

# Automation Software

## Sysmac Studio



Minimize time to market  
Reduce installation cost  
Boost productivity





# Sysmac Studio

Your Automation  
Companion

In changing market the customization and multiple variations of a machine or concept make the difference between success and failure. The task of designing, commissioning and maintaining machines is shifting from single person task to decentralized teams requiring coordination. A **proper version control system** is essential in order to keep control of all project changes and product variations.

# Integrated Development Environment

Sysmac Studio is the Integrated Development Environment designed to be your automation companion for your machine's or system's entire lifecycle.

Future automation systems will be more intelligent and interconnected, consequently engineering and maintenance costs will increase unless modern and appropriate software tools are used during the design, commissioning and maintenance stages. Sysmac Studio is a unique environment that integrates logic, motion and drives, robotics, safety, visualization, sensing and information technologies in a single project, thus reducing the learning curve and the intra-operative software costs. Team working, and integrated simulation are the key elements that make Sysmac Studio not only a development studio but a real productivity tool. One software to get things done.

## DESIGN



### Minimize time to market

Engineering time and costs are penalizing during the design stage. The integration of multiple disciplines and efficient team cooperation will dramatically contribute to reducing the time to market.

## COMMISSIONING



### Reduce installation costs

Using the right software tools will certainly minimize commissioning mistakes as well as costs. Get things done in shorter time.

## PRODUCTION



### Boost Productivity

Vertical integration of Overall Equipment Effectiveness data and easy maintenance is essential in improving production results and machine uptime.





## DESIGN

Systems are evolving into more modular designs where hardware and code become components that can be easily incorporated and maintained.



### Minimize time to market

#### One software to integrate

- Sysmac Studio integrates logic control, safety, motion & drives, robotics, HMI, I/Os, Vision, advanced sensing and information systems in a single environment. It saves time and money by reducing learning curve and software integration efforts.
- Sysmac Studio is a powerful development environment that aims to be flexible enough.

#### Work as a team

- Coordinated development in large decentralized teams is possible. Sysmac Studio integrates a unique graphic interface with a GIT version control system. Take full control of your code and variations and take advantage of the most popular version control software (GIT) and its possibilities for team working, not only during the design phase but also the commissioning and operation phases.

#### Simulation

- Use only the Sysmac Studio with loaded 3D CAD data\*1 for 3D simulations. Operation of a control program created during machine development can be verified in a virtual environment. This improves program accuracy during design, reducing rework at verification using physical devices and saving development time.
- Simulations can be used to test feasibility during process design or to share the same understanding between mechanical and electrical designers during operation design, improving design quality and engineering efficiency.

For more information, see the video : [www.fa.omron.co.jp/3d-simulation\\_e](http://www.fa.omron.co.jp/3d-simulation_e)



#### Modular design

- Sysmac Studio library system, Intelligent Application Gadgets (HMI faceplates), and Flexible EtherCAT configurations are some of the included features.

#### Software linkage

- PLC open XML (IEC 61131-10) allows data exchange between other software and PLC programs.



## COMMISSIONING

## PRODUCTION



### Reduce installation costs

#### Integrated commissioning tools

- The most advanced commissioning tools are embedded in Sysmac Studio: Drive tools with advanced but easy tuning algorithms, back-up and restore functions, distributed teamwork support and version control, high resolution monitor trends, visual CAM table editor, Network configuration, etc..

#### Sysmac troubleshooter

- Sysmac Studio troubleshooter handles not only Sysmac Controller but complete Sysmac device troubleshooting in a single reporting system. Commissioning time is dramatically reduced as any Controller, Network, or Slave problem will be detected with all suitable information available for you to control.

#### Multiple configurations

- Sysmac Studio implements derived devices that allow it to handle multiple EtherCAT configurations in the same project.

#### Multi-user

- Sysmac Studio supports GIT as a distributed version control system which will allow commissioning teams to easily synchronize and keep versions updated.
- Different co-workers, and even subcontractors can work in parallel during the commissioning stage, thus reducing development time and costs.



### Boost Productivity

#### Information systems

- In the era of The Internet of Things, information and automation systems converge. Sysmac Studio allows you to handle OEE data by means of vertical and horizontal integration following open standards like OPC-UA, EtherNet/IP, EtherCAT or PackML Direct.

#### Improve machine uptime

- Database connection is easily achieved by the SQL FB Library.
- Advanced troubleshooter function and dedicated predictive maintenance significantly improve machine uptime and machine availability.

