F

Network-Compatible Products, Controller

Overview of Network Compatible Products

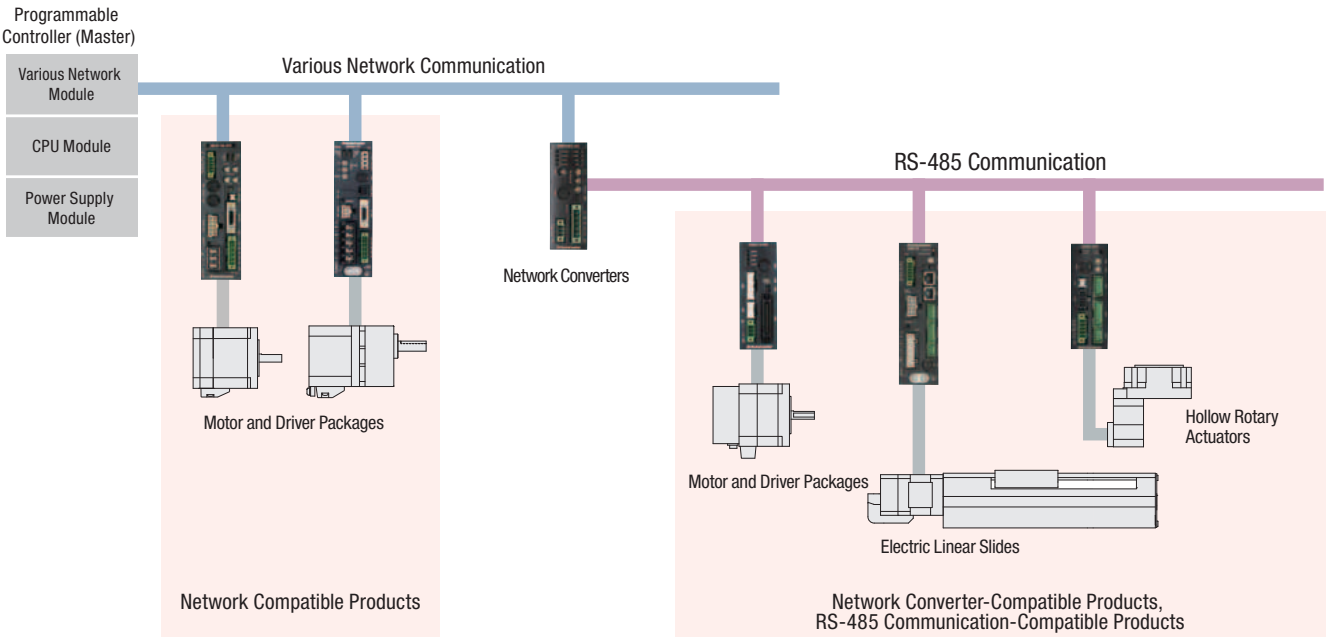
Motor control via network communication can detect the status of the motor directly by data. This results in a shorter development period and increased reliability and maintainability of the equipment.
By expanding the network compatible product lineup, Oriental Motor meets diversifying network environments of factory automation.

Features

Network-compatible products offer the following benefits:

- Simple wiring achieves space saving for wiring and smaller equipment size.
- Transmission distance can be extended up to several hundred meters. This makes wiring route design easier and enables products to be positioned in appropriate locations.
- Simple wiring achieves a reduction in the man-hours for the wiring process and in the cost of wiring.
- Operating status is monitored by product input/output information, alarm, etc. This achieves improved maintainability via the system.
- Simple wiring makes wiring and checking process easier when replacing the product.

Network Configuration Example



Compatible Network

Modbus (RTU)

Modbus is the open field network with Modbus Protocol installed. Modbus is used widely in the fields of factory and process automation because its protocol specification is open to the public and it is very simple.

∗Modbus is a registered trademark of Schneider Automation Inc.

CC-Link

CC-Link (Control&Communication Link) is the open field network promoted by CC-Link Partner Association.

∗CC-Link is a registered trademark of CC-Link Partner Association.

EtherCAT®

EtherCAT is an Ethernet (IEEE802.3)-compliant, open, high-speed, industrial network system.

∗EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

MECHATROLINK

MECHATROLINK-Ⅱ and MECHATROLINK-Ⅲ are motion networks promoted by MECHATROLINK Members Association.

∗MECHATROLINK is a registered trademark of MECHATROLINK Members Association.

