NX-series Safety Controller

EtherCAT System

Integrated safety into machine automation
The safety solution for any application

The NX Safety Controller enables a safety solution to be integrated into the Sysmac automation platform within our one connection and one software concept.

One connection with NJ/NX Machine Automation Controller and other devices is realized through the use of Safety over EtherCAT -FSoE- protocol. The NX Safety I/O Units can be freely distributed in an I/O rack throughout the network, mixing them in any combination with standard NX I/O Units. The Automation Software Sysmac Studio allows for configuration, programming, simulation and monitoring functionality.

**Safety**

- ISO 13849-1, Cat.4/PLe
- IEC 61508 SIL3
- EN 62061 SIL3

**PLC**

- IEC 61131-2
- IEC 61131-3
- PLCopen® FBD

**Scalability**

The system allows up to 128 safety I/O units to a maximum of 1024 safety I/O signals. Configure systems with the right combination of I/O to optimize cost.

**Maintainability**

Detachable screwless terminal block

The detachable terminal block of the I/O unit simplifies the commissioning and maintenance tasks. Screwless push-in connections speed up installation.

**ACR (Automatic Configuration Restart)**

When replacing a safety I/O Unit, just remove the old unit and insert a new unit. The setting data is automatically downloaded without using the programming software.
Flexibility and reusability of programming code

**Standard programming with Sysmac Studio**

Sysmac Studio is compliant to the IEC 61131-3 standard and utilizes PLCopen® function blocks. The safety controller provides a large program capacity of 2048 KB (equivalent to more than 2,000 function blocks), visual setting of IO and automatic generating wiring diagram, variable style programming, reusable user-defined function blocks, offline simulation and simple automatic test.

**Visual setting of IO and automatic generating wiring diagram**

Safety I/O settings are completed by dragging and dropping the visual icons, and wiring diagrams are automatically generated based on the terminal settings. The same window can be used for I/O monitoring and troubleshooting.

**User-defined function blocks**

You can define your own function blocks. Repeat use of user-defined function blocks cuts programming time and maintains consistency of quality. Secure the code with password protection and add user-defined help files to make re-using functions safe and easy.

**Programming with variables**

Unlike previous programming with physical addresses, programming with variables does not depend on the hardware configuration. You can use the same code for the machine with a different hardware configuration by flexibly changing connections between variable names and hardware memory addresses.

**Offline simulation and simple automatic test**

You can check operation on the Simulator without physical devices. Furthermore, basing on the relationship between inputs and outputs, program can be tested automatically. This significantly reduces program modification and debugging time.

**Safety System Monitor Library**

Safety programs that run at production sites can be managed.

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Automation Software Sysmac Studio

Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Specifications</th>
<th>Number of licenses</th>
<th>Media</th>
<th>Model</th>
<th>Standards</th>
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</thead>
<tbody>
<tr>
<td>Sysmac Studio Standard Edition Ver.1</td>
<td>The Sysmac Studio is the software that provides an integrated environment for setting, programming, debugging and maintenance of machine automation controllers including the NJ/NX-series CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI. Sysmac Studio runs on the following OS. Windows 7(32-bit/64-bit version)/Windows 8(32-bit/64-bit version)/Windows 8.1(32-bit/64-bit version)/Windows 10(32-bit/64-bit version)</td>
<td>1 license*</td>
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<td>SYSMAC-SE201L</td>
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* Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).