



CODESYS Corporation

CODESYS® in the Energy Industry
IEC 61131-3 Software Suite for
controlling power, grid and renewables



CODESYS ENERGY



CODESYS HAS BEEN CONTRIBUTING TO THE FIELD OF ENERGY AUTOMATION FOR MANY YEARS

Energy is a fundamental part of everything people do. Electrical, hydraulic, and mechanical energy must be managed more reliable, sustainably, efficiently, and safely. It is crucial that we optimize energy and process efficiency through forward-looking control solutions for the sustainable development of our living spaces. After all, as society develops at a rapid pace, the demand for energy is also increasing rapidly.

North America features some of the world's richest wind, solar, geothermal, hydro and biomass resources. Today, solar and wind are expected to add more than 60% of utility-scale generating capacity to the U.S. power grid. The renewable energy industry powers more of the United States every day and is among the fastest-growing market.

CODESYS IEC 61131-3 Software Suite - perfectly suited for energy automation
CODESYS is an integral part of the energy industry. CODESYS meets all important requirements in the energy industry for the realization of cost-effective application solutions: fast data transmission, reliability, flexibility, and scalability.

The CODESYS Software Suite is used as an efficient solution for intelligent automation everywhere - from sustainable energy production in biogas plants, the control of district heating systems, intelligent energy saving systems to smart cities. More than 100,000 wind turbines are already powered with CODESYS Software.

IN THE INDUSTRY



CODESYS



THE LEADING SOFTWARE PLATFORM FOR IEC 61131-3 COMPLIANT PROJECT ENGINEERING

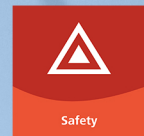
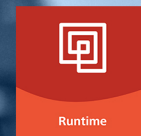
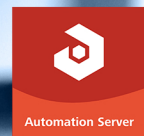
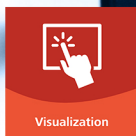
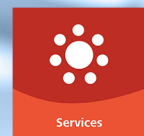
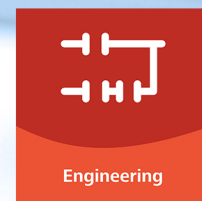
There are many reasons to choose CODESYS. It is a powerful manufacturer-independent IEC 61131-3 development environment with numerous user-friendly functions for the programming and configuration of automation projects.

The CODESYS Development System contains fully integrated backend functions, such as compilers, debuggers, a simulator and variable trace. Thus, control applications can be developed, tested and commissioned without any additional tools.

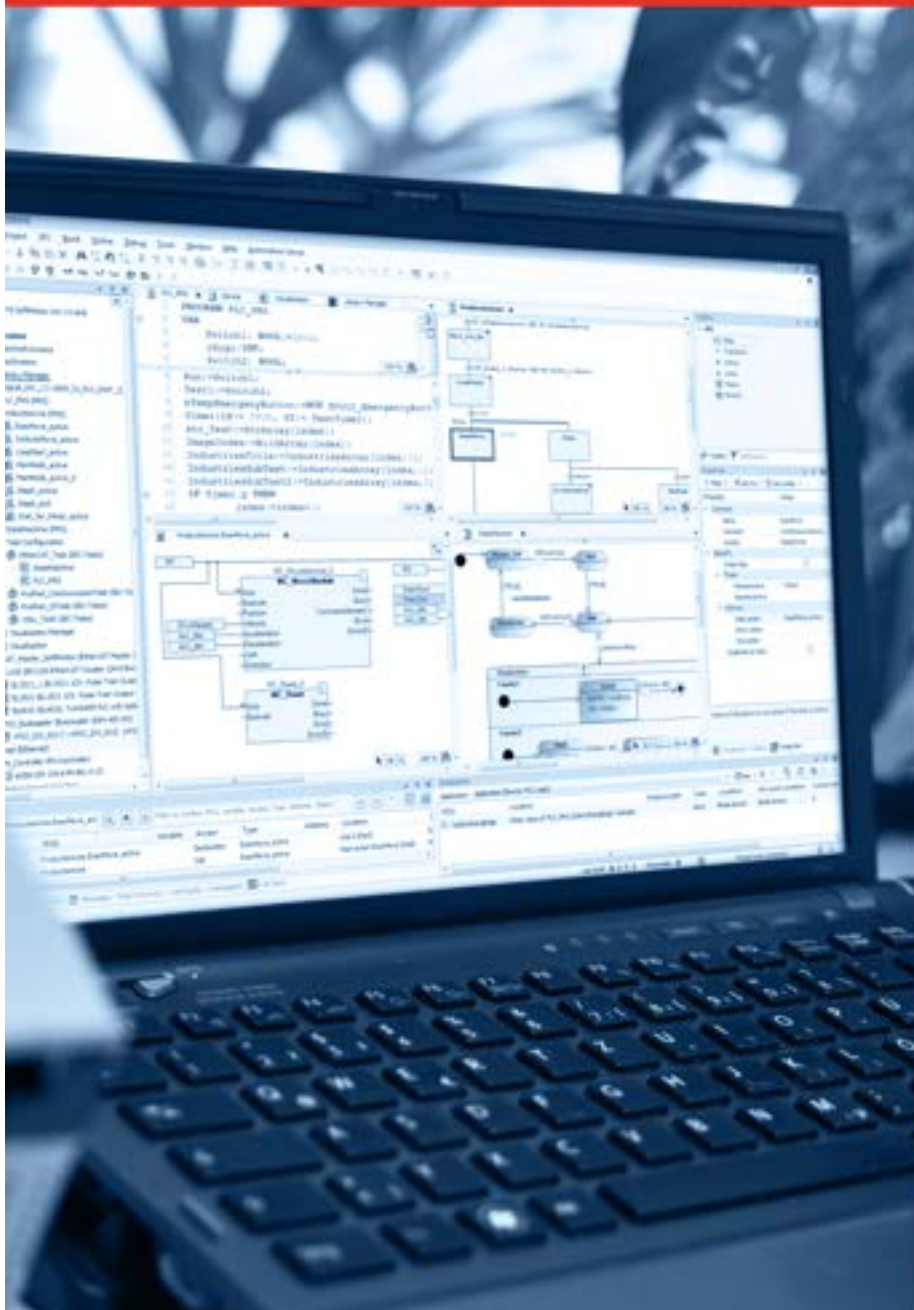
The latest version of CODESYS can be downloaded free of charge from our CODESYS North America Store: <https://us.store.codesys.com/>

The CODESYS Development System combines classic programming of controller applications with professional software development for Industry 4.0 / Industrial Internet of Things (IIoT).

More than 500 device manufacturers rely on CODESYS, in addition to about 100,000 end-users from a wide variety of industries: process, energy, factory, mobile, embedded



DEVELOPMENT SYSTEM



and building automation. This makes CODESYS the most used manufacturer-independent development environment employed around the world in millions of machines and plants.

All components for process automation applications are integrated directly in CODESYS, including editors for all IEC 61131-3 compliant implementation languages, compilers for native machine codes, a powerful debugger, and a clear project configuration. Add-ons can further supplement these components for efficient application development.

The engineering platform is the basis of the CODESYS product families such as visualization, motion control, fieldbus configuration, and safety programming.

ADVANTAGES SOFTWARE

CODESYS meets all important requirements in the energy industry for the realization of cost-effective application solutions: fast data transmission, reliability, flexibility, and scalability.

CODESYS IS A MANUFACTURER-INDEPENDENT COMPREHENSIVE AND FLEXIBLE SYSTEM.

All components for energy automation applications are integrated directly in CODESYS, including editors for all IEC 61131-3 compliant implementation languages (6), compilers for native machine codes, a powerful debugger, and a clear project configuration. Add-ons can further supplement these components for efficient application development.

CODESYS CONTROLS MORE THAN 100,000 WIND TURBINES.

The Telecontrol Package with the IEC 60870-5-104 server can be downloaded in the CODESYS North America Store (<https://us.store.codesys.com>).

CODESYS REAL-TIME IS CHARACTERIZED BY A PREDICTABLE (DETERMINISTIC) TIME BEHAVIOUR OF A MICROSECONDS JITTER.

If a real-time system sets the task (by configuration) to execute certain routines with a predefined timeframe, in CODESYS this happens down to a hundred microseconds cycle time.

THE OPTION TO USE OBJECT ORIENTED PROGRAMMING (OOP) DESIGNS

This facilitates modular and highly reusable code for control applications and significantly reduce development and maintenance time.

