Catalog | January 2024


EcoStruxure Control Engineering

# EcoStruxure™ Control Engineering

## Software engineering techniques for your PLC and PAC applications for greater quality and productivity

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# Harmony

## Discover Harmony

### Advanced operator interface and industrial relays

**Harmony** operator interface and industrial relays enhance operational efficiency and equipment availability across industrial and building applications. **Harmony** includes intelligent connected products and edge terminals that visualize, gather and process data, enabling informed operator decisions

## Explore our offer

- Harmony Push Buttons and Switches
- Harmony HMI Operator Terminals, IPC and EdgeBox
- Harmony Signaling Devices
- Harmony Electrical Relays
- Harmony Safety

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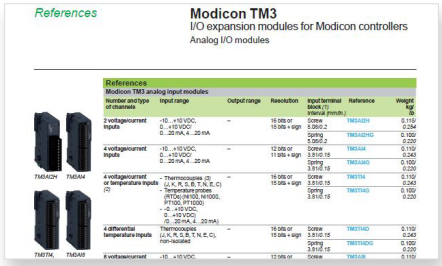
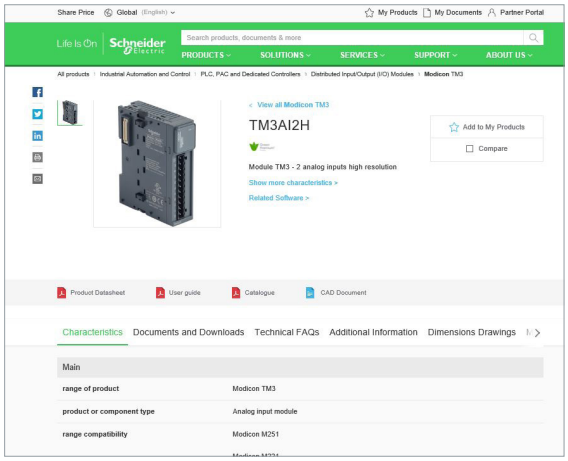
# Quick access to product information

## Get technical information about your product

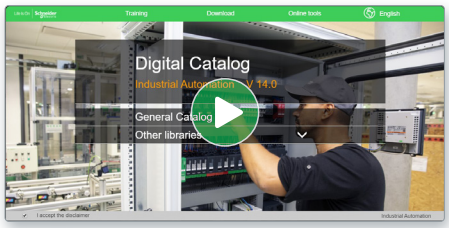


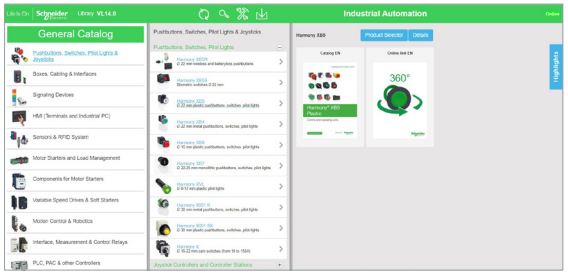




Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

- Characteristics, Dimensions and drawings, Mounting and clearance, Connections and schemas, Performance curves
- Product image, Instruction sheet, User guide, Product certifications, End of life manual

## Find your catalog

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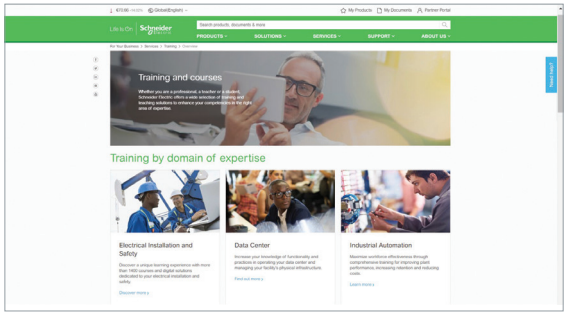
## Select your training




> Find the right Training for your needs on our Global website
> Locate the training center with the selector tool, using this link

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# General contents

## EcoStruxure™ Control Engineering

# EcoStruxure Control Engineering

Software engineering techniques for your PLC and PAC applications for greater quality and productivity

## *Bringing software engineering techniques to industrial automation*

*EcoStruxure Control Engineering*

EcoStruxure Control Engineering is a collection of software engineering tools for industrial automation that aim to bring a more disciplined, structured approach to control programming in order to increase quality, productivity, and efficiency. The tools help provide a better understanding of your control programs at any stage of the software lifecycle. They also enable you to improve program quality and productivity while reducing costs and time required.