Network Compatible Products

Built-in Controller Type Stepper Motors

Stepper Motors α_{STEP}		0.72° Stepper Motors
AR Series	**AZ** Series	**RKII** Series
		
AC power supply input ➜ Page A-20 DC power supply input ➜ Page A-136	AC power supply input ➜ Page A-74 DC power supply input ➜ Page A-196	AC power supply input ➜ Page A-84

Brushless Motors

RS-485 Communication
BLE Series

AC power supply input ➜ Page D-42

Linear & Rotary Actuators

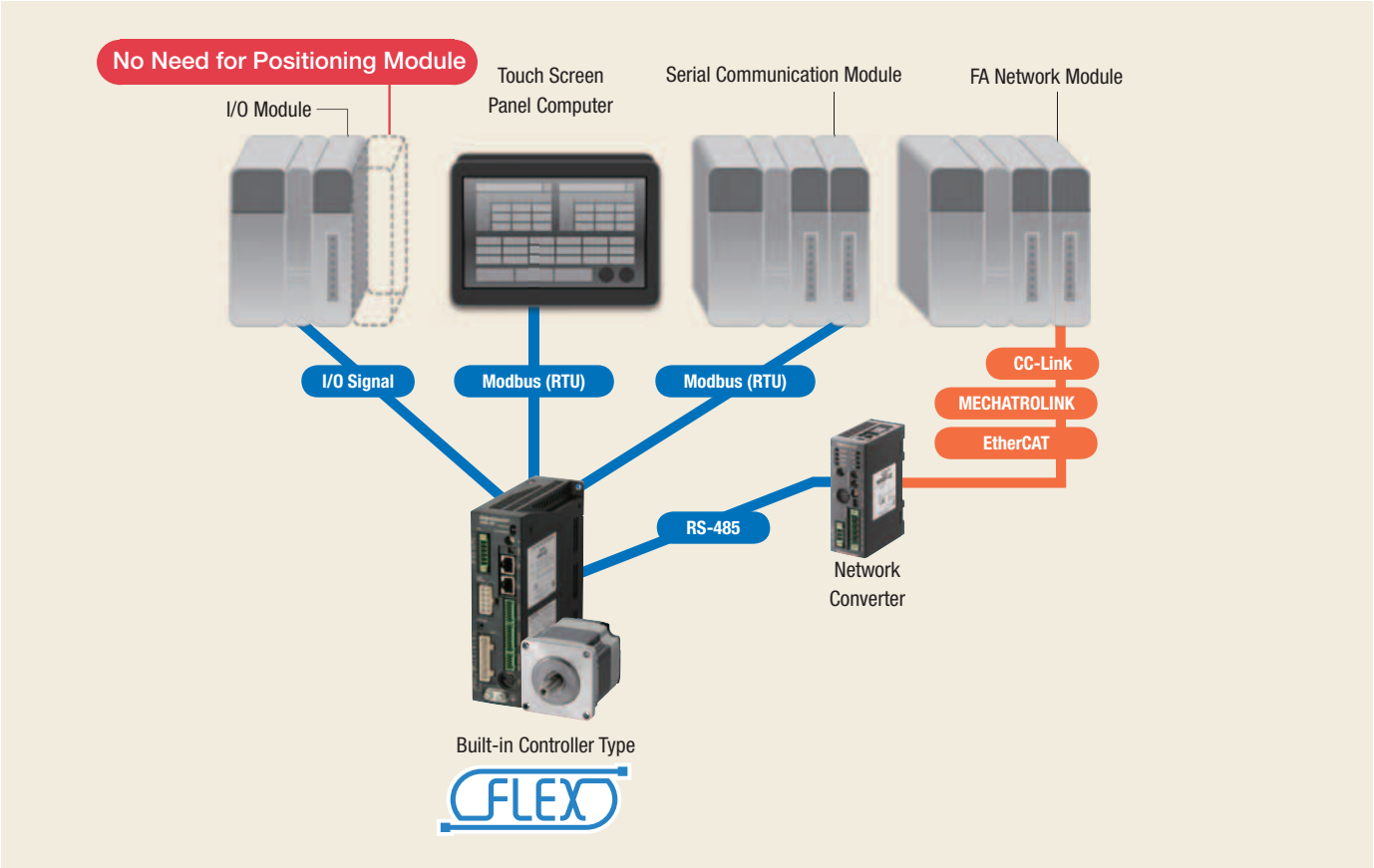
Stepper Motors α_{STEP} Equipped with **AR** Series		
EAS Series	**EAC** Series	**DGII** Series
		
AC/DC power supply input ➜ Page E-16	AC/DC power supply input ➜ Page E-56	AC/DC power supply input ➜ Page E-118

Network Converters

CC-Link-Compatible	MECHATROLINK-Compatible	EtherCAT-Compatible
NETC01-CC	**NETC01-M2**	**NETC01-ECT**
		
DC power supply input ➜ Page F-8	DC power supply input ➜ Page F-8	DC power supply input ➜ Page F-8

Equipped with Industrial Network Communications for Various Host Systems

FLEX is the collective name for industrial network communication products that support I/O control, Modbus (RTU) control, and FA network control via network converters.
These products enable simple connection and simple control, shortening the total lead time for system construction.