#### Open Standards

- Sysmac aims to be an open system and Sysmac Studio supports the most popular automation standards and trends: IEC 61131-3 programming, IEC 61131-10, PLCopen, SECS-GEM, OPC-UA, EtherNet/IP, EtherCAT, SQL, FTP, GIT, etc. and is always able to be aligned with the latest technologies.

#### Convert complex into simple

- Sysmac Studio is a powerful engineering tool, but aims to maintain a friendly and easy to use interface. Reduce your maintenance teams' learning curve, and convert complex tasks into simple ones.



# One software to get things done...

Sysmac Studio is one of the most featured automation IDEs and allows handle the complete machine including: Information handling, Visualization, Networking, Logic, Motion, Safety, Vision, Robotics, CNC and I/O. One intuitive IDE contains all the necessary elements to program, commission and maintain Sysmac applications. Sysmac Studio editors are designed to be user-friendly, like traditional "PLC" software.

- ✓ **One project** to integrate all Sysmac Devices.
- ✓ **One intuitive** and fully featured IDE.
- ✓ **One software** to transform complex into simple.
- ✓ **Open standards**
- ✓ Linkage to **third-party software**



**Logic**

- Extended lineup to suit your applications
- Reuse your developed code
- Protect your investment and assets

SCALABILITY

Extended Lineup





# Sysmac Studio at a glance



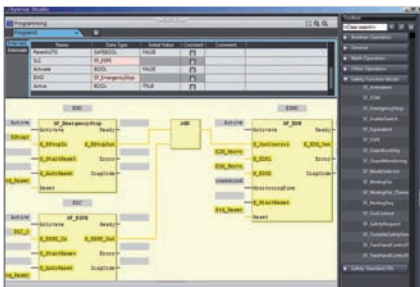
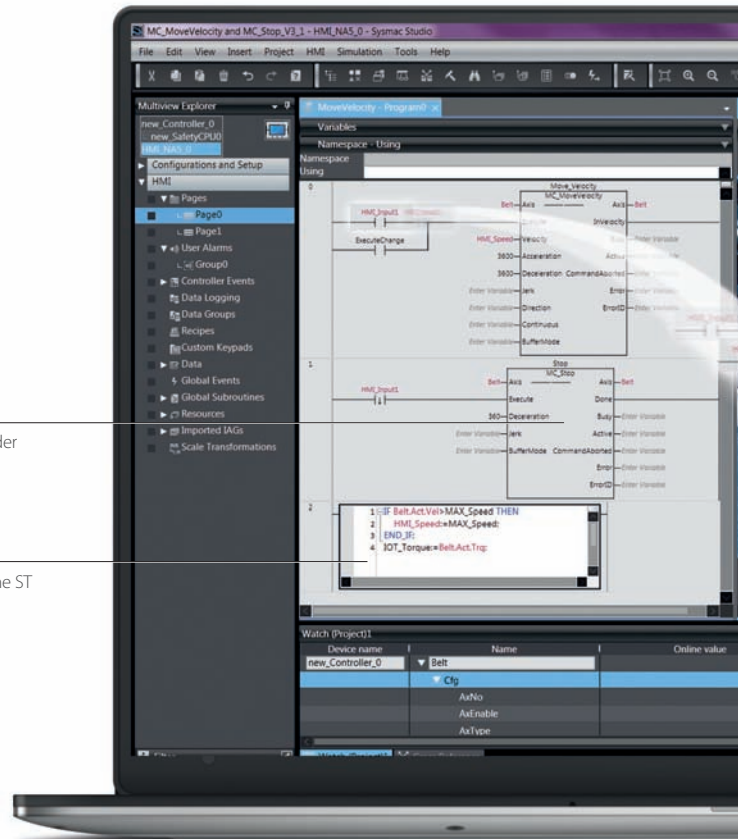
Rich CAM editor

## MOTION PROGRAMMING

- More than **50 PLCopen and Property Motion FB's** available in controller to develop single, synchronous and coordinated motion applications.
- **Rich graphic cam editor** including multiple interpolation methods as standard.
- All the necessary **drive tools** for drive maintenance and commissioning as standard: single and multi axis tuning, mechanical analysis, parameter handing, etc.

