# Application-based licenses

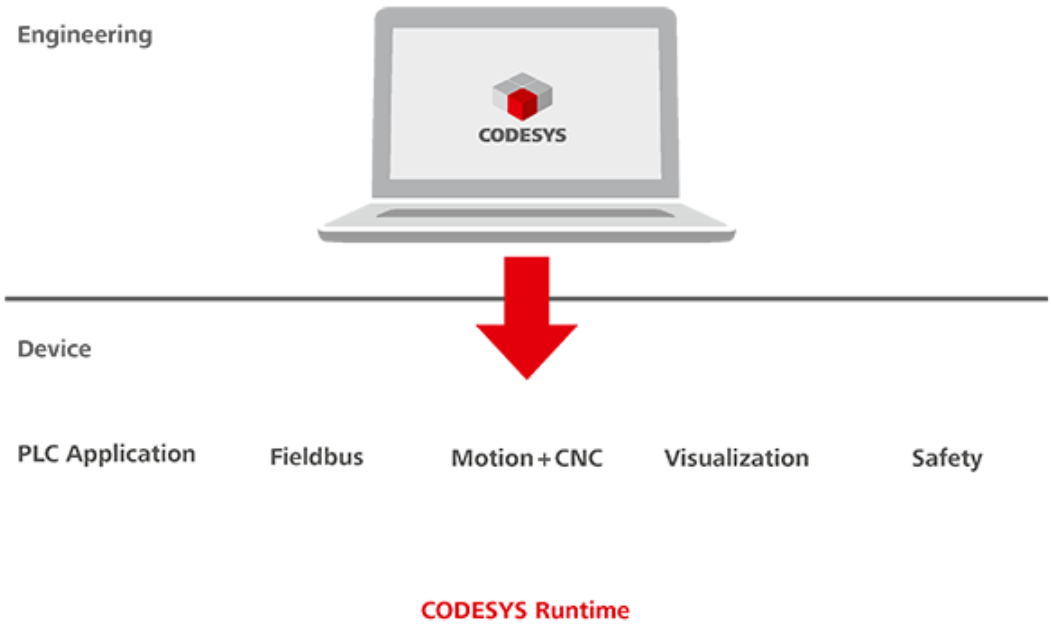
The application-based licenses are valid for all CODESYS Control SL products. They are based on the software function used and no longer on the performance of the device. This means that the licenses can be used on all CODESYS Control SL-capable devices.

## Product description

## CODESYS Control SL - the CODESYS runtime system

In order to program or configure a device according to IEC 61131-3 with CODESYS, the appropriate software is required: the SoftPLC runtime system CODESYS Control SL.

It turns any embedded or PC-based device into an IEC 61131-3 compliant industrial controller. Furthermore, this runtime system includes important additional functionalities so that the controller can communicate with other devices in the automation environment.



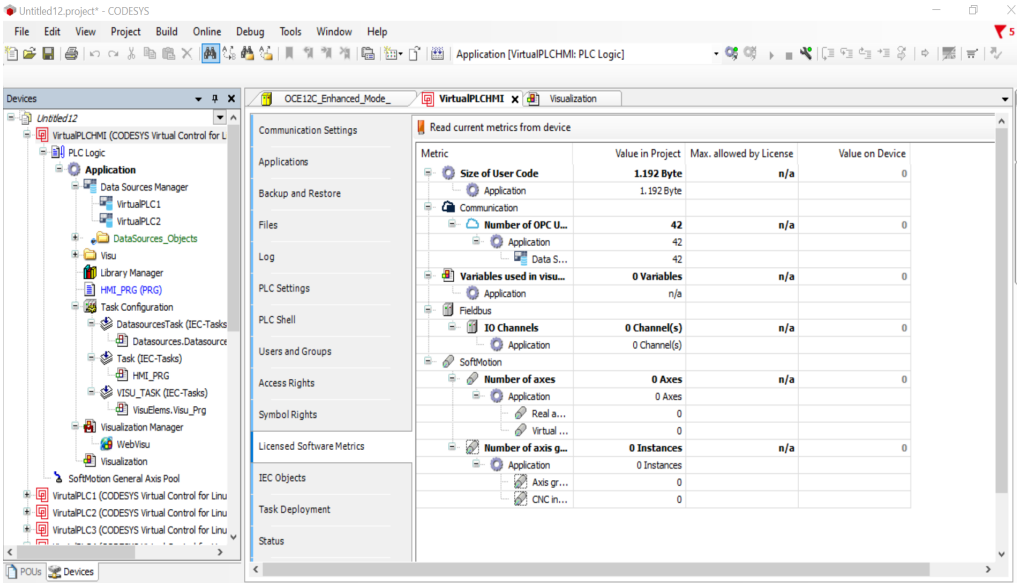

https://de.codesys.com/produkte/codesys-runtime.html

## Division into performance classes

The function of a PLC is mainly determined by the software, whereas the hardware is responsible for providing the required resources. Therefore, the application-based licenses are no longer based on the hardware but are defined by the software used in the IEC application.

For this purpose, all applications are divided into different performance classes based on suitable characteristics which in turn cover the requirements of certain use cases. The boundaries of a class are derived from the use cases.

The size-related metrics are displayed in a special dialog:



## Criteria for functional controllers

| Criterion | Description |
|---|---|
| *Code size* | The code size is a decisive criterion when it comes to evaluating the used functionality. The larger and more complex the logic, the higher the performance class required. The following applies:<br>• The size of the generated binary code is measured. As this is system-dependent it can differ from system to system.<br>• Implicitly generated code from CODESYS is not counted.<br>• Code from CODESYS libraries (e.g. motion and visualizations) is not included either.<br>Please note: The code size to be licensed is displayed in the “License Metrics” dialog. The code size that is displayed after the compile operation contains all the executable code and is not a criterion for licensing. |
| *Number of input and output channels* | The I/O channels with basic type, e.g. a digital input or a meta data channel, are counted. Structured channels are broken down to their basic types. Only channels which are used are included in the count.<br>Attention: By using the function “Update all I/O channels” every I/O channel becomes a used channel and is then also counted for licensing. |
| *Number of fieldbus instances* | Each performance class also includes a defined number of fieldbuses. Within the fieldbuses there are two fieldbus groups:<br>• the fieldbuses Modbus/TCP, Modbus/RTU and CANopen<br>• the Ethernet-based fieldbuses EtherCAT (ECAT), Profinet (PN) and Ethernet/IP (EIP)<br>Please note: Each group contains the master and the slave implementation of the fieldbus. All fieldbuses not mentioned can be purchased additionally. |
| *Reloadable C code* | ANSI-C code can be compiled with the “Extension SL Package” and the toolchain matching the system and loaded into the runtime system using a CODESYS library. |
| *Multi core in the application* | With the CODESYS Multi core feature, a user can firmly assign IEC tasks to specific cores in order to optimize the real-time behavior. Without the Multi core feature in CODESYS, systems with multiple tasks can also be operated, only the function of firmly assigned IEC tasks is then not available. |
| *DataSource Manager* | The DataSource Manager enables the simple exchange of variables between two CODESYS IEC applications. CODESYS offers three communication protocols:<br>• proprietary symbolic access<br>• applicative monitoring |

| | |
|---|---|
| | • OPC UA |
| *Number of Visu Tags* | Number of variables used in the CODESYS visualization. |
| *Number of Communication Tags* | Number of tags in the Symbol Configuration, Communication Manager and Datasource Manager. The basic types of the tags are counted. Structures are broken down to tags with basic type. Arrays with basic types are counted completely. Arrays with structures are counted like one single structure. |
| *Number of motion axes* | Number of axes, physical and virtual are counted and licensed separately (with 4 licensed axes, 4 physical and 4 virtual axes can be used). |
| *Number of multi axis interpolators* | Number of robotic axis groups and CNC interpolators. |

## Development, test, commissioning and trial operation

### Development and test license

A controller can be equipped with a time-limited development and test license. This license is not functionally restricted and can be used for the following use cases:

- Developing an application without having to restart it after the trial time has expired.
- Testing of an application for a longer period of time than the trial time.
- Emergency license in case an installation exceeds a limit due to an update.

Development and test licenses will be available soon!

### Trial Operation

A controller without a license runs for 2 hours in trial mode. After that, the runtime system is terminated and must be restarted. Functionally, trial operation is not restricted. Unlicensed functions have a shorter trial runtime (e.g. fieldbuses run for 30 minutes).

### License check

If an application-based license is available on the controller, all criteria are checked against the limit specified in the license. If a criterion exceeds the defined limit, a download of the application or the loading of the boot application is prevented. The system does not switch to trial mode.

This prevents live applications from falling back into a time-limited trial mode.

### Upgrade licenses

Each performance class (Runtime, Visualization, Communication, Motion) offers upgrade licenses that allow switching from a smaller license to any higher license. A change from a larger license to a smaller license is not supported.

### Restriction with other store products

Application-based licenses can be combined with other store products, unless explicitly excluded. The I/O channels of additionally purchased fieldbuses are taken into account in the I/O channels license metric and are also counted.