Advantages of FLEX Products

FLEX, which has a degree of freedom for selecting various industrial communication systems, not only realizes various design ideas, but also reduces labor and costs.

- Simple Wiring
- Labor Saving
- Time Saving
- Low Cost

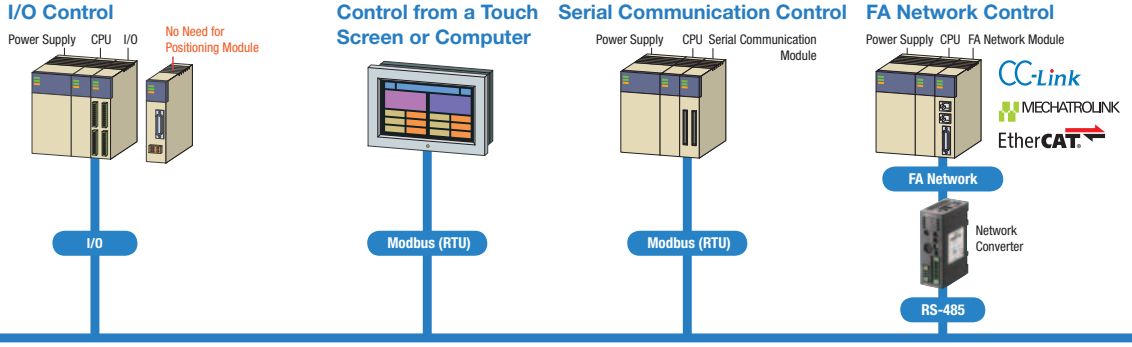
Recommendation of System Configuration by FLEX for Each Interface

- Use of the Switch
- Use of the I/O Unit of PLC
- Use of the Touchscreen
- Use of the Serial Communication Unit of PLC
- Use of the Touch-Screen Panel Computer and the PC
- Use of the FA Network Unit

FLEX Solution

FLEX means simple control, simple connection, and lower costs.

Costs are reduced through parts selection and equipment design.
The FLEX-compatible products recommended by Oriental Motor allow for total cost reduction, including host systems such as a PLC.



FLEX-Compatible Products FLEX

Position Control

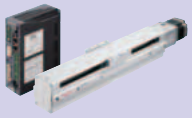
Stepper Motors

Stepper Motors αSTEP
AR Series **AZ** Series

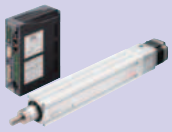
0.72° Stepper Motors
RKII Series

Linear & Rotary Actuators

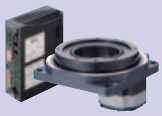
Electric Linear Slides
EAS Series



Electric Cylinders
EAC Series



Hollow Rotary Actuators
DGII Series



Speed Control

Brushless Motors

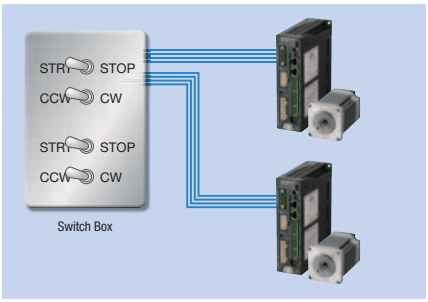
Brushless Motors
BLE Series

Control System Configuration for Each Built-in Controller Type

① Control via I/O

The positioning module (pulse generator) function is built into the driver, so an operation system using I/O can be configured by connecting directly to a switch box or PLC. A positioning module is not necessary on the PLC side, saving space and simplifying the system.

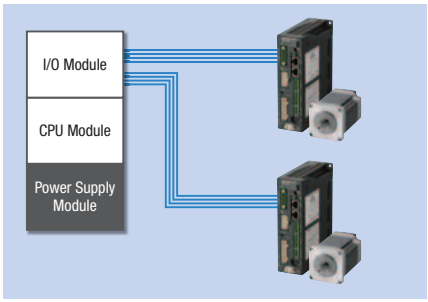
Example of Using a Switch Box



Operating data is set in the driver, and the motor can be started or stopped simply by connecting to the switch at hand. Control can be performed easily without using PLC.