EcoStruxure Control Engineering tools include:

- **EcoStruxure Control Engineering - Converter**: Logic conversion and reengineering tool for modernization and migration projects
- **EcoStruxure Control Engineering - Verification**: Static analysis tool for code quality and conformity management
- **EcoStruxure Control Engineering - Documentation**: Reverse engineering tool for retrieving information from an existing source code
- **EcoStruxure Control Engineering - Monitoring**: Real-time, system level diagnostics support for troubleshooting PAC-based control systems

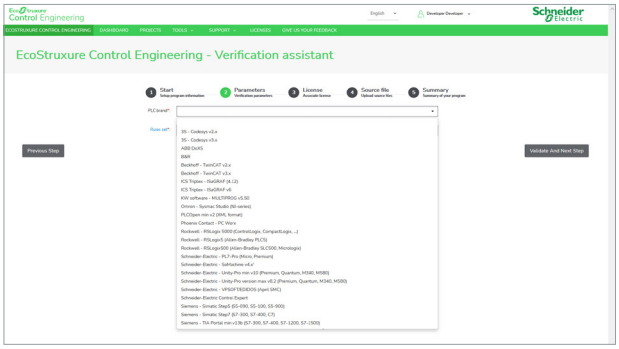
The software tools sit within the Edge Control layer of the EcoStruxure Innovation Stack, alongside the industrial development environment software. It complements software such as EcoStruxure Control Expert and EcoStruxure Machine Expert.

EcoStruxure™ Innovation At Every Level for Industry


## Smart design and engineering

**EcoStruxure Control Engineering software formalizes the program lifecycle process**

- Tools can be used at any stage of the software lifecycle (development, operations, maintenance, modernization) to perform a number of different tasks and help provide a better understanding of control programs
- One tool fits all – EcoStruxure Control Engineering tools can be used even with mixed installed bases
- Possibility to integrate into an existing development tool chain, such as with EcoStruxure Control Expert or with version management systems
- Improve program quality and robustness during development to help ensure maintainability during the later stages of the software lifecycle




## + Easier management of the control software lifecycle

# EcoStruxure Control Engineering

Software engineering techniques for your PLC and PAC applications for greater quality and productivity


*EcoStruxure Control Engineering*
*Click to view video*

## Workforce empowerment

**EcoStruxure Control Engineering software increases operator effectiveness**

- Free up the time of your automation experts and developers by automating tedious but necessary tasks, such as code review
- Make informed decisions based on comprehensive results produced by the tools
- Abstract program information enabling all stakeholders, from operators to system experts, to have an understanding of the system

## Investment continuity

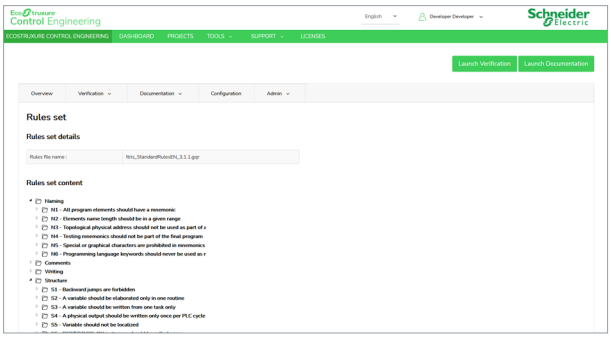
**EcoStruxure Control Engineering software minimizes risk related to obsolescence and loss of intellectual property (IP)**