## Performance classes Runtime

The following performance classes are available for the individual Control SL products.

| Performance class Runtime | Performance class | |
|---|---|---|
| *Basic S* | *Code size* | 512 kB |
| | *Number of input and output channels* | 64 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager |
| *Basic M* | *Code size* | 1024 kB (1 MB) |
| | *Number of input and output channels* | 128 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 2 CANopen, Modbus, Profibus or J1939 instances |
| *Basic L* | *Code size* | 3072 kB (3 MB) |
| | *Number of input and output channels* | 256 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 2 CANopen, Modbus, Profibus or J1939 instances |
| *Standard S* | *Code size* | 3072 kB (3 MB) |
| | *Number of input and output channels* | 512 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 4 CANopen, Modbus, Profibus or J1939 instances<br>• 1 ECAT/PN/EIP instance<br>• Dynamic C-Code |
| *Standard M* | *Code size* | 5120 kB (5 MB) |
| | | 1024 |

| | | |
|---|---|---|
| | *Number of input and output channels* | |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 8 CANopen, Modbus, Profibus or J1939 instances<br>• 1 ECAT/PN/EIP instance<br>• Dynamic C Code |
| *Standard L* | *Code size* | 6144 kB (6 MB) |
| | *Number of input and output channels* | 4096 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 10 CANopen, Modbus, Profibus or J1939 instances<br>• 2 ECAT/PN/EIP-instances<br>• Dynamic C Code<br>• Core assignment of IEC task groups |
| *Performance M* | *Code size* | 12288 kB (12 MB) |
| | *Number of input and output channels* | 8192 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager<br>• 12 CANopen, Modbus, Profibus or J1939 instances<br>• 4 ECAT/PN/EIP instances<br>• Dynamic C Code<br>• Core assignment of IEC task groups |
| *Performance L* | *Code size* | 18432 kB (18 MB) |
| | *Number of input and output channels* | 16384 |
| | Additional functions | • local I/Os<br>• Visu S<br>• Communication S<br>• DataSource Manager |

- 16 CANopen, Modbus, Profibus or J1939 instances
- 8 ECAT/PN/EIP-instances
- Dynamic C Code
- Core assignment of IEC task groups

## Performance class Visualization

The following visualization performance classes are available for the Control SL products.

| Performance class Visualization | Features | |
|---|---|---|
| *Visu S* | *Number Tags* | 128 |
| | Additional functions | • Web visualization<br>• Target visualization |
| *Visu M* | *Number Tags* | 2048 |
| | Additional functions | • Web visualization<br>• Target visualization |
| *Visu L* | *Number Tags* | 4096 |
| | Additional functions | • Web visualization<br>• Target visualization |
| *Visu XL* | *Number Tags* | 8192 |
| | Additional functions | • Web visualization<br>• Target visualization |
| *Visu XXL* | *Number Tags* | unlimited |
| | Additional functions | • Web visualization<br>• Target visualization |

**Note**
The number of Visu Tags refers to all tags used in a web or target visualization.

**Note**
The license includes both the target visualization and the web visualization. To use the target visualization, the device must support this feature.

**Note**
There is no stand-alone HMI product. It is replaced by a runtime system plus a Visu XL license.

## Performance classes Communication

The following performance classes are available for the Control SL products. The licenses always include server and client.

| Performance class Communication | Features | |
|---|---|---|
| *Communication S* | *Number Tags* | 512 |
| | Additional functions | • OPC UA Method calls<br>• OPC UA Information models |
| *Communication M* | *Number Tags* | 4096 |
| | Additional functions | • OPC UA Method calls<br>• OPC UA Information models |
| *Communication XXL* | *Number Tags* | unlimited |
| | Additional functions | • OPC UA Method calls<br>• OPC UA Information models |

## Performance classes Soft Motion

The following performance classes are available for the Control SL products.

| Performance class Soft Motion | Features | |
|---|---|---|
| *SoftMotion Axes (4)* | *Number of axes* | 4 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axes (8)* | *Number of axes* | 8 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axes (16)* | *Number of axes* | 16 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axes (32)* | *Number of axes* | 32 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axes (48)* | *Number of axes* | 48 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axes (64)* | *Number of axes* | 64 |
| | Additional functions | • PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (1)* | *Number of multi axis interpolators* | 1 |
| | Additional functions | • Soft Motion Basic included<br>• PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (2)* | *Number of multi axis interpolators* | 2 |
| | Additional functions | • Soft Motion Basic included<br>• PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (3)* | *Number of multi axis interpolators* | 3 |
| | Additional functions | • Soft Motion Basic included<br>• PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (4)* | *Number of multi axis interpolators* | 4 |
| | Additional functions | • Soft Motion Basic included<br>• PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (5)* | *Number of multi axis interpolators* | 5 |
| | Additional functions | |

| | | |
|---|---|---|
| | | • Soft Motion Basic included<br>• PLCopen Motion FBs |
| *SoftMotion Axis Groups/CNC (6)* | *Number of multi axis interpolators* | 6 |
| | Additional functions | • Soft Motion Basic included<br>• PLCopen Motion FBs |

## Licensing

Licensing is always done with a CODESYS single license. Licensing via the “3s.dat” is not possible. Since modern control devices are able to execute several runtime system kernels independently of each other on a device thanks to container technology, the single license always refers to a CODESYS runtime system execution kernel. Thus, if the runtime system is executed multiple times on a device, each execution core requires its own license.