Easy Control | Low-Cost Design

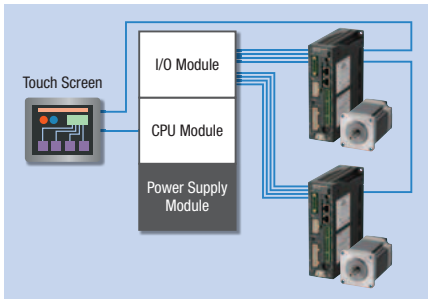
Example of Using PLC



When using PLC, an operation system can be configured by connecting directly to an I/O module. A positioning module is not necessary on the PLC side, so space is saved and the system is simplified.

Easy Control | Low-Cost Design | Space Saving

Example of Using PLC and a Touch Screen



Normally, the motor is started and stopped with I/O. Changing the operating data settings and displaying the monitors and alarms are performed with the touch screen using Modbus (RTU) communication. When there is a lot of setup work, changes can be easily made on the touch screen, which reduces the burden of creating ladders.

Easy Control | Support for Small Lots of Multiple Products

② Control via Modbus (RTU)/RS-485 Communication

RS-485 communication can be used to set operating data and parameters, as well as input operation commands. Up to 31 drivers can be connected to 1 serial communication module. There is a function that enables multiple shafts to be started simultaneously. The Modbus (RTU) protocol is supported and can be used to connect to touch screen and computer.

Easy Control | Simple Wiring | Supports Brands of Serial Module | Motor Controlled by a Computer | Simplified System

③ Control via FA Network

By using a network converter (sold separately), CC-link, MECHATROLINK or EtherCAT communication are possible. All of these can be used to set operating data and parameters, as well as input operation commands.

Easy Control | Simple Wiring | Multi-Axis Control at Low Cost

Modbus (RTU)-Compatible Products

Shown below are the features of the open field network Modbus.
- Up to 31 axes can be connected to a single programmable controller (master equipment)
- Simultaneous start for multiple axes by the group send function is possible
- PC can control the motor
- Maintenance from the touch screen is possible

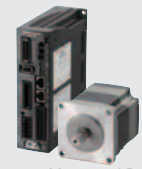
αSTEP
0.72° Stepper Motors
Brushless Motors
Linear & Rotary Actuators

Serial Communication Module
CPU Module
Power Supply Module
or
Touch Screen
✻TR: Terminating Resistor

TR

RS-485 Communication

Stepper Motor and Driver Packages αSTEP
AR Series FLEX
→ Page A-20
Page A-136



Stepper Motor and Driver Packages αSTEP
AZ Series FLEX
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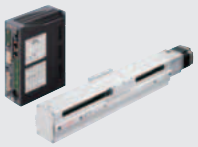
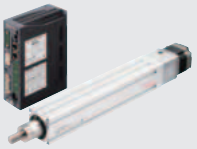
Page A-196

0.72° Stepper Motor and Driver Packages
RKII Series FLEX
→ Page A-84

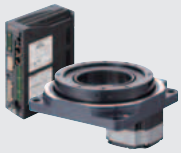
Brushless Motor and Driver Packages
BLE Series FLEX
→ Page D-42



Electric Linear Slides
EAS Series FLEX
→ Page E-16



Electric Cylinders
EAC Series FLEX
→ Page E-56



Hollow Rotary Actuators
DGII Series FLEX
→ Page E-118

TR

EtherCAT-Compatible Products, CC-Link-Compatible Products, and MECHATROLINK-Compatible Products

Products that can be connected to EtherCAT communication, CC-Link communication, and MECHATROLINK-Ⅱ communication through the use of a network converter are arranged.

αSTEP
0.72° Stepper Motors
Brushless Motors
Linear & Rotary Actuators

●EtherCAT Communication

EtherCAT Module
CPU Module
Power Supply Module

[EtherCAT Communication]

Network Converter
NETC01-ECT

✻The network converter is compatible with the master of YASKAWA Electric Corporation and Yokogawa Electric Corporation. (The master compatible with the standard I/O profile command is necessary.)

[CC-Link Communication]

Network Converter
NETC01-CC

[MECHATROLINK-Ⅱ Communication]

Network Converter
NETC01-M2

✻The network converter is compatible with the master of YASKAWA Electric Corporation and KEYENCE CORPORATION. (The master compatible with the intelligent I/O command is necessary.)

