# SIMATIC WinCC V12

## Seamless from Basic Panels up to SCADA

WinCC in the TIA Portal is the software for all HMI applications – from simple operation solutions with Basic Panels up to SCADA applications on PC-based multi-user systems.

### Project handling

- Device-independent configuration data can be used on a variety of target systems without the need for conversion.
- Shared project data such as alarm classes, project texts, etc., are managed centrally in the TIA Portal and can be used across all devices.
- Depending on the device, a wizard is available in the HMI configuration for quickly and easily creating the basic structure of the visualization.

### Screen editor with comprehensive options for efficient and fast screen configuration

- Generation of interconnected screen objects via Drag & Drop, e.g. tags for the creation of input/output fields with process interfacing
- Definition of screen templates and functions
- Layer technology with up to 32 layers

### Object-based data management with user-friendly search and edit options

- Configuration of alarms and logs directly on the HMI tag, no switching between different editors
- Cross-reference list with direct access to all objects, e.g. for editing or selection

### Libraries for predefined/user-defined configuration objects

- Storage of all configuration objects in the library, e.g. blocks and even entire screens or tags
- Faceplates can be constructed from simple screen objects on a customer-specific or project-specific basis. Changes to these faceplates can be made centrally (block definition).
- A large number of scalable and dynamic screen objects are included in the scope of delivery

### Test and commissioning support

- Simulation of HMI projects on engineering PC
- Jump to error cause based on alarm messages in the compiler

### Migration of existing HMI projects

- Complete data transfer in projects from WinCC flexible



HMI editor for screen configuration of HMI Comfort Panels

# SINAMICS Startdrive V12

## One engineering for drives and controllers

With SINAMICS Startdrive, SINAMICS G120 drives seamlessly integrate into SIMATIC automation solutions and can easily be parameterized, commissioned, and diagnosed. This saves time, reduces engineering errors and training effort.

### Perfect interaction of PLC and drives

- Diagnostic information available in PLC without programming
- Direct connection between application program and drive

### Quick familiarization by high degree of usability

- Full usage of TIA Portal features such as Drag and Drop, libraries and graphical network configuration
- Workflow-oriented user guidance
- Set-up wizards and optimized interfaces for experts and beginners

## High-efficient engineering by one commissioning tool for drives

- the modular SINAMICS G120 with a power range up to 250 kW for a large range of applications
- the compact drive SINAMICS G120C for standard applications
- the SINAMICS G120D for conveyor applications
- SINAMICS G120P, the specialist for pumps, fans, and compressors



Drives editor in functional view

# How does the TIA Portal save you time and money?

## Intuitive

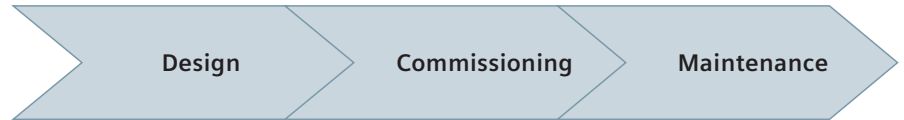
Easy to learn and easy to use

## Efficient

Integration and reusability

## Proven

Investment protection and scalability



### Time- and cost-saving due to:

	Design	Commissioning	Maintenance
Consistent Look & Feel for all programming editors	++	++	++
Flexible screen layout for optimized work area	++	+	+
Graphical network and device configuration	+++	++	+
Integration of PLC, HMI, Drives, and Safety in one engineering framework	+++	++	++
Reuse of project components with Global Libraries	+++	++	+
Integrated System Diagnostics	++	+++	++
Motion integration	+++	++	+
Optimized tag handling across PLC, HMI, and drives	++	++	+
Trace functions	+	+++	++
Project-wide cross-referencing information, for fast troubleshooting, for instance	++	+++	+
Complete simulation of PLC and HMI	+++	++	+
Scalability across all product platforms	+++	++	+
Easy migration of existing systems	++	++	+

**Result:**  
Savings up to 30%  
across the Production Life Cycle

Cost savings due to reduced engineering development	Cost savings due to fast machine installation time	Cost savings due to reduced machine downtime
<ul style="list-style-type: none"> <li>→ Fast programming with easy-to-use SW</li> <li>→ Reuse of existing project data</li> <li>→ Flexible machine configuration for customized solutions</li> </ul>	<ul style="list-style-type: none"> <li>→ Easy analysis of project data with optimized commissioning tools</li> <li>→ Fast troubleshooting of project data and machine faults</li> </ul>	<ul style="list-style-type: none"> <li>→ Clearly displayed fault information</li> <li>→ Fast access to online data and diagnostics of machine faults</li> </ul>

Find out more:

[siemens.com/tia-portal](http://siemens.com/tia-portal)

Discover how  
the TIA Portal  
can save you  
time and money.

TIA Portal –  
take a look!



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