Ladder

InLine ST

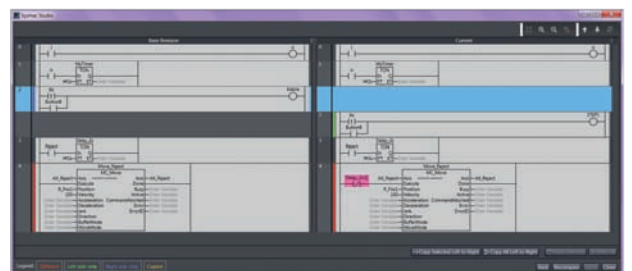


## INTEGRATED SAFETY

- Dedicated FBD diagram and GUI interfaces are designed in order to **help commissioning and programming.**
- **Mapping hardware** variables and sharing EtherCAT variables between the Safety Control System and the Standard Controller is easy in the Sysmac Studio environment.
- All the necessary **printable reports** are generated from the Studio.

## MULTI-USER ENVIRONMENT

- Co-develop in parallel in **local** or **remote** teams.
- Keep all machines easily **aligned to the correct version.**
- **Handle machine variations** and customizations efficiently.
- Take advantage of **GIT's open source** community



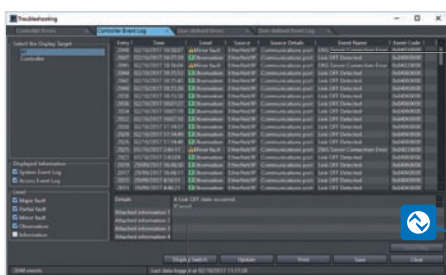
\*1.3D CAD data supports STEP/IGES.





## ONE MACHINE TROUBLESHOOTING

- **Sysmac Concept is not only a controller** but a whole architecture integrating controllers, actuators, devices, advanced sensors, HMIs etc.



Sysmac troubleshooting alert



Alarm handling and possible remedy

Warning or fault occurs in any OMRON device

## HMI INTEGRATION

- **Reduce development costs** and maintenance time by combining NA HMI with Sysmac.
- **Include videos and PDF files** that will improve machine operation and maintenance. Make your machines more intuitive and productive
- **Enhanced editor's functionality** and version control features will help to reduce the total cost of ownership.

## INTEGRATED VISION

- Commissioning and programming vision devices is as easy as **dragging and dropping** other well known OMRON algorithms.
- Sysmac Studio **integrates Sysmac Vision** devices like FH and allows you to import the necessary video staff from cameras to properly simulate and program the vision application in the same tool and project as the other Sysmac components.



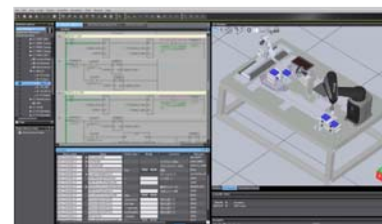
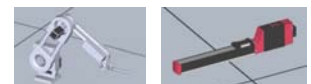
Live image

Access all the configuration of FH

Set of more than 100 tools

## SIMULATION

- 3D simulations only with the Sysmac Studio using imported 3D CAD data\*1.
- Easy configuration via wizard.
- Easy configuration to use sensors and solenoids. No need to create a program only for simulation.
- 3D simulations of mechanical components including custom mechanical components and electric cylinders from partner manufacturers.



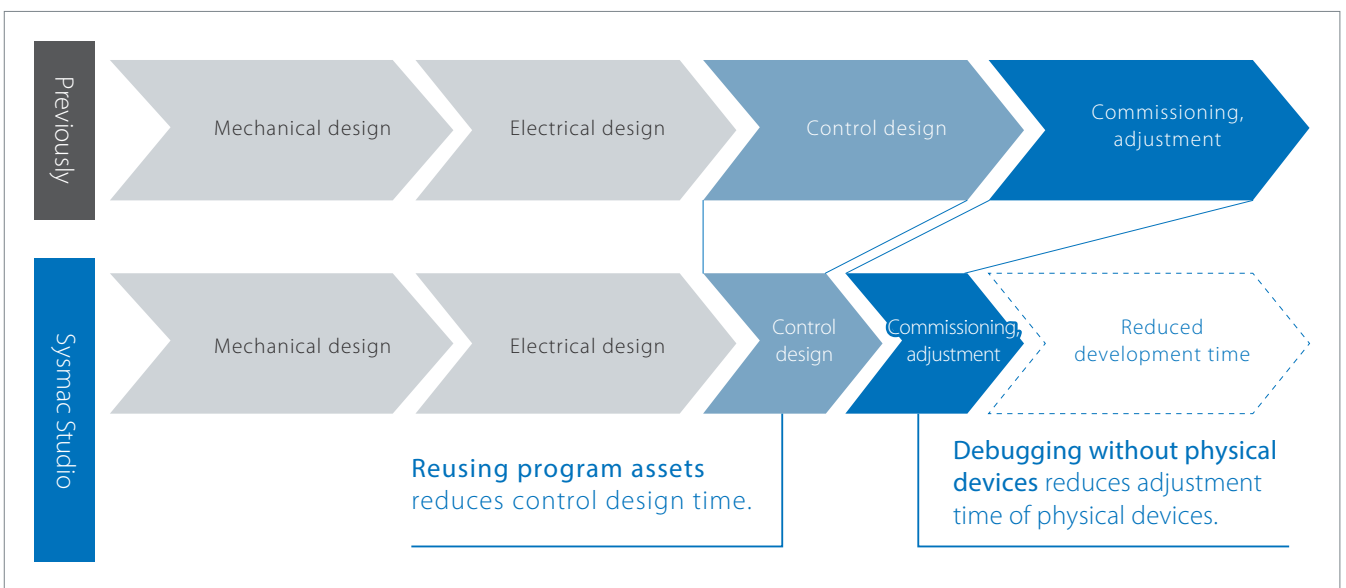
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# Revolutionizing engineering chains