Programmable Controller (Master)
Master compatible with MECHATROLINK-Ⅱ such as KV-ML16V [KEYENCE CORPORATION] or MP-2300 [YASKAWA Electric Corporation]
●**NETC01-M2** can be used with the master compatible with the "intelligent I/O command".

Note
It is not recommended to be connected with the MECHATROLINK-Ⅱ master made by OMRON Corporation.

RS-485 Communication

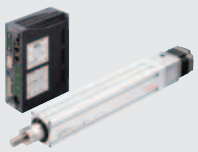
Stepper Motor and Driver Packages αSTEP **AR** Series FLEX
→ Page A-20
Page A-136

Stepper Motor and Driver Packages αSTEP **AZ** Series FLEX
→ Page A-74
Page A-196

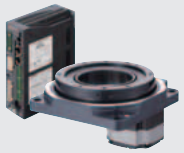
0.72° Stepper Motor and Driver Packages **RKⅡ** Series FLEX
→ Page A-84

Brushless Motor and Driver Packages **BLE** Series FLEX
→ Page D-42

Electric Linear Slides **EAS** Series FLEX
→ Page E-16



Electric Cylinders **EAC** Series FLEX
→ Page E-56



Hollow Rotary Actuators **DGⅡ** Series FLEX
→ Page E-118

Network Converters

For details on this product please refer to our website.
www.orientalmotor.com/catalog

CE

● For detailed information about regulations and standards, please see the Oriental Motor website.

NETC01-CC **NETC01-M2** **NETC01-ECT**

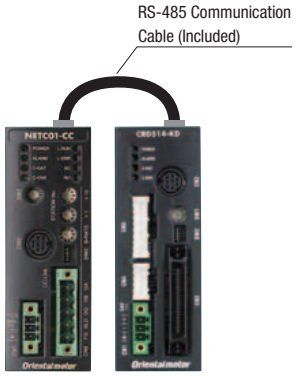
View Expanded Product Information, Specifications, CAD, Accessories & more online. Visit www.orientalmotor.com/catalog or use the QR code and select "Network Converters".

Network converters convert host communication protocol to Modbus (RTU) communication protocol. Use a network converter to control Oriental Motor's RS-485 communication-compatible products within the host communication environment.

Features

Reduced Wiring and Space Saving is Possible

For connection to RS-485 communication-compatible products, wiring adjustments can be done with a single included cable. Connection is also possible with a commercial LAN cable (straight wiring).



Network Converters

CRK Series (FLEX) Built-in Controller Type

Multi-Axis Connection is Possible

Multi-axis connection is possible for RS-485 communication–compatible products.

- CC-Link-Compatible: 12 axes max.
- MECHATROLINK-Ⅱ-Compatible: 16 axes max.
- EtherCAT-Compatible: 16 axes max.

Product Line

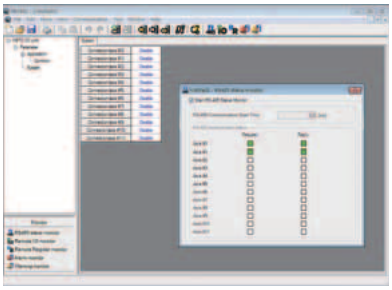
Network Type	Product Name	List Price
CC-Link-Compatible	**NETC01-CC**	$282.00
MECHATROLINK-Ⅱ-Compatible	**NETC01-M2**	$358.00
EtherCAT-Compatible	**NETC01-ECT**	$245.00

The following items are included with each product.
Network Converter, RS-485 Communication Cable, Power Connector, Operating Manual, CC-Link Communication Connector (**NETC01-CC** only)

Setting Method for Various Parameters

A control module **OPX-2A** (sold separately) or data setting software **MEXE02** is required for setting a network converter.
A control module **OPX-2A** and data setting software **MEXE02** can also be used to monitor the time it takes to communicate with each axis.

Control Module **OPX-2A**



Data Setting Software **MEXE02**

Note
- A control module **OPX-2A** or data setting software **MEXE02** is required for setting **NETC01-M2**
- The data setting software **MEXE02** can be downloaded from the website. Visit our website, or contact the nearest Oriental Motor sales office. http://www.orientalmotor.com/

ESI File

An ESI file is arranged so that **NETC01-ECT** can be used more easily. The ESI file can be downloaded from our website.

For details (specifications, characteristics, dimensions and others) on these products please refer to either to our website, contact technical support or your nearest Oriental Motor sales office.
www.orientalmotor.com/catalog