Compliance with EC directive (CE Marking)

This note does not guarantee that the FX series product module produced in accordance with the contents of this note will comply with the following standards.

Compliance to EMC directive and LVD directive for the entire mechanical module should be checked by the user manufacturer. For more information please consult with your nearest Mitsubishi product provider.

Requirements for Compliance with EMC directive

The following products have shown compliance through direct testing (of the identified standards below) and design analysis (through the creation of a technical construction file) to the European Directive for Electromagnetic Compatibility (2014/30/EU) when used as directed by the appropriate documentation.

Attention

This product is designed for use in industrial applications. Type: Programmable Controller (Open Type Equipment) Models: MELSEC FX3U series manufactured from April 1st, 2012

FX3U-CAN

Standard

Programmable controller, equipment requirements and tests

Compliance with all relevant aspects of the standard

Remark

- EMI
- Radiated Emission
- Conducted Emission
- Radiated electro magnetic field
- Fast transient burst
- Electrostatic discharge
- High-energy surge
- Voltage drops and interruptions
- Conducted RF
- Power frequency magnetic field

Caution for Compliance with EC Directive

1) Caution for wiring

For noise prevention, please ground at least 35 mm (1.38") of the twisted-pair cable along the grounding plate to which the ground terminal is connected.

2) Installation in Enclosure


1. Introduction

The FX3U-CAN communication block is an interface block that allows FX3U/FX3UC/ FX3GC/FX5U/FX5UC PLCs to connect to a CANopen® system. FX3U-CAN can be connected directly to the FX3GC/FX3UC/FX5U/FX5UC PLC's extension port, or to any other extension unit's right side extension port.

- All TPG-380/RDPO (8 bytes / PDC) can be sent and received through a CANopen® network. However, in the MDP protocol for LIF application Profile, the size of the data of this object is limited to a maximum of 4 bytes.
- CANopen® device/appllication Profiles according to IEC Standards
  - Interface and Device Profile Category 4.552 V2.0 for EC 61131-3 Programmable Devices
  - Application Profile Category 4.17 V2.0 for EC 61131-3 Programmable Devices
- CAN Layer 2 communication
- FX3U-CAN connects to a FX3GC/FX3UC/PS-5V in order to connect the FX3U-CAN to an FX3U/PS-5V PLC's extension port, or to any other extension unit's right side extension port.

For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.

This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or balent systems in the system.

1.2 External Dimensions and Part Names

Unit: mm (inches)

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN_GND</td>
<td>1</td>
<td>CAN_GND</td>
</tr>
<tr>
<td>CAN_L</td>
<td>2</td>
<td>CAN_L</td>
</tr>
<tr>
<td>CAN_SHLD</td>
<td>3</td>
<td>CAN_SHLD</td>
</tr>
<tr>
<td>CAN_H</td>
<td>4</td>
<td>CAN_H</td>
</tr>
<tr>
<td>CAN_V+</td>
<td>5</td>
<td>CAN_V+</td>
</tr>
</tbody>
</table>

1.3 Power and Status LEDs

- LED Name: LED Color: Status: Description
- CANopen® mode: CANopen® PRE-OPERATIONAL state
- Layer-2 mode: Layer-2 online mode
- RX: OFF | Module is not transmitting or receiving CAN messages.
- TX: OFF | Module is not transmitting or receiving CAN messages.
- Error: Double BLINKING | A NMT guarding failure (NMT Slave or NMT Master) or a heartbeat failure has occurred.
- Special error: BLINKING | A special error occurs in PLC main unit.
- Module is BUS OFF state, or CPU error.

2. Installation

For installation details, refer to the following manual.


INSTALLATION PRECAUTIONS

- Make sure to cut off all phases of the power supply externally before attempting installation or wiring work.

- Failure to do so may cause electric shock or damage to the product.

INSTALLATION CARE

- Make sure to cut off all phases of the power supply externally before attempting installation or wiring work.

- Failure to do so may cause fire, equipment failures or malfunctions.

- Be sure to remove the dust proof shield from the PLC's ventilation slits when installation work is complete.

- Failure to do so may cause fire, equipment failures or malfunctions.

- Install the product securