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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

Network Converter-Compatible Products, RS-485 Communication-Compatible Products

Programmable Controller (Master)

Various Network Module

CPU Module

Power Supply Module

Various Network Communication

Network Converters

Motor and Driver Packages

Network Compatible Products

RS-485 Communication

Motor and Driver Packages

Electric Linear Slides

Hollow Rotary Actuators

Network Converter-Compatible Products, RS-485 Communication-Compatible Products

■ 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.

EtherCAT

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

CC-Link

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

MECHATROLINK

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

**Modbus is a registered trademark of Schneider Automation Inc.**

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

**MECHATROLINK is a registered trademark of MECHATROLINK Members Association.**

**EtherCAT® is a registered trademark of Beckhoff Automation GmbH, Germany.**
## Network Compatible Products

### Built-in Controller Type Stepper Motors

<table>
<thead>
<tr>
<th>Stepper Motors</th>
<th>0.72° Stepper Motors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AR Series</strong></td>
<td>![AR Series Image]</td>
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<tr>
<td>AC power supply input</td>
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<tr>
<td>DC power supply input</td>
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<tr>
<td><strong>AZ Series</strong></td>
<td>![AZ Series Image]</td>
</tr>
<tr>
<td>AC power supply input</td>
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<tr>
<td>DC power supply input</td>
<td>Page A-196</td>
</tr>
<tr>
<td><strong>RKII Series</strong></td>
<td>![RKII Series Image]</td>
</tr>
<tr>
<td>AC power supply input</td>
<td>Page A-84</td>
</tr>
</tbody>
</table>

### Brushless Motors

- **BLE Series**
  - RS-485 Communication
  - ![BLE Series Image] (AC power supply input Page D-42)

### Linear & Rotary Actuators

<table>
<thead>
<tr>
<th>Stepper Motors</th>
<th>Equipped with <strong>AR Series</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>EAS Series</strong></td>
<td>![EAS Series Image]</td>
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<tr>
<td>AC/DC power supply input</td>
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<tr>
<td><strong>EAC Series</strong></td>
<td>![EAC Series Image]</td>
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<tr>
<td>AC/DC power supply input</td>
<td>Page E-56</td>
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<tr>
<td><strong>DGII Series</strong></td>
<td>![DGII Series Image]</td>
</tr>
<tr>
<td>AC/DC power supply input</td>
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</table>

### Network Converters

<table>
<thead>
<tr>
<th>CC-Link-Compatible</th>
<th>MECHATROLINK-Compatible</th>
<th>EtherCAT-Compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NETC01-CC</strong></td>
<td>![NETC01-CC Image]</td>
<td></td>
</tr>
<tr>
<td>DC power supply input</td>
<td>Page F-8</td>
<td></td>
</tr>
<tr>
<td><strong>NETC01-M2</strong></td>
<td>![NETC01-M2 Image]</td>
<td></td>
</tr>
<tr>
<td>DC power supply input</td>
<td>Page F-8</td>
<td></td>
</tr>
<tr>
<td><strong>NETC01-ECT</strong></td>
<td>![NETC01-ECT Image]</td>
<td></td>
</tr>
<tr>
<td>DC power supply input</td>
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<td></td>
</tr>
</tbody>
</table>
Network-Compatible Products Overview

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

Position Control

Stepper Motors
- AR Series
- AZ Series
- RKII Series

Linear & Rotary Actuators
- Electric Linear Slides EAS Series
- Electric Cylinders EAC Series
- Hollow Rotary Actuators DGII Series

Speed Control

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.

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.

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.

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.

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.

Supports CAD Data Manuals
www.orientalmotor.com

Technical Support
TEL: (800) 468-3982
E-mail: techsupport@orientalmotor.com

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

**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.)

- **Network Converter NETC01-CC**
- 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.)

- **Network Converter NETC01-M2**
- 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.

**CC-Link Communication**

- **Stepper Motor and Driver Packages**
  - **AR Series**
  - **AZ Series**
  - Page A-20
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- **Brushless Motor and Driver Packages**
  - **RK Series**
  - **BLE Series**
  - Page A-84
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- **Electric Linear Slides**
  - **EAS Series**
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- **Electric Cylinders**
  - **EAC Series**
  - Page E-56

- **Hollow Rotary Actuators**
  - **DG1 Series**
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Network Converters

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).

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

<table>
<thead>
<tr>
<th>Network Type</th>
<th>Product Name</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC-Link-Compatible</td>
<td>NETC01-CC</td>
<td>$282.00</td>
</tr>
<tr>
<td>MECHATROLINK-II-Compatible</td>
<td>NETC01-M2</td>
<td>$358.00</td>
</tr>
<tr>
<td>EtherCAT-Compatible</td>
<td>NETC01-ECT</td>
<td>$245.00</td>
</tr>
</tbody>
</table>

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 MEXEO2 is required for setting a network converter. A control module OPX-2A and data setting software MEXEO2 can also be used to monitor the time it takes to communicate with each axis.

Note

- A control module OPX-2A or data setting software MEXEO2 is required for setting NETC01-M2
- The data setting software MEXEO2 can be downloaded from the website. Visit our website, or contact the nearest Oriental Motor sales office.
- 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 on this product please refer to our website.
www.orientalmotor.com/catalog