CODESYS SUITE



INTEGRATED SAFETY (DIN 61508) AND REDUNDANCY

The integrated safety (DIN 61508) and the redundancy functions in CODESYS are ideal for high availability and safety-critical applications.

DEVELOPMENT SUPPORT AND TOOLS

For efficient developments and diagnostics CODESYS has integrated analysis tests, simulations, and offline tests.

HIGHEST POSSIBLE FLEXIBILITY

Programmers benefit from the simultaneous use of six common programming languages (ST, SFC, LD, FBD, CFC, IL) and the possibility to integrate C or Python.

AVAILABILITY OF A WIDE RANGE OF TOOLS

CODESYS includes efficient configuration, commissioning, and debugging tools to assist end-users throughout the development of their projects.

ONLINE CHANGES

Engineers are provided with extensive runtime diagnostics information and can safely update the application without stopping it - securely from all over the world.

AUTOMATION

The Industry 4.0 platform for

WHAT DOES THE FUTURE OF AUTOMATION LOOKS LIKE?

New technologies offer enormous advantages for a connected automation world. Never it has been easier to manage and maintain globally distributed control devices so quickly and comprehensively.

As the possibilities increase, so do the requirements. Whether we operate machines and plants, develop automation solutions, or manufacture control technology, the CODESYS AUTOMATION SERVER meets already requirements of tomorrows automation. As a future-oriented Industry 4.0 platform, the CODESYS AUTOMATION SERVER offers indispensable advantages for the automation of tomorrow:

- industry-independent use through individual configuration options
- clear separation of IT and OT networks thanks to the CODESYS EDGE GATEWAY
- convenient and device-independent operation via browser
- set-up and connections of devices and projects in only a few minutes
- perfect compatibility with other CODESYS products



SERVER

- Device management
- Remote HMI
- Data analysis

THE CODESYS AUTOMATION SERVER MEETS THESE REQUIREMENTS:

- Keeping track of a large number of devices in the field
- Securely accessing devices in use anytime and from anywhere
- Developing automation projects in distributed teams
- Managing access levels and users authorizations
- Collect, display, and analyze data
- Highest security standards
- Data privacy



AUTOMATION BY



CODESYS SETS NEW STANDARDS FOR THE FUTURE OF THE INDUSTRY: CODESYS VIRTUAL PLC

CODESYS is the global market leader of manufacturer-independent IEC 61131-3 automation software with over 5 million device licenses sold worldwide. More than 500 control system manufacturers and tens of thousands of companies worldwide use CODESYS products.

CODESYS has been offering hardware-independent Soft PLCs for over 20 years and continuously we have been expanding our products. CODESYS provides hardware-independent Soft PLCs with and without real-time for Windows, as well as Soft PLC solutions for Linux X86 and ARM-based systems. All that is needed is to purchase the hardware, go to the CODESYS North America Store (<https://us.store.codesys.com/>) and download the appropriate CODESYS Control Soft PLC to the device.

CODESYS Virtual PLC has no hardware requirements

The CODESYS Virtual PLC goes one step further here. It allows users to run the CODESYS Soft PLC in a virtual environment without the need for a device. Instead, the device gets replaced by containers and hypervisor technologies.

The CODESYS Virtual PLC can be installed multiple times on a device and has no hardware requirements. It is connected to the Automation World via virtual LAN. CODESYS is currently delivering CODESYS controllers in Docker containers to pilot customers.

POWERED CODESYS

ADVANTAGES

A significant reduction in costs and procurement:

- Wiring
- Maintenance
- Rolling out applications and device administration

The control cabinet is no longer occupied by one or more controls.

Power supply units and their wiring are no longer necessary.

OT and IT merge completely
Instead of procuring and installing several controllers, it is enough to load an available IT platform in the network with virtual controllers and to manage them centrally - performed by IT specialists instead of automation specialists.



CODESYS Corporation

CODESYS Corporation

200 Cummings Center | Suite 272-D

Beverly, MA 01915 | USA

+1 978 473 7600

NorthAmerica@CODESYS.com

US.Store.CODESYS.com

CODESYS.US
CODESYS Corporation, a member of the CODESYS Group



CODESYS Group | We *software* Automation.