

Eigen Engineering Agent

Documentation

Scope

Eigen Engineering Agent is an AI-powered assistant for TIA Portal that accelerates automation engineering workflows through a natural language interface. Eigen Engineering Agent consists of a local PC application connected to TIA Portal and a cloud-based AI backend for intelligent processing.

It supports PLC programming, HMI visualization, drive configuration, and project management tasks – all integrated directly into the TIA Portal engineering environment.

Target Users:

Designed for automation engineers - including PLC programmers, HMI and drive specialists, and commissioning engineers - working across machine building, system integration, and plant engineering in discrete industries.

Value Proposition

Eigen Engineering Agent accelerates TIA Portal engineering delivery by bringing AI-assisted automation directly into the engineer's workflow – from PLC code generation to HMI visualization to drive configuration.

By automating routine engineering tasks through a natural language interface, teams deliver projects faster, reduce manual errors, and maintain consistent engineering quality across projects – while keeping engineering project data on the local workstation and processing AI queries within regional cloud boundaries for enterprise-grade privacy.

Key Business Benefits:

- **Faster project delivery** - AI-assisted code generation and documentation significantly reduce time spent on standard engineering tasks
 - **Reduced routine workload** – Automates repetitive coding, scripting, and visualization work so engineers focus on high-value engineering decisions
 - **Accelerated onboarding** – Context-aware AI guidance provides instant access to Siemens automation expertise within TIA Portal
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Functionalities

Intelligent PLC Code Generation & Testing	SCL & LAD Code Generation: • Create PLC function blocks from natural language descriptions (e.g., "Generate temperature control with PID and alarms") • Supports SCL (Structured Control Language) and LAD (Ladder Logic) for SIMATIC S7-1200/1500 • Generates optimized, documented code following SIMATIC best practices Automated Test Case Creation: • Generate comprehensive test cases for S7 program blocks - including boundary values and edge cases - that can be executed with S7-PLCSIM Advanced for simulation-based testing Code Documentation & Explanation: • Supports code documentation, enabling documentation generators such as Code2Docu (see SiePortal – Knowledge Base) to automatically produce functional block documentation - including purpose, parameters, and logic flow • Allows users to ask questions about the functionality of individual code blocks
HMI Visualization	WinCC Unified Screen Creation: • Create and configure HMI devices and screens based on textual requirements or derived directly from PLC code blocks • Automatic tag binding to PLC data blocks JavaScript Development • Generate custom JavaScript for HMI interactions (event handlers, data processing, dynamic UI behaviors) • Migrate legacy VBScript to modern JavaScript with compatibility checks
Drives Configuration	SINAMICS Drive Configuration • Configure single axis SINAMICS drives (G220, G200 Basic, S200, S210) via natural language or Excel files • Parameter setup for speed control, positioning, and communication (PROFINET/PROFIBUS) SIMOTICS Motor & Encoder Setup • Configure motor parameters and encoder integration • Bulk device configuration using Excel templates with validation
Hardware Configuration & Networks	Devices & Networks Configuration • Automated device creation and management for PLCs, HMIs, drives using MLFBs or nicknames • Excel-based mass device creation to rapidly build consistent project setups • IP and network configuration with intelligent, PROFINET-focused assistance • Module management to precisely add or remove hardware modules within devices
Project Configuration	Project Overview and Translation Support with Siemens Eigen • Gives a quick, clear overview of the project's key devices and structure • Provides a complete list of all devices and project objects at a glance

- Fast, high-quality translations directly in TIA Portal without external services, optionally enhanced by a custom dictionary Excel file

Knowledge & Support Services

Access to Siemens Automation Knowledge Guide

- Ask engineering questions and receive intelligent answers (best practices, troubleshooting, feature explanations)
- Context-aware help based on active TIA Portal window
- Allows users to ask questions about the functionality of individual code blocks or even an entire TIA Portal project

