

Network Converters



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



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

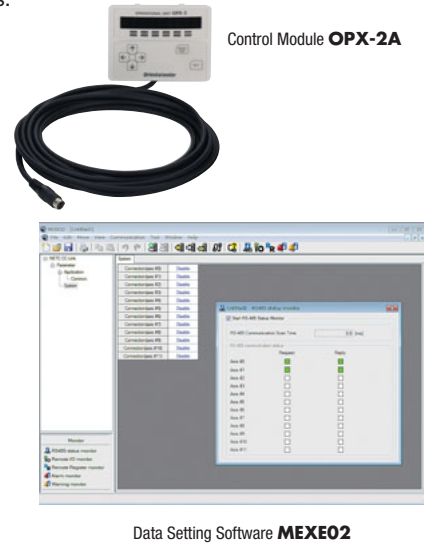
Reduced Wiring and Space Saving is Possible

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).



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.



Multi-Axis Connection is Possible

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

- EtherCAT-Compatible: 16 axes max.
- CC-Link-Compatible: 16 axes max. (**NETC02-CC**), 12 axes max. (**NETC01-CC**)
- MECHATROLINK-II-Compatible: 16 axes max.

Note

- A control module **OPX-2A** or data setting software **MEXE02** is required for setting **NETC01-M2** and **NETC01-M3**
- The data setting software **MEXE02** can be downloaded from the website. Visit our website, or contact the nearest Oriental Motor sales office. www.orientalmotor.eu

● **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.

Product Line

Network Type	Product Name	List Price
EtherCAT-Compatible	NETC01-ECT	€249.00
CC-Link Ver. 1.1-Compatible	NETC01-CC	€195.00
CC-Link Ver. 2-Compatible	NETC02-CC	€195.00
MECHATROLINK-II-Compatible	NETC01-M2	€249.00
MECHATROLINK-III-Compatible	NETC01-M3	€269.00

The following items are included with each product.
 Network Converter, RS-485 Communication Cable, Power Connector, Operating Manual, CC-Link Communication Connector (**NETC01-CC** and **NETC02-CC** only)

Specifications

- Power Supply Input 24 VDC±10% Current Consumption 0.2 A
- EtherCAT Specifications **NETC01-ECT**

Item	Description
Baud Rate	100 Mbps
Communication Period	Depending on the master setting.
Node Address	0~255 (00 h~FF h, Initial value: 01 h)
Max. Used Bytes	300 Bytes
Communication Protocol	EtherCAT Dedicated Protocol (CoE), Profile Type: CIA301 Compatible
Communication Cable	Category 5 Straight Cable (Shielded twisted cable)

- CC-Link Specifications

◇ CC-Link Ver. 1.1 Compatible **NETC01-CC**

Item	Description
Communication Protocol	CC-Link Ver. 1.10
Baud Rate	156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps
Station Type	Remote Device Station
Number of Occupied Stations	4 Stations Occupied
Max. Number of Connected Units	Number that Meets the Following Conditions $\{(1 \times a) + (2 \times b) + (3 \times c) + (4 \times d)\} \leq 64$ a : Number of Units, 1 Station Occupied b : Number of Units, 2 Stations Occupied c : Number of Units, 3 Stations Occupied d : Number of Units, 4 Stations Occupied $\{(16 \times A) + (54 \times B) + (88 \times C)\} \leq 2304$ A : Number of Remote I/O Stations (64 stations max.) B : Number of Remote Device Stations (42 stations max.) C : Number of Local Stations (26 stations max.)