The Sysmac Studio can be linked to software from various partners who possess advanced technologies and know-how and are active in the manufacturing engineering chain. This helps you shorten development lead times from design to commissioning and adjustment.

## Contribution to reducing development lead time



### Linkage to MATLAB/Simulink



Partner

#### Reuse of program assets

MATLAB/Simulink automatically generates code.

#### Debugging without physical devices

Co-simulation with Simulink (SILS, MILS, HILS) is supported.

### 3D Simulation



#### Debugging without physical devices

Operation of a control program can be verified in a virtual environment.

#### Debugging without physical devices

Sharing understandings and debugging without physical devices in the design stage significantly shorten adjustment time during commissioning.

### Electrical CAD Connector



#### Reuse of program assets

Loaded electrical CAD data (unit configuration, signal line names, etc.) are automatically reflected in unit configuration settings and allocated variables.

### Mechanical CAD Connector



#### Debugging without physical devices

Linked simulators enable operation and interference to be checked using 3D drawings created with mechanical CAD.

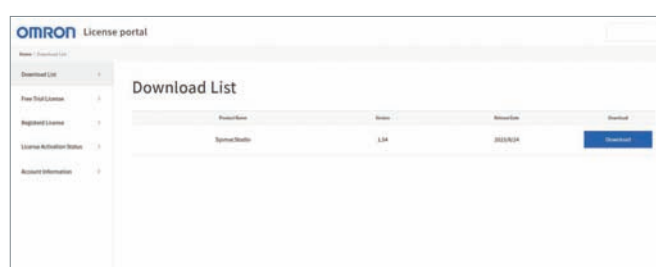


# Make full use of Sysmac Studio

## How to use Sysmac Studio

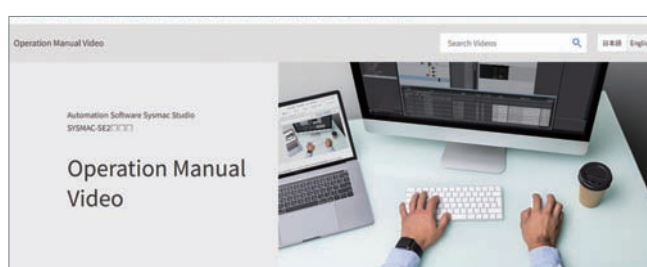
The Sysmac Studio is available to download from the License Portal website.

License Portal enables you to manage all licenses: get a free trial license, view license usage, and transfer licenses. You can easily learn how to operate the Sysmac Studio by watching the Operation Manual Video.



### License portal

<https://license-user.automation.omron.com/>



### Operation Manual Video

<https://www.fa.omron.co.jp/ss-video-en/>

## License types

The license of the Sysmac Studio can be chosen to suit the application.

### Basic License

The Basic License provides essential functions for controller and slave configuration and programming to develop machines.

### Advanced License

The Advanced License has team development and 3D simulation functionality, in addition to functionality included in the Basic License, pursuing greater efficiency in developing machines.

## Automation Software

A license is required to use Sysmac Studio. There are two types of licenses: Network Licenses for the 64-bit application and Standalone Licenses for the 32-bit application.

The installer for the Sysmac Studio 64-bit application is available on the website, License Portal. If you want an installer DVD for the Sysmac Studio 32-bit or 64-bit application, please purchase the Sysmac Studio DVD.

### Network Licenses (64-bit application only)

Sign up as a user on the License Portal site and download the installer image file after purchasing a new Network License. For more information, visit this site: <https://license-user.automation.omron.com/>.