Document Processing

User Document Upload & Referencing

- Upload project-specific documents – such as text files, Excel spreadsheets, machine specifications, or engineering style guides – for use as AI context
- Reference uploaded documents in prompts to generate new code, modify existing code, or adjust configurations based on project-specific requirements
- Supports context-aware code generation aligned with company standards and machine-specific parameters

Capabilities

AI Technology

Architecture

The Eigen Engineering Agent consists of two components

Component	Description	Runs on
Local PC Application	TIA Portal add-in providing the engineering interface, TIA Portal project access, and local session management	User's workstation
Cloud AI Backend	AI inference service processing engineering queries using multiple specialized AI models	Siemens-managed cloud (Customer selects Europe or US region; China: in-region)

How it works:

- The engineer interacts with the local application inside TIA Portal via natural language
- Engineering queries are sent securely (TLS 1.2+) to the Siemens cloud AI backend for processing
- AI-generated results (code, configurations, answers) are returned to the local application
- All session data and chat history remain on the local workstation

AI Models

- Multi-model AI architecture optimized for different engineering tasks – whether understanding PLC logic, generating code, or working with HMI screens
- AI models are continuously updated by Siemens to deliver improved results and new capabilities

Service Improvement

- Opt-in: Users can choose whether anonymized usage patterns may be used for service improvement

Platform Compatibility

Component	Supported Versions
TIA Portal	V19 (Update 5 or later), V20 (Update 4 or later), V21
SIMATIC PLCs	All variants within S7-1200 family and S7-1500 family
HMI	WinCC Unified Comfort Panels (7" to 22")
SINAMICS Drives	Single-axis drives (G220, G200 Basic, S200, S210)

Connectivity

Connection between the Siemens Eigen Engineering Agent and a TIA Portal project

Uses the TIA Portal Openness API to link the Siemens Eigen chat with a selected TIA Portal project. Therefore, the Windows user must therefore be part of the Siemens TIA Openness user group: [SiePortal – Knowledge Base](#)

Cloud Connectivity

- Cloud-connected SaaS (all AI processing in cloud)
- No offline mode available

Security & Compliance

Authentication & Authorization

- Industry Organization Account with Siemens ID sign-in

Data Security

Aspect	Local PC Application	Cloud AI Backend
Data stored	Chat history, session data, TIA Portal project context	No persistent storage of customer data
Data processed	UI rendering, TIA Portal integration, local session management	AI inference on engineering queries (transient processing only)
Data retention	Retained locally until user deletes	Not retained – data used for inference only, then discarded
Encryption	Local OS-level security	TLS 1.2+ for all data in transit

Key Data Security Principles

- Engineering project files remain on the local workstation and are accessed via TIA Portal Openness API – project files are not uploaded to the cloud
- Only engineering queries (prompts and relevant context) are sent to the cloud for AI processing
- No customer input data is persistently stored in the Siemens cloud
- Before sending diagnostic logs to Siemens support, users should remove sensitive data

User Interface

The User Interface is available in: English (EN), Chinese (CN), French (FR)

Prerequisites

Platform Requirements

Component	Cost	Purpose	How to obtain
Industry Organization Account	Free (1 per Customer organization)	License management and role administration	Order at: Industrial Software Store

Software Requirements

Component	Requirement	Notes
Operating System	Microsoft Windows 11	Siemens Eigen typically supports the same Windows versions as TIA Portal (≥ V19 Update 5). See Compatibility Tool for the latest supported versions.
TIA Portal	V19 (Update 5 or later), V20 (Update 4 or later), or V21	Required on the same machine. Provides project access and integration via TIA Portal Openness API.

Note: To connect a Siemens Eigen chat session to a TIA Portal project – and to interpret and work with the TIA project context – at least one of the listed TIA Portal versions must be installed on the same machine.

Hardware Requirements

Required for the Local PC Application only:

Resource	Specification
Hard disk space	300 MB
RAM (maximum allocated)	1000 MB

Note: Eigen Engineering Agent runs as a TIA Portal add-in. The host workstation must meet TIA Portal V19 system requirements, which exceed the Eigen Engineering Agent add-in footprint shown above.