◇ CC-Link Ver. 2 Compatible **NETC02-CC**

Item	Description
Communication Protocol	CC-Link Ver. 2 Extended Cyclic Setting Times 2, Times 4, Times 8
Baud Rate	156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps
Station Type	Remote Device Station
Number of Occupied Stations	4 Stations Occupied
Max. Number of Connected Units	Max. 64 units However, the following conditions must be met. 1. Total number of stations $(a + a2 + a4 + a8) + (b + b2 + b4 + b8) \times 2 + (c + c2 + c4 + c8) \times 3 + (d + d2 + d4 + d8) \times 4 \leq 64$ 2. Total number of remote I/O points $(a \times 32 + a2 \times 32 + a4 \times 64 + a8 \times 128) + (b \times 64 + b2 \times 96 + b4 \times 192 + b8 \times 384) + (c \times 96 + c2 \times 160 + c4 \times 320 + c8 \times 640) + (d \times 128 + d2 \times 224 + d4 \times 448 + d8 \times 896) \leq 8192$ 3. Total number of remote register points $(a \times 4 + a2 \times 8 + a4 \times 16 + a8 \times 32) + (b \times 8 + b2 \times 16 + b4 \times 32 + b8 \times 64) + (c \times 12 + c2 \times 24 + c4 \times 48 + c8 \times 96) + (d \times 16 + d2 \times 32 + d4 \times 64 + d8 \times 128) \leq 2048$ a : Number of Units, 1 Station Occupied Times 1 Setting b : Number of Units, 2 Stations Occupied Times 1 Setting c : Number of Units, 3 Stations Occupied Times 1 Setting d : Number of Units, 4 Stations Occupied Times 1 Setting a2 : Number of Units, 1 Station Occupied Times 2 Setting b2 : Number of Units, 2 Stations Occupied Times 2 Setting c2 : Number of Units, 3 Stations Occupied Times 2 Setting d2 : Number of Units, 4 Stations Occupied Times 2 Setting a4 : Number of Units, 1 Station Occupied Times 4 Setting b4 : Number of Units, 2 Stations Occupied Times 4 Setting c4 : Number of Units, 3 Stations Occupied Times 4 Setting d4 : Number of Units, 4 Stations Occupied Times 4 Setting a8 : Number of Units, 1 Station Occupied Times 8 Setting b8 : Number of Units, 2 Stations Occupied Times 8 Setting c8 : Number of Units, 3 Stations Occupied Times 8 Setting d8 : Number of Units, 4 Stations Occupied Times 8 Setting 4. Number of Connected Units $16 \times A + 54 \times B + 88 \times C \leq 2304$ A : Number of Remote I/O StationsMax. 64 Units B : Number of Remote Device StationsMax. 42 Units C : Number of Local Stations and Intelligent DevicesMax. 26 Units

◇ Dedicated CC-Link Connection Cable Length

Baud Rate	156 kbps	625 kbps	2.5 Mbps	5 Mbps	10 Mbps
Maximum Cable Total Extension Length	1200 m	900 m	400 m	160 m	100 m
Cable Length between Stations	0.2 m or more				

- MECHATROLINK Specifications

◇ **NETC01-M2** MECHATROLINK-II Specifications

Item	Description
Baud Rate	10 Mbps
Transmission Frequency	0.5 ms/1.0 ms/1.5 ms/2.0 ms/2.5 ms/3.0 ms/3.5 ms/4.0 ms/ 8.0 ms
Station Address	60 h~7Fh (Initial Value: 61 h)
Transmission Bytes	17/32 Bytes (Initial Value: 32 Bytes)
Installation Command	Intelligent I/O Command

◇ **NETC01-M3** MECHATROLINK-III Specifications

Item	Description
Baud Rate	100 Mbps
Transmission Frequency	0.5 ms/1.0 ms/1.5 ms/2.0 ms/2.5 ms/3.0 ms/3.5 ms/4.0 ms/ 8.0 ms
Station Address	03 h~EFh (Initial Value: 61 h)
Transmission Bytes	16/32/48/64 Bytes (Initial Value: 32 Bytes)
Profile	Standard I/O Profile Command

- RS-485 Communication Specifications

Item	Description
Electrical Characteristics	EIA-485 Based, Straight Cable The maximum total extension length of the communication cable is 50 m when using shielded twisted-pair cables (TIA/EIA-568B CAT5e or better recommended).
Communication Mode	Half Duplex, Start-Stop Synchronization (8 bits, 1 stop bit, no parity)
Baud Rate	625,000 bps
Protocol	10-Byte Fixed Length Frame, Binary Transfer

Network-Compatible Products Overview

EtherCAT

ModBUS (RTU)

