OMRON

3G3AX-RX2-ECT
EtherCAT Communication Unit (For RX2 series)

INSTRUCTION MANUAL

Thank you for purchasing this OMRON product.
Please read this instruction sheet and thoroughly familiarize yourself with the functions and characterisitcs of the product before use.
Please retain this sheet for future reference

Manual Name	Cat.No.
3G3AX-RX2-ECT User's Manual	I663-E1

OMRON Corporation

5678462-9B

Safety Precautions

■Indications and Meanings of Safety Information

In this instruction sheet, the following precautions and signal words are used to provide information to ensure the safe use of the 3G3AX-RX2-ECT EtherCAT Communication Unit.
The information provided here is vital to safety.
Strictly observe the precautions provided.

■Meanings of Signal Words

⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.
⚠CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

■Alert Symbols in this Document

⚠WARNING

	There is a risk of severe injury due to electric shock. After confirming that the power supply is OFF, wait at least 15 minutes and then perform wiring.
	There is a risk of severe injury due to electric shock. Wiring work must be carried out only by qualified personnel. Do not touch cables when the power supply is turned ON.
	There is a risk of severe injury due to electric shock. Do not operate the Communication Unit, LCD operator and switches with wet hands.
	There is a risk of severe injury due to electric shock. Do not perform maintenance while the power supply is ON.
	There is a risk of severe injury. For the Host Controller and Inverter programs, check the program contents and interactions between these programs before starting actual operation.
	There is a risk of severe injury. Do not enter the operating area during operation.

⚠CAUTION

	The Inverter has high voltage parts inside which, if short-circuited, might cause damage to itself or other property. Place covers on the openings or take other precautions to make sure that no metal objects such as cutting bits or lead wire scraps go inside when installing and wiring.
	Be sure to confirm safety before conducting maintenance, inspection, or parts replacement.
	There is a risk of injury. Do not dismantle, repair, or modify the product.

Precautions for Safe Use

- Do not store or use the EtherCAT Communication Unit in the following environment:
  - Locations subject to direct sunlight
  - Locations subject to ambient temperature exceeding the specifications
  - Locations subject to relative humidity exceeding the specifications
  - Locations subject to condensation due to severe temperature fluctuations
  - Locations subject to corrosive or flammable gases
  - Locations near flammable materials
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, oil, or chemicals
  - Locations subject to direct shock or vibration
- Do not directly touch the PCB connector of the Communication Unit as it may cause the Communication Unit to malfunction.
- During installation, wiring, and network setting on the Communication Unit, please refer to applicable sections of this manual to ensure the correct connection and configuration procedures.
- Take sufficient shielding measures when using the product in the following locations. Equipment damage may result.
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong magnetic fields
  - Locations close to power lines
- Fix the Inverter and the Communication Unit securely with the fixation screws. The Communication Unit may come off during operation due to vibration.
- If there is noise or other effects, install a ferrite core. When installing a ferrite core, do not allow the shield sheath to be caught between the communications connector and the cable. Not doing so may cause insufficient noise reduction effect, resulting in the Inverter to malfunction.
- Fix the shield wire or use other means so that it is not subject to a heavy load. Shield wire breakage may occur due to the weight of the ferrite core.
- When transporting the Inverter with the EtherCAT Communication Unit mounted on it, be sure to hold the fins. Do not hold the front cover, terminal block cover, or Communication Unit. Doing so may cause the Inverter to fall.
- Do not drop or apply strong impact on the product. Doing so may result in damaged parts or malfunction.
- Be sure to tighten the FG terminal screw securely. Also, install the Inverter before wiring. There is a risk of a short circuit with energized parts if the FG wire is disconnected.
- Do not use a broken cable. If the ring is disconnected, the device may malfunction.
- Install an appropriate stopping device to ensure safety. In particular, if configured to operate continuously even in the event of a communications error, the Inverter may not stop, resulting in equipment damage.
- Be sure to confirm the RUN signal is turned off before resetting the alarm because the machine may abruptly start.
- The motor may start suddenly if voltage is accidentally applied to a control input terminal in a signal check when the power supply is ON. Ensure safety when you perform a signal check.
- Check the motor for the direction of rotation, abnormal noise, and vibration during operation.
- Be sure to confirm the permissible range of motors and machines before operation because the speed can be set from low to high. A sudden parameter change may result in an unexpected operation.
- When the ring disconnection status occurs and then you reconnect an EtherCAT communications cable, turn OFF the power supply to the EtherCAT master and to the slaves. Connecting a faulty EtherCAT communications cable while the devices are in operation may stop the entire EtherCAT communications system.

Precautions for Correct Use

- If the ring disconnection status occurs, immediately perform inspection and take appropriate measures. Equipment damage may result.
- Comply with the local ordinance and regulations when disposing of the product.

Precautions for Compliance with UL Standards and CSA Standards

Notice to Users of the 3G3AX-RX2-ECT in the USA and Canada.
Please use the following installation information instead of the general information in the instruction manuals in order to use the product under certified conditions of UL and CSA when the product is installed in the USA or Canada. These conditions are required by NFPA 70, National Electrical Code in the USA and the Canadian Electrical Code, Part I in Canada and may vary from information given in the product manuals or safety precautions.

- Install device in pollution degree 2 environment.
- Maximum surrounding air temperature rating of 50°C

Conformance to EU Directives and UK legislations

- Please attach the ferrite core to each EtherCAT communications cable.
- This is a Class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.

■Omron Europe B.V.
Wegalaan 67-69, NL-2132 JD Hoofddorp, The Netherlands

■OMRON Corporation
Shiokoji Horikawa, Shimogyo-ku, Kyoto, 600-8530, Japan

Overview

EtherCAT Communication Unit (3G3AX-RX2-ECT) can be installed in OMRON's Inverters (RX2 series) to let you exchange various data with the host via EtherCAT.

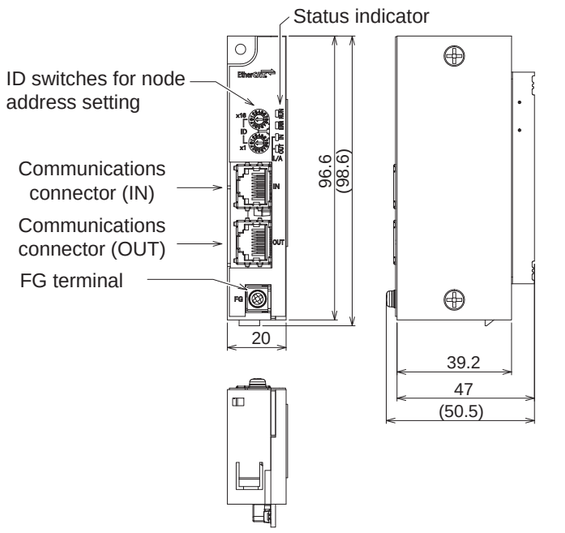
The EtherCAT Communication Unit can be built into the following Inverters.

Inverter		
Model	Manufacturer	Series
3G3RX2-☐	OMRON	RX2 series

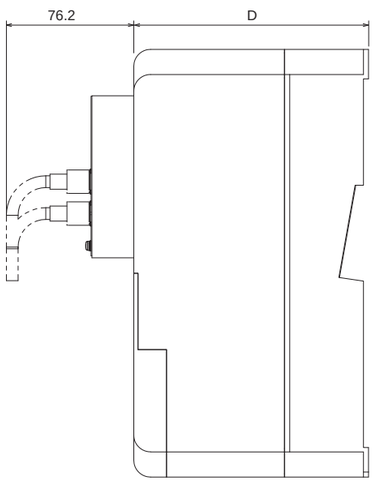
Specifications

Power supply	Supplied from Inverter
Application environment	Indoors (with no corrosive gas, oil mist, metal powder, etc.)
Operating temperature	-10 to 50 °C
Humidity	20 to 90 % (with no condensation)
Storage temperature	-20 to 65 °C
Weight	100 g max.