- Tools contain knowledge of many legacy systems, helping make legacy control programs accessible even to developers who are not familiar with these systems
- Facilitate modernization and migration projects, especially of large installed bases, with automatic conversion of control programs (legacy system to modern system, cross-vendor, and/or cross-language)

## Regulatory compliance

**EcoStruxure Control Engineering software supports processes related to standards and compliance**

- Use of automated tools is recommended by some standards for tasks such as static analysis, and analysis of control and data flows
- Use of results from the tools as (third-party) supporting evidence during compliance processes




## Smart operations

**EcoStruxure Control Engineering software increases awareness of the system**

- Information provided by the tools is coherent with what is contained in the source code
- Tools that can be adopted at any stage of the software lifecycle as and when they are required
- Greater visibility of the current state of the system with access to real-time values of all variables for more efficiency when unplanned downtime occurs *(1)*

*(1) Supported by EcoStruxure Control Engineering – Monitoring tool only.*

**+** Formalize approach to control software for greater productivity, code quality and reliability

# EcoStruxure Control Engineering

Software engineering techniques for your PLC and PAC applications for greater quality and productivity

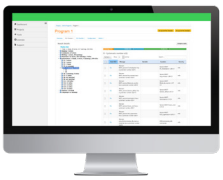
*EcoStruxure Control Engineering*

## Presentation

EcoStruxure Control Engineering is a collection of agnostic tools that support users by automating tasks such as code verification, conversion, reverse-engineering, and troubleshooting. The software tools are all based on a unique technology framework, which enables them to support programs using any of the IEC 61131-3 languages and a number of different PLC/PAC makes and models.

EcoStruxure Control Engineering tools support and add value to users from industries such as:

- Energy: nuclear, hydroelectricity, etc.
- Oil & Gas
- Water & Wastewater
- Transport & Infrastructures: rail, airport, heating networks
- CPG: food & beverage, packaging, etc.
- Automotive
- Defence & Space: marine, aircraft construction, rocket launchers, etc.
- Pharmaceutical



*EcoStruxure Control Engineering - Verification*

## Tools

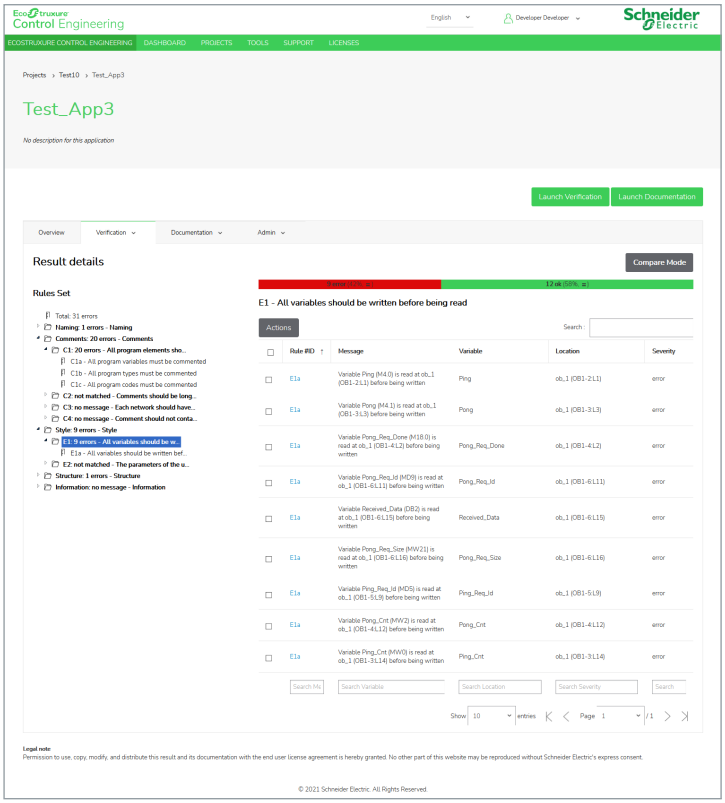
### EcoStruxure Control Engineering - Verification

EcoStruxure Control Engineering - Verification is a static analysis tool for control programs that automates code verification allowing for improved quality management. The tool helps identify non-conformities and measure complexity, providing useful information to help improve your code quality and maintainability. This is a cloud-based application accessible through a Web browser and user login.

