# CODESYS Control Basic M

The application-based CODESYS Control **Basic M** license is specially designed for applications with up to **two CANopen, Modbus or J1939** fieldbus instances. It contains **128 I/O channels** and can be used on all Control SL products without restrictions.

## Product description

The new application-based licenses are completely independent of the hardware used and can be used across all products. They thus offer maximum flexibility in the choice of devices. Another advantage is the scaling of the licenses via metrics of the application. So you only pay for exactly as much CODESYS as you use.

**One license! From small embedded devices to large IPC solutions, always a perfect fit!**

## License Control Basic M

Overview of application metrics for determining the appropriate license:

| Metric | Basic S | Basic M | Basic L |
|---|---|---|---|
| Fieldbus instances | 0 | **2** | 2 |
| Complex fieldbus instances | 0 | **1** | 1 |
| thereof host instances | 0 | **0** | 0 |
| thereof field device instances | 0 | **1** | 1 |
| Number of I/O channels | 64 | **128** | 256 |
| Visualization | Visu S | **Visu S** | Visu S |
| Communication | Communication S | **Communication S** | Communication S |
| DataSource Manager | Yes | **Yes** | Yes |
| Dynamic C code | No | **No** | No |
| Core assignment of IEC task groups | No | **No** | No |

Fieldbus instances comprise CANopen, Modbus TCP, Modbus serial, PROFIBUS and J1939. Complex fieldbus instances comprise EtherCAT, PROFINET and EtherNet/IP. Host and field device instances share a common budget; their sum may not exceed the number of complex fieldbus instances.

For more information about the performance classes and the license metrics, please refer to the document “CODESYS Control Application Based Licenses_en” linked below.

## Additional products to the license

### CODESYS Communication

CODESYS Communication S: License to use the symbol configuration, the communication manager and the data source manager with up to 512 tags
CODESYS Communication M: License to use the symbol configuration, the communication manager and the data source manager with up to 4096 tags
CODESYS Communication XXL: License to use the symbol configuration, the communication manager and the data source manager with unlimited number of tags

### CODESYS Visualization

CODESYS Visualization S: License for target and web visualization with up to 128 tags
CODESYS Visualization M: License for target and web visualization with up to 2048 tags
CODESYS Visualization L: License for target and web visualization with up to 4096 tags
CODESYS Visualization XL: License for target and web visualization with up to 8192 tags
CODESYS Visualization XXL: License for target and web visualization with up to unlimited number of tags

## Description of properties

A detailed description of the properties listed above can be found in the “CODESYS Control Application-Based Licenses” data sheet.

### Trial Operation

A controller without a license runs for 2 hours in trial mode.

### 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 only be supplemented by feature licenses for functions that are not represented by any license metric (for example CODESYS BACnet SL). Functions that are already covered by a metric cannot be added through a separate license. In particular, the complex fieldbuses EtherCAT, PROFINET and EtherNet/IP are part of the metrics, so a dedicated license for them (e.g. CODESYS EtherCAT SL) cannot be combined with an application-based license. The I/O channels of additionally purchased fieldbuses are taken into account in the I/O channels license metric and are also counted.

## How do I find the right license?

Answer the following questions to find the right runtime system license for your application.

1. Which fieldbus is needed? How many fieldbus master?
2. How many input and output channels are needed in the application?
3. Do you plan to implement additional functions and logics?
4. Do you want to assign tasks or task groups to specific cores to achieve higher performance or optimized realtime behavior?

**Case study 1: Porting an existing application**

The PLC of an existing plant is to be modernized. Over the years, own libraries have been which are also to be used on the new PLC. The sensors and actuators of the plant are connected via two CANopen master, but EtherCAT is to be used in future models. In total the plant has about 200 digital E-A signals

- 2 CANopen master: at least license Basic M
- Option: One EtherCAT master: at least license Standard S
- 200 I/O channels: at least license Basic L
- Real-time behavior: In the range of 4-10 ms

-> License CODESYS Control Basic L is required per device. -> Option with EtherCAT master: License CODESYS Control Standard S is required per device.

**Case study 2: Standard application with EtherCAT**

A new application for a machine with EtherCAT is to be developed. In addition a connection to the cloud for data analysis via MQTT is to be implemented. The machine has about 800 E-A signals. Since the PLC has to command simple drives, the real-time behavior of the bus task is very important. Additionally an existing C-code library shall be connected and a small web visualization for commissioning should be developed.

- One EtherCat master: at least license standard S
- 800 E-A channels: at least license standard M
- Separation of the bus task on its own core : at least standard L
- Connection C code: Dynamic C code included in Standard L.
- MQTT protocol: CODESYS IIoT Libraries SL license required

-> The CODESYS Control Standard L and CODESYS IIoT Libraries SL licenses are required per device.

**Case study 3: Supervisor PLC with Profinet**

A PLC monitors a production line in a plant. The application is to collect the data via a Profinet network, process it and and control the individual plant components. In addition, an HMI based on web technology is needed to maintain the plant. Lastly, production data must be transmitted via MQTT for higher-level data analysis.

- One Profinet master: at least license standard S
- 1,500 E-A channels: at least license standard L

- HMI for maintenance: at least CODESYS Visualization M
- Use of MQTT: CODESYS IIoT Libraries SL license is required.

-> CODESYS Control Standard L, CODESYS Visualization M and CODESYS IIoT Libraries SL licenses are required per device.

**Case study 4: Application with 2D portal and a four-axis SCARA robot**

A PLC is to control a 2D portal and a SCARA robot with 4 axes via EtherCAT, as well as an additional 2 drives for a conveyor belt and a rotary table. Further functions are not planned.

- One EtherCAT master: at least license standard S
- 200 I/O channels: License Standard S is sufficient
- Increased real-time requirement: at least Standard L to use multi-core functionality.
- Control of 8 axes in total: SoftMotion Axis (8) license for 8 axes
- Control of 2D portal and SCARA robot: SoftMotion Axis Groups/CNC Interpolators (2) for 2 axis groups

-> CODESYS Control Standard L, CODESYS SoftMotion Axis (8) and CODESYS SoftMotion Axis Groups/CNC Interpolators (2) licenses are required.

## 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:**

CODESYS Control Basic M License

**Item number:**

2302000048

**Sales/Source of supply:**

CODESYS Store
https://store.codesys.com

**Included in delivery:**

CODESYS Control SL License key

## 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 Virtual Control SL<br>• CODESYS Control for PFC100 SL<br>• CODESYS Control for PFC200 SL<br>• CODESYS Control for PLCnext SL |

| | |
|---|---|
| | • CODESYS Control for Raspberry Pi MC SL<br>• CODESYS Control for WAGO Touch Panels 600 SL |
| **Updates** | This product also includes a five-year update entitlement. The five years begin with the activation of the runtime system license. |
| **Additional Requirements** | - |
| **Restrictions** | • Symbolic data source objects are 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. |
| **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.*

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