■Appearance and Names of Parts

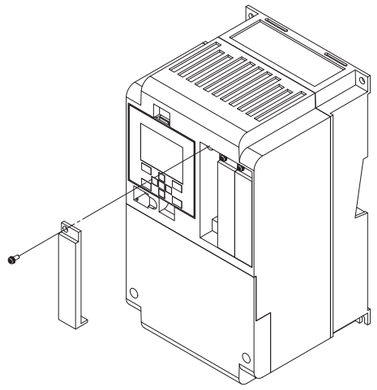


For the overall depth when the EtherCAT Communication Unit is installed with an EtherCAT cable connected, add 76.2 mm to the dimension D of the Inverter. The dimension D differs depending on its capacity of the Inverter. Please refer to the manual for the Inverter.

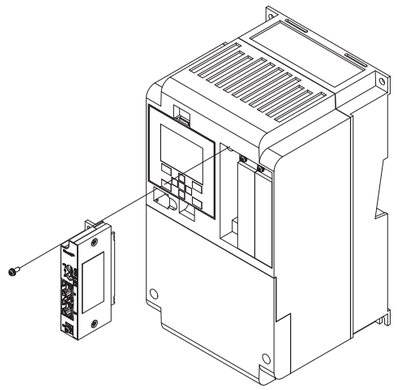


Installation Procedure

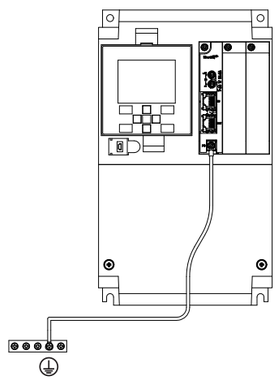
1. Power down the Inverter. Wait for 15 minutes before mounting the Communications Unit.
2. Remove the Option Unit Connection Cover of SLOT 1.
   Note. Keep the cover you removed in a safe place.



3. Mount the Communication Unit. Fix it with the screw that is used for the Option Unit Connection Cover.
   Fixation screw: M3 x 14
   Tightening torque: 0.6 to 0.8 N·m



4. Prepare an FG wire and wire it to a grounding location as close as possible to the FG terminal of the Communication Unit.
   FG terminal screw: M3 x 8
   Tightening torque: 0.6 to 0.8 N·m

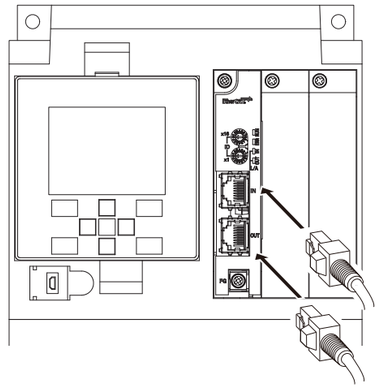


5. Set necessary Inverter parameters.

* When removing the Communication Unit, reverse the installation procedure.

Wiring Procedure

Securely connect the EtherCAT communication cable connector to the EtherCAT Communication Unit by inserting the connector all the way until it clicks.
Connect the communication cable from the EtherCAT master side to the communication connector IN of the Communication Unit.
Connect the communication connector OUT to the communication connector IN of the next EtherCAT slave. Do not connect the communication connector OUT of the last EtherCAT slave.
Data will not be communicated correctly if the input/output are connected in reverse.
For communication cables, be sure to use the Category 5 straight type or higher cables, double shielded by braid and aluminum tape.



SUITABILITY FOR USE

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.
NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
See also product catalogs for Warranty and Limitations of Liability.

OMRON Corporation (Manufacturer)
Shiokoji Horikawa, Shimogyo-ku, Kyoto, 600-8530, Japan
Contact: www.ia.omron.com

Regional Headquarters
OMRON EUROPE B.V.(Representative and Importer in EU)
Wegalaan 67-69, 2132 JD Hoofddorp,The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON Electronics Ltd.
Opal Drive, Fox Milne, Milton Keynes MK15 0DG, U.K.
Tel: (44)-0-1908-258258/Fax: (44)-0-1908-258158

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2), Alexandra Technopark, Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200 Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower, 200 Yin Cheng Zhong Road, PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Note: Specifications subjuect to change without notice.