The main features of the Verification tool are:

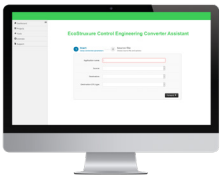
- Dashboard: Results presented graphically to give an overview of the evolution of program development and quality
- Result Details: A message for each non-conformity found with information on the variable, the location, and the severity

The Verification tool comes with a choice of sets of pre-defined rules for analyzing control programs, including generic, segment-specific and standard-specific rules. These sets of rules are all based on good programming practices regarding naming, comments, writing, structure, and complexity. The rules file is configurable, meaning that it can be enriched and customized according to your needs.




The EcoStruxure Control Engineering - Verification tool:

- helps ensure the longevity of your control systems by improving maintainability from the start
- automatically verifies conformity with your chosen company, segment, or standard guidelines
- is a collaborative tool providing different levels of information for different users, from an overview of project quality to detailed results



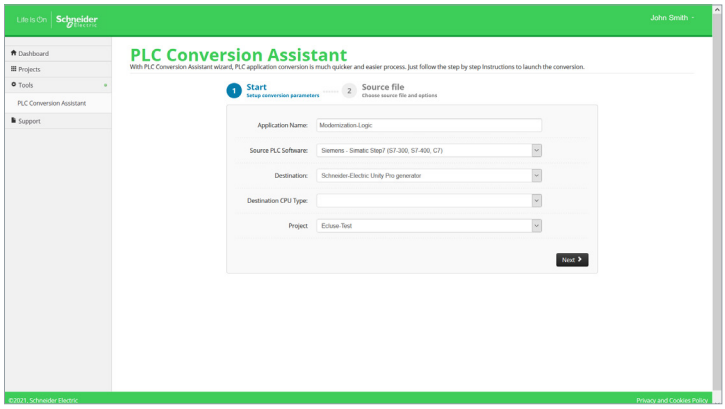
*EcoStruxure Control Engineering - Converter*

## Tools (continued)

### EcoStruxure Control Engineering - Converter

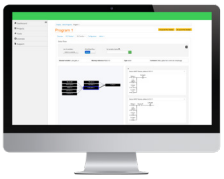
EcoStruxure Control Engineering - Converter is an automatic conversion and reengineering tool for control applications. The tool supports modernization and migration projects by converting a control program to a different controller brand, model, and/or programming language, while maintaining the same behavior and semantics of the source program.

The main features of this tool are converting from older PLC formats to modern formats or to C language, cross-vendor, and cross-language. The conversion, launched via a simple step-by-step wizard, provides full support of the variables, process code, and comments *(1)*. A report is generated indicating what needs to be addressed manually post-conversion and the tool has a knowledge base available to support users with this. Re-engineering options can be performed during the conversion process, which include mass renaming, addition of comments, selective code cleaning, and merging CPUs.




The EcoStruxure Control Engineering - Converter tool:
- saves project time and costs by automating the conversion of the control application
- minimizes risk related to obsolescence, such as unplanned downtime
- helps to prevent loss of your intellectual property and capitalizes on existing investment and know-how

*(1) The special features and hardware configurations will have to be revisited post-conversion as they are not automatically converted due to the large number of configuration possibilities.*