CC-LINK, MECHATROLINK

Network Converters

Controller Overview

SCX11

General Specifications

Item	Description	
Insulation Resistance	100 MΩ or more when a 500 VDC megger is applied between the following places: · FG Terminal – Power Supply Terminal	
Dielectric Voltage*	No abnormality is found with the following application of 500 VAC 50/60 Hz for 1 minute: · FG Terminal – Power Supply Terminal	
Operating Environment (In operation)	Ambient Temperature	0~+40°C (Non-freezing) [NETC02-CC: 0~+55°C (Non-freezing)]
	Ambient Humidity	85% or less (Non-condensing)
	Altitude	Up to 1000 m above sea level
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water or oil.
Operating Environment (In preservation/transportation)	Ambient Temperature	-25~+70°C (Non-freezing)
	Ambient Humidity	85% or less (Non-condensing)
	Altitude	Up to 3000 m above sea level
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water or oil.

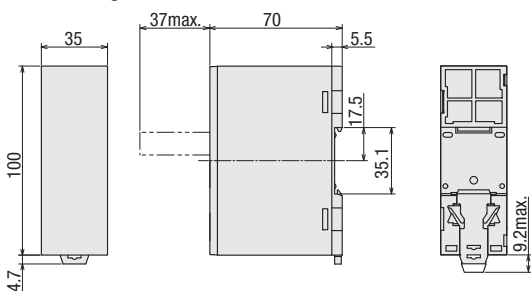
Note

- Do not measure insulation resistance or perform the dielectric strength test while the peripheral equipments are connected.
- *Excluding NETC02-CC.

Dimensions (Unit = mm)

NETC01-ECT, NETC01-CC, NETC01-M2, NETC01-M3

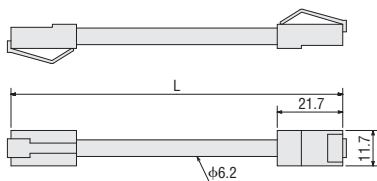
Mass: 0.15 kg



● Included

- RS-485 Communication Cable

Product Name	Length L (m)
CC001-RS4	0.1
CC002-RS4	0.25



- Power Connector

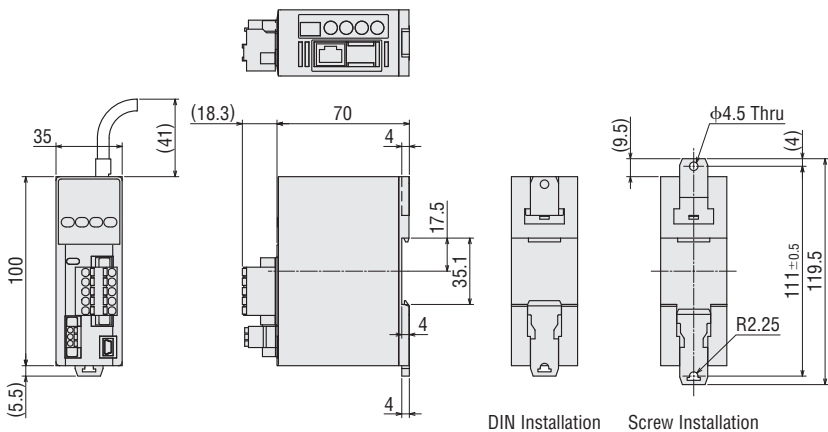
Connector: MC1,5/3-STF-3,5 (Phoenix Contact)

- CC-Link Communication Connector (NETC01-CC only)

Connector: MVSTBW2,5/5-STF-5,08AU (Phoenix Contact)

NETC02-CC

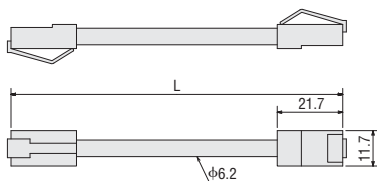
Mass: 0.12 kg



● Included

- RS-485 Communication Cable

Product Name	Length L (m)
CC001-RS4	0.1
CC002-RS4	0.25



- Power Connector

Connector: FMC1,5/3-STF-3,5 (Phoenix Contact)

- CC-Link Communication Connector

Connector: TFKC2,5/5-STF-5,08AU (Phoenix Contact)

Control Module

In addition to setting various parameters, the control module also functions as a monitor.