Product name	Specifications	Model	
		Number of licenses	
Sysmac Studio Basic License	Sysmac Studio is an integrated development environment for configuring, programming, debugging, and maintaining our machine automation controllers including the NJ/NX-series CPU Units and the NY-series Industrial PCs, EtherCAT Slave Units, and HMIs.	1 license	SYSMAC-BA201L
Sysmac Studio Advanced License	This license allows you to use the 3D Simulation Option and the Team Development Option in addition to the functions covered by the Basic License.	1 license	SYSMAC-AD201L
Sysmac Studio Upgrade License for Advanced	This license upgrades your Basic License to the Advanced License.	1 license	SYSMAC-AD501L



## Standalone Licenses

If you use the Sysmac Studio 32-bit application, purchase a Standalone License. We recommend a Network License for customers using the Sysmac Studio 64-bit application.

Product name	Specifications	Model	
		Number of licenses	
Sysmac Studio Standard Edition Ver.1.□□	Sysmac Studio is the software that provides an integrated development environment: setting, programming, debugging and maintenance for Machine Automation Controllers (NJ/NX-series CPU Units, NY-series Industrial PC), EtherCAT Slaves, and HMIs.	1 license	SYSMAC-SE201L
		3 licenses	SYSMAC-SE203L
		10 licenses	SYSMAC-SE210L
		30 licenses	SYSMAC-SE230L
		50 licenses	SYSMAC-SE250L
Sysmac Studio Vision Edition Ver.1.□□	Sysmac Studio Vision Edition is the license providing only the necessary functions for settings of FQ-M and FH-series Vision Sensors. This edition is valid for FQ-M and FH-series Vision Sensors only.	1 license	SYSMAC-VE001L
Sysmac Studio Measurement Sensor Edition Ver.1.□□	Sysmac Studio Measurement Sensor Edition is the license providing only the necessary functions for settings of ZW-series Measurement Sensors. This edition is valid for ZW-series Measurement Sensors only.	1 license	SYSMAC-ME001L
		3 licenses	SYSMAC-ME003L
Sysmac Studio NX-I/O Edition Ver.1.□□	Sysmac Studio NX-IO Edition is the license providing only the necessary functions for settings of couplers for EtherNet/IP and PROFINET. This edition is valid for couplers of EtherNet/IP and PROFINET only.	1 license	SYSMAC-NE001L
Sysmac Studio Drive Edition Ver.1.□□	Sysmac Studio Drive Edition is the license providing only the necessary functions for settings of drive units. This edition is valid for 1S/G5-series units only.	1 license	SYSMAC-DE001L
Sysmac Studio Safety Edition Ver.1.□□	Sysmac Studio Safety Edition is the license providing only the necessary functions for settings of a safety control system. This edition is valid for communication controllers and EtherNet/IP couplers only.	1 license	SYSMAC-FE001L

## Optional Licenses for Standalone Licenses

These products are applicable to Sysmac Studio Standard Edition only.  
Optional licenses cannot be applied to network licenses.

Product name	Specifications	Number of licenses	Model
Sysmac Studio Team Development Option	Sysmac Studio Team Development Option is the license to enable the project version control functionality.	1 license	SYSMAC-TA401L
		3 licenses	SYSMAC-TA403L
		10 licenses	SYSMAC-TA410L
		30 licenses	SYSMAC-TA430L
		50 licenses	SYSMAC-TA450L
Sysmac Studio 3D Simulation Option	Sysmac Studio 3D Simulation Option is the license to enable the 3D Simulation functionality. The option is valid for the 64-bit Sysmac Studio only.	1 license	SYSMAC-SA401L-64
		3 licenses	SYSMAC-SA403L-64
		10 licenses	SYSMAC-SA410L-64
		30 licenses	SYSMAC-SA430L-64
		50 licenses	SYSMAC-SA450L-64

## Sysmac Studio DVD

License keys are not included. Licenses are required listed above.

Product name	Specifications		Model
	Supporting OS	Number of licenses	
Sysmac Studio Ver.1.□□ 32-bit DVD	Windows 7 (32/64-bit) / 8.1 (32/64-bit) / 10 (32/64-bit) / 11 (64-bit)	-	SYSMAC-SE200D
Sysmac Studio Ver.1.□□ 64-bit DVD	Windows 10 (64-bit) / 11 (64-bit)	(Installation media only. A license of each edition is required.)	SYSMAC-SE200D-64

Note. You can also download the installer image file for installation by signing up as a user on the License Portal site.  
For more information, visit this site: <https://license-user.automation.omron.com/>.



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