Licensing is always done with a CODESYS single licence, one licence per runtime system instance. If several runtime system instances are executed on a virtualised device, several CODESYS single licences are required. Licensing via the “3s.dat” is not possible.

Single Device License

## General information

**Supplier:**

CODESYS GmbH
Memminger Strasse 151
87439 Kempten
Germany

**Support:**

Technical support is not included with this product. To receive technical support, please purchase a CODESYS Support Ticket.

https://support.codesys.com

**Item:**

Application Based Licences for CODESYS Control SL

**Item number:**

2302000047 for **CODESYS Control Basic S**
2302000048 for **CODESYS Control Basic M**
2302000049 for **CODESYS Control Basic L**
2302000050 for **CODESYS Control Standard S**
2302000051 for **CODESYS Control Standard M**
2302000052 for **CODESYS Control Standard L**
2302000053 for **CODESYS Control Performance M**
2302000054 for **CODESYS Control Performance L**

2304000011 for **CODESYS Visu M**
2304000012 for **CODESYS Visu L**
2304000013 for **CODESYS Visu XL**
2304000014 for **CODESYS Visu XXL**

2302000057 for **CODESYS Communication M**
2302000055 for **CODESYS Communication XXL**

2305000009 for **CODESYS Control SoftMotion Axes (4)**
2305000010 for **CODESYS Control SoftMotion Axes (8)**
2305000011 for **CODESYS Control SoftMotion Axes (16)**
2305000012 for **CODESYS Control SoftMotion Axes (32)**
2305000013 for **CODESYS Control SoftMotion Axes (48)**
2305000014 for **CODESYS Control SoftMotion Axes (64)**
2305000015 for **CODESYS Control SoftMotion Axis Groups/CNC (1)**
2305000016 for **CODESYS Control SoftMotion Axis Groups/CNC (2)**
2305000017 for **CODESYS Control SoftMotion Axis Groups/CNC (3)**
2305000018 for **CODESYS Control SoftMotion Axis Groups/CNC (4)**

2305000019 for **CODESYS Control SoftMotion Axis Groups/CNC (5)**
2305000020 for **CODESYS Control SoftMotion Axis Groups/CNC (6)**

**Sales/Source of supply:**

CODESYS Store
https://store.codesys.com

**Included in delivery:**

License key for CODESYS Control SL products

## System requirements and restrictions

| | |
|---|---|
| **Programming System** | CODESYS Development System Version 3.5.19.10 or higher |
| **Runtime System** | Control SL V4.9.0.0 or higher (build on runtime system SDK V3.5.19.10) |
| **Supported Platforms / Devices** | • CODESYS Control Win SL<br>• CODESYS Control for emPC-AiMX6 SL<br>• CODESYS Control for BeagleBone SL<br>• CODESYS Control for emPC-AiMX6 MC SL<br>• CODESYS Control for IOT2000 SL<br>• CODESYS Control for Linux ARM SL<br>• CODESYS Control for Linux SL<br>• CODESYS Control for PFC100 SL<br>• CODESYS Control for PFC200 SL<br>• CODESYS Control for PLCnext SL<br>• CODESYS Control for Raspberry Pi MC SL<br>• CODESYS Control for WAGO Touch Panels 600 SL |
| **Runtime System Updates** | This product additionally includes a three-year update authorization of the Runtime System. The three-year period starts with the activation of the Runtime System License. The update authorization can be extended at any time. |
| **Additional Requirements** | - |
| **Restrictions** | • DataSource Manager is not supported on Linux-based systems.<br>• Dynamic C code is currently only supported on Linux-based systems.<br>• Not released for use in containers or virtual machines (VMs)! |
| **Licensing** |  <br>Single device license: The license can be used on the target device/PLC on which the CODESYS runtime system is installed.<br>Licenses are activated on a software-based license container (soft container), which is permanently connected to the controller. Alternatively, the license can be stored on a CODESYS Key (USB dongle). By replugging the CODESYS Key, the license can be used on any other controller.<br>Note: In demo mode, the software runs for two hours without a license. After that, a manual restart is required. |

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|---|---|
| **Required Accessories** | Optional CODESYS Key Version 3-xxxxxx (version 2-xxxxxx is not supported) |

*Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.*

Creation date: 2024-03-05