OMRON

product BRIEF

NX102 Machine Controller

Jump into machine control with the NX102. OMRON's machine automation controllers have been designed to give manufacturing facilities robust safety, precise motion, and transparent control by harnessing Sysmac's One Controller, One Connection, and One Software architecture.

By seamlessly combining the strengths of CIP Safety™, EtherCAT® motion, and EtherNET/IP™ connectivity, OMRON's NX102 allows facilities to use networks as they were designed to achieve efficiency without added cost common with machine scale complexity. To accomplish this the NX102:

- Reduces installation costs and delayed refresh rates associated with managed switches for motion control with up to 64 slaves and 8 axis of motion control. The NX102 utilizes the deterministic, globally open industrial protocol, and most globally used motion control industrial network, EtherCAT®.
- Eliminates the installation cost of an additional safety controller with the integration of an OMRON safety CPU, allowing the NX102 to accommodate up to 16 CIP Safety Connections.
- Decreases programming time and complexity with 5 MB's of program memory. The NX102 uses function blocks to replicate robust code into other rungs of programs for maximum scalability while decreasing the risk of stolen intellectual property and easy version control by locking function blocks.
- Removes the need for a computer on the plant floor to broker factory data. With OPC UA and SQL as standard on select NX102 models, overall costs are decreased.

Applications:

- Automotive Final Assembly; Material Handling
- Semiconductor Wafer Positioning
- Semiconductor Wafer Inspection
- Electronic Assembly Including: Gluing and Screwing
- Packaging Including: Sealing and Temperature Control
- Additional Manufacturing Including: Powderbed Fusion, Water Jetting, Plasma Cutting, Material Extrusion, and Etching

Key Features:

Plug and Play Compatible with:

- OMRON's complete line of 120+ NX I/O Units
- OMRON's integrated software environment Sysmac Studio
- OMRON Vision, OMRON Motion, OMRON Robotics, and OMRON Safety Components

Leverage the strength of multiple industrial protocols:

- EtherCAT®, IO Link, EtherNET/IP®, CIP Safety, FSOE
- Up to 8 axis of motion control
- EtherCAT® cycle times from 1 to 32 ms in 0.25ms increments
- 32 local I/O per CPU, 400 total I/O per CPU with Remote NX/IO
- 5 MB of program capacity

NX102 Machine Controller

Primary Benefits

- One Software:
  Sysmac Studio, OMRON's integrated programming environment, completely simulates machine capabilities (logic, motion, robotics, vision, visualization) while complying with industry-standard programming language. Not only does this combination help new users learn programming in a robust language, but it also allows them to prove program strength before integrating it into processes.
- One Controller:
  The NX product line completely controls the machine architecture. Performance and quality are never compromised with OMRON controllers as there is no replacement for CPU confidence. Innovative patented connector security, multiple core processors across model ranges, with security built in gives OMRON controllers the ability to drive performance into every node in your architecture.
- One Connection:
  OMRON's stance on industrial networks is uncompromising, use industrial protocols as they were designed to achieve the highest quality result. The NX product embodies this through the harmonious control of EtherCAT®, EtherNET I/P™, IO Link, FSOE, and CIP Safety™. Bridging the gap between the OT network to the IT network, OMRON CPU's can achieve more because they efficiently use industrial protocols.

Suggested Part Numbers

Part Number	EtherCAT® Slaves	Motion Control Axes	OPC UA Client	SQL Server	Program Capacity	Maximum local units	Built-in Network Ports	Primary Period / EtherCAT® Update Time
NX102-9000	Up to 64	0 (4 PTP Axes)	✓		5 MB (100K step, 3000 POU, 32 MB Variable)	32 local per CPU; 400 total per CPU with Remote NX I/O	EtherCAT® (x1) EtherNet/IP (x2)	1 to 32ms
NX102-1000		2 (4 PTP Axes)	✓					
NX102-1100		4 (4 PTP Axes)	✓					
NX102-1200		8 (4 PTP Axes)	✓					
NX102-9020		0 (4 PTP Axes)	✓	✓				
NX102-1020		2 (4 PTP Axes)	✓	✓				
NX102-1120		4 (4 PTP Axes)	✓	✓				
NX102-1220		8 (4 PTP Axes)	✓	✓				