*EcoStruxure Control Engineering - Documentation*

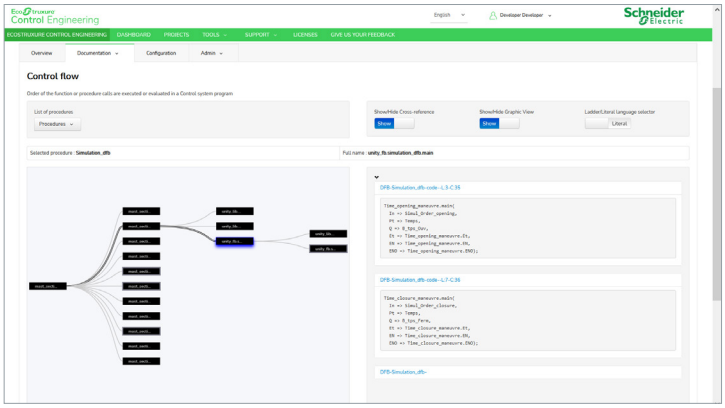
## Tools (continued)

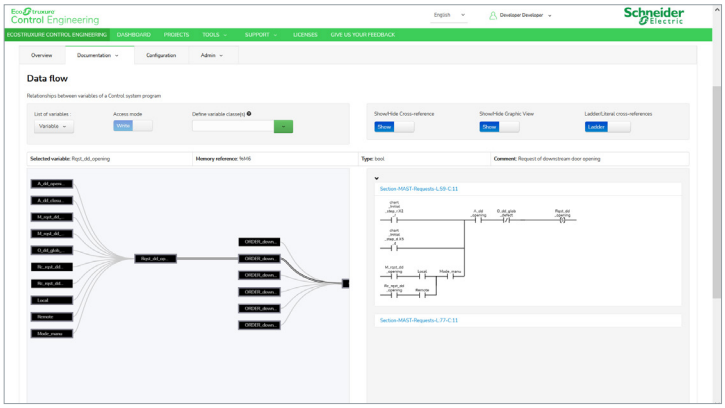
### EcoStruxure Control Engineering - Documentation

EcoStruxure Control Engineering - Documentation is a reverse engineering tool for control programs that analyzes and reconstructs program information from an existing source code. The tool generates an abstract representation of the program that is coherent with its current state, making it easier for users to understand even when unfamiliar with the system. This is a cloud-based application accessible through a Web browser and user login.

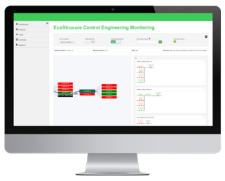
The main features of the Documentation tool are:
- Control Flow: Call tree showing the relationships between procedures of the code, to understand the structure of the application and the architecture of its FBs, POUs, functions, and more
- Data Flow: Flow graph showing the relationships between input and output variables to help understand the information flow
- Cross-references: Provide more detail on the relationships of the selected procedure or variable and are available in ladder or literal format

The Control Flow and Data Flow representations, which are unique regardless of the PLC format or brand of the source code, help with:
- Re-documentation: Create a new representation of the structure of the control code so that it is easier to understand
- Design recovery: Support the understanding of the functionality of the control code




The EcoStruxure Control Engineering - Documentation tool:
- ☐ is coherent with the current version of the program
- ☐ has built-in knowledge of many legacy systems
- ☐ helps to prevent loss of intellectual property from obsolete systems



*EcoStruxure Control Engineering - Monitoring*

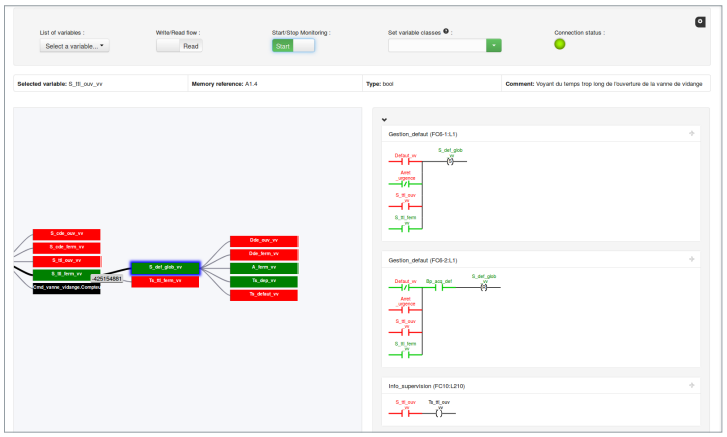
## Tools (continued)