Network & Connectivity

- Active internet connection required (no offline mode)
- Used ports and cloud service URLs are listed and continuously kept up to date in the [Readme document](#).

Entitlement Metrics and Limitations

License Type	☐ Backup ☐ Credit ☐ Floating / Concurrent User ☒ Named User ☐ Node-Locked / Single ☐ Per Asset
License Term	☐ Perpetual / Extended ☒ Subscription / Rental

Other License Metrics

Product-specific licensing terms:

- Named User licensing: One (1) seat is assigned to one (1) concurrent user.
- User pool: Up to three (3) Named Users can be designated per seat
- Concurrent access restriction (Floating metric): Only one (1) designated Named User may actively access the Eigen Engineering Agent per seat at any given time. The number of installed instances of the Eigen Engineering Agent may not exceed ten (10) times the number of seats licensed.

Usage Limits

No hard usage quotas apply for normal engineering workflows. Automated safeguards monitor for unusual or excessive patterns (e.g., scripted or bot-driven requests) to protect service availability across the user base. In case of sustained misuse, Siemens reserves the right to throttle or suspend access.

Limit	Value
Document storage per Authorized User	10 GB total across all uploaded documents

Note: Once the storage limit is reached, existing documents must be deleted before new uploads. We recommend periodically removing documents that are no longer needed.

For full usage policy details, see: [Readme Documentation](#)

Restrictions

Geographic Availability	 Eigen Engineering Agent is available in over 20 countries. Check availability in the marketplace for the respective country.
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Functional Limitations	No Offline Mode • The local PC application requires a continuous internet connection to communicate with the cloud AI backend • Without internet connectivity, AI-assisted features are not available
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Safety-Critical Applications	 CRITICAL SAFETY NOTICE Eigen Engineering Agent MUST NOT be used for  Safety PLC programming (S7-1500F fail-safe logic, PROFIsafe, F-blocks)  SIL-rated applications (IEC 61508)  Safety Instrumented Systems (SIS), Emergency Shutdown Systems (ESD)  Medical devices (IEC 62304), automotive safety (ISO 26262), rail safety (EN 50128)  Any application where code errors could cause injury, death, or environmental harm User Responsibility • All AI-generated code MUST be reviewed by qualified engineers • Final responsibility for code correctness rests with the Customer
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Delivery

Delivery Method	Available for download via the Industry Organization Account .		
	A valid Industry Organization Account / Siemens ID is required for access.		
Delivery Format	- Delivered as standalone EXE installer (~300 MB) for the local PC application - No physical media: application delivered electronically only - Cloud AI backend is fully managed by Siemens – no separate deployment or configuration required by Customer Package includes: - Siemens Eigen Engineering Agent installer - Installation guide - Release notes - Third-party software notices (Readme_OSS)		
Installation	- Download installer from Customer-assigned Industry Organization Account - Run installation as Administrator on host workstation - Start application and authenticate via Siemens ID - Connect to TIA Portal project via TIA Portal Openness API Note: The host workstation must meet TIA Portal system requirements, which exceed the Eigen Engineering Agent add-in footprint.		
License Activation	- Cloud-based license validation via Industry Organization Account - Requires active internet connection - Automatic validation upon login to Eigen Engineering Agent		
Update Delivery / Update Process	Updates are delivered via automatic in-app updates. Alternatively, Customer can manually upload the latest version from the Industry Organization Account .		
Support Resources	Resource	Type	Available at
	STEP 7 (TIA Portal)	Community / Forum	SiePortal - Forum
	SIMATIC WinCC (TIA Portal)	Community / Forum	SiePortal – Forum
	Support Case Requests	Ticket System	SiePortal – Support Request
	TIA Portal Openness Setup Guide	Guide	SiePortal – Knowledge Base

Documentation & Support

Online Documentation:	 Readme document Available in: English (EN), Chinese (CN), French (FR), Italian (IT), German (DE)
Training	SITRAIN Learning Path

Export control regulations

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