Prices

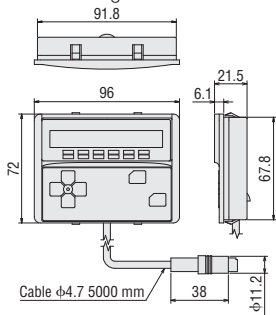
Product Name	List Price
OPX-2A	€212.00



Dimensions (Unit = mm)

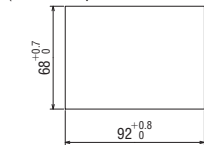
Control Module

Mass: 0.25 kg



Panel Cut-Out

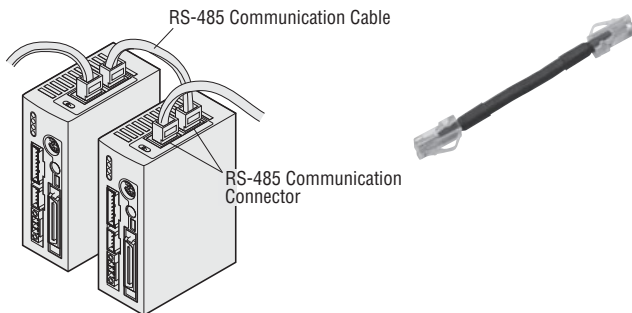
(Installation plate thickness 1~3 mm)



RS-485 Communication Cable

This cable is used to link network converters or drivers in multi-axis operation.

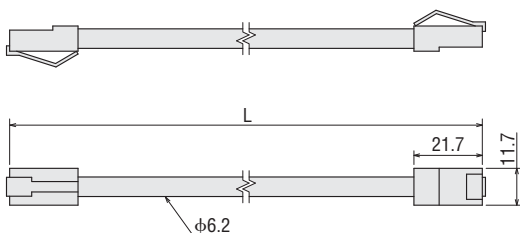
Connection Example



Product Line

Product Name	Length L (m)	List Price
CC001-R54	0.1	€23.00
CC002-R54	0.25	€28.00

Dimensions (Unit = mm)



Data Setting Software Communication Cable

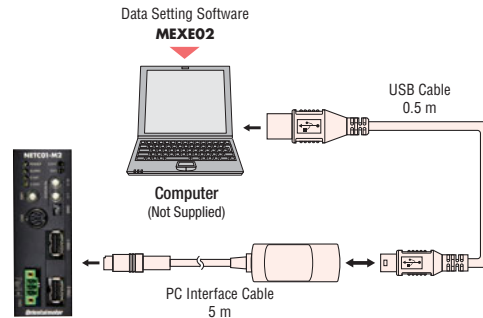
This communication cable is required for connecting to the computer on which the data setting software **MEXE02** is installed.

Prices

Product Name	List Price
CC051F-USB	€100.00



Computer and Driver Connection



Data Setting Software **MEXE02**

The data setting software can be downloaded from the website. www.orientalmotor.eu

Operating Environment

Operating System (OS)

For the following operating systems, the 32-bit (x86) version and 64-bit (x64) version are supported.

- Microsoft Windows XP Service Pack 3*
- Microsoft Windows Vista Service Pack 2
- Microsoft Windows 7 Service Pack 1
- Microsoft Windows 8
- Microsoft Windows 8.1

*The 64-bit (x64) version runs with Service Pack 2.

PC

Recommended CPU*1	Intel Core processor 2 GHz or faster (OS must be supported)
Display	High resolution video adapter and monitor with a min. resolution of XGA (1024×768)
Recommended Memory*1	32 bit (x86) version: 1 GB or more 64 bit (x64) version: 2 GB or more
Hard Disk*2	At least 60 MB of free disk space
USB Port	One USB1.1 port

*1 The system requirements for the OS must be met.

*2 **MEXE02** requires Microsoft .NET Framework 4 Client Profile. It will be automatically installed if it is not already installed, so the following free space may be required.
32-bit (x86) version: 600 MB or more
64-bit (x64) version: 1.5 GB or more

● Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.

● Intel and Core are registered trademarks or trademarks of Intel Corporation in the United States and other countries.

● For the latest information on operating environment, refer to the Oriental Motor website.

Note

● The required memory and hard disk space may vary depending on the system environment.

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