### EcoStruxure Control Engineering - Monitoring

EcoStruxure Control Engineering - Monitoring is a real-time diagnostics solution to support troubleshooting of PLC-based control systems. The solution retrieves the live variable values from the system and displays them on a simplified representation of the control programs, to help understand the current state of a system more quickly and easily. They can be integrated with existing production tools, such as SCADA, version management systems, and communication servers for greater efficiency.

The main features of the Monitoring tool are:

- Data Flow View: Simple representation of the flow of data between variables in and amongst control programs and generated automatically from the source code
- Live Monitoring: Retreives the variable values from the system and display them on the data flow view to show the current state of the system
- Communication setup: To enable the real-time communication from the PLCs to the tool, it is necessary to set up either a communication server with OPC DA or direct communication with Modbus TCP




The EcoStruxure Control Engineering - Monitoring tool:

- reduces unplanned downtime with the support of a clear representation of a system's data flow and the live variable values
- increases the autonomy of operational teams
- provides remote access
- enables faster troubleshooting

# EcoStruxure Control Engineering

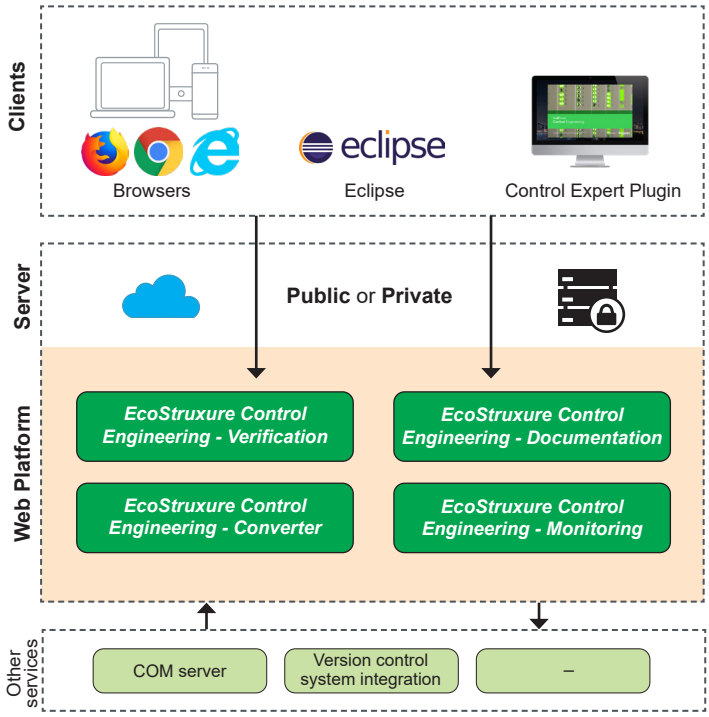
Software engineering techniques for your PLC and PAC applications for greater quality and productivity

## Architecture

The EcoStruxure Control Engineering tools are cloud-based applications accessible through a Web browser, with no installation required. In certain cases, a private server may be required, due to the type of license or the user's security requirements. This is possible and is generally provided on a virtual machine.

The Web browser is the standard client for accessing the tool platform, however it is also possible to use Eclipse (for advanced usage), or specifically for EcoStruxure Control Engineering - Verification, there is also a plugin available for EcoStruxure Control Expert, allowing the tool to be used directly in the development environment.

The advantage of this architecture is that it is flexible, and enables easy integration with other services or third-party tools, such as a communication server or a version control system.




## References

The EcoStruxure Control Engineering products are license-based, Software as a Service (SaaS) tools. They can be accessed through the Web platform, https://ecostruxure-control-engineering.se.app. The user needs to create an account and log in to the platform to access their licenses and use the tools.

The platform is based on two different types of server model:

- The public, cloud-based server is the standard model for accessing the tools. With this model, the user will always have access to the latest product versions, can use the collaboration functionalities, and can easily integrate with third-party tools (i.e. version management systems).
- The private server model *(1)* is generally based on a virtual machine and is aimed for users who have strict security requirements, but also necessary for those purchasing a perpetual license. This model comes at an extra cost.

### Types of licenses

There are different types of licenses for each product to meet the various use cases:

- Per analysis license: Usage-based one-shot license for single analysis
- Per program license: Multiple analysis of one control program for a chosen duration

The licenses are also available based on the tenure for EcoStruxure Control Engineering - Verification and Documentation tools:

- License for the annual usage of the cloud-based server: a yearly fee which includes all updates and support.
- License for the usage of the on-premise server: one-time fee for access to the tool which includes updates and support for the first year of the tool. To continue with the updates and support from the second year onwards, users will have to purchase annual update licenses that correspond to the number of licenses that were originally purchased.

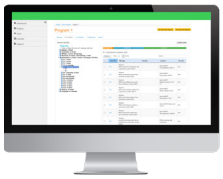
*(1) Updates can only be done by Schneider technical team during on-site visit.*

## References

### How to order

The EcoStruxure Control Engineering licenses can be purchased from your local Customer Care Center or a limited selection of licenses are also available to purchase online on the Schneider Software Shop.

The EcoStruxure Control Engineering software tools are accessed through a Web platform at https://ecostruxure-control-engineering.se.app. It is necessary to create an account on this platform in order to access the software tools, licenses, and projects.



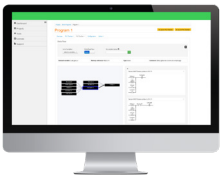
*EcoStruxure Control Engineering - Verification*

### EcoStruxure Control Engineering - Verification

| Description | License type | License duration | Cloud/ On Premise | Reference |
|---|---|---|---|---|
| **EcoStruxure Control Engineering Verification - One-Shot License** | Per analysis | Single analysis | Cloud or On Premise | CEGVER01AN |
| **EcoStruxure Control Engineering Verification - 10x One-Shot License** | Per analysis | 10x Single analysis | Cloud or On Premise | CEGVER10AN |
| **EcoStruxure Control Engineering Verification - 4-Month Pilot Project License Per Program** | Per program | 4 months | Cloud | CEGVAD4MPT |
| **EcoStruxure Control Engineering Verification - Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY01P |
| **EcoStruxure Control Engineering Verification - 10x Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY10P |
| **EcoStruxure Control Engineering Verification - 50x Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY50P |
| **EcoStruxure Control Engineering Verification - Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP01P |
| **EcoStruxure Control Engineering Verification - 10x Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP10P |
| **EcoStruxure Control Engineering Verification - 50x Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP50P |
| **EcoStruxure Control Engineering Verification - Perpetual Licenses 1-Year Update Multiplier** | Verification Documentation | 1 year support & updates | On Premise | CEGVADP1UM |

# EcoStruxure Control Engineering

Software engineering techniques for your PLC and PAC applications for greater quality and productivity



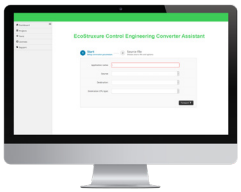
*EcoStruxure Control Engineering - Documentation*

## EcoStruxure Control Engineering - Documentation

| Description | License type | License duration | Cloud/ On Premise | Reference |
|---|---|---|---|---|
| **EcoStruxure Control Engineering Documentation - One-Shot License** | Per analysis | Single analysis | Cloud or On Premise | CEGDOC01AN |
| **EcoStruxure Control Engineering Documentation - 10x One-Shot License** | Per analysis | 10x Single analysis | Cloud or On Premise | CEGDOC10AN |
| **EcoStruxure Control Engineering Documentation - 4-Month Pilot Project License Per Program** | Per program | 4 months | Cloud | CEGVAD4MPT |
| **EcoStruxure Control Engineering Documentation - Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY01P |
| **EcoStruxure Control Engineering Documentation - 10x Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY10P |
| **EcoStruxure Control Engineering Documentation - 50x Annual Subscription Per Program** | Per program | 1 year | Cloud | CEGVADY50P |
| **EcoStruxure Control Engineering Documentation - Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP01P |
| **EcoStruxure Control Engineering Documentation - 10x Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP10P |
| **EcoStruxure Control Engineering Documentation - 50x Perpetual License Per Program** | Per program | Perpetual | On Premise | CEGVADP50P |
| **EcoStruxure Control Engineering Documentation - Perpetual Licenses 1-Year Update Multiplier** | Verification Documentation | 1 year support & updates | On Premise | CEGVADP1UM |

# EcoStruxure Control Engineering

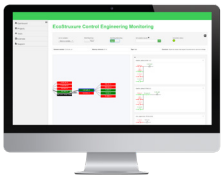
Software engineering techniques for your PLC and PAC applications for greater quality and productivity



*EcoStruxure Control Engineering - Converter*

## EcoStruxure Control Engineering - Converter

| Description | License type | License duration | Cloud/ On Premise | Reference |
|---|---|---|---|---|
| **EcoStruxure Control Engineering Converter - One Program Conversion** | Per program | Single conversion | Cloud or On Premise | CEGCNV1PRG |



*EcoStruxure Control Engineering - Monitoring*

## EcoStruxure Control Engineering - Monitoring

| Description | License type | License duration | Cloud/ On Premise | Reference |
|---|---|---|---|---|
| **EcoStruxure Control Engineering Monitoring - Basic Package 10 PLCs** | Basic package (10 PLCs) | Perpetual | On Premise | CEGMON10BA |
| **EcoStruxure Control Engineering Monitoring - Additional 5 PLCs** | Additional PLCs (+5 PLCs) | Perpetual | On Premise | CEGMON5ADD |
| **EcoStruxure Control Engineering Monitoring - Basic Package 10 PLCs 1-Year Update** | Basic package (10 PLCs) | 1 year support and updates | On Premise | CEGMON10BU |
| **EcoStruxure Control Engineering Monitoring - Additional 5 PLCs 1-Year Update** | Additional PLCs (+5 PLCs) | 1 year support and updates | On Premise | CEGMON5ADU |

## EcoStruxure Control Engineering - Virtual Machine

| Description | License type | License duration | Cloud/ On Premise | Reference |
|---|---|---|---|---|
| **EcoStruxure Control Engineering - Virtual Machine infrastructure for on premise/private server licenses** | - | Perpetual | On Premise | CEGVMA1PRS |

# EcoStruxure Control Engineering

Software engineering techniques for your PLC and PAC applications for greater quality and productivity

Product reference index

# mySchneider, your personalized digital experience

Access an all-in-one customized online experience and benefit from tailored business services, resources, and tools to efficiently support your business operations.

- **Efficiency:** In just a few clicks, find all the information and support you need to get the job done.
- **Simplicity:** Use a single login to access all business services, in one place, available 24/7. You no longer need to log in to multiple platforms.
- **Personalization:** Benefit from content, tools, and business services tailored to your activity, and customize your landing page based on your preferences.

## Watch the How-to Videos

### Order management

> Select Products and Add to Cart
> Check for Products' Price and Availability
> Order Products with Generic Commercial References

### Product information

> Find a Product Data Sheet and Related Documents
> Select Products and Add to Cart
> Stay Up to Date on the Status of My Products

### Support

> Get Quicker Answers Thanks to Online Support


### Training

> Access Trainings Dedicated to My Activity

Create your account

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Learn more about our products at
www.se.com/ecostruxure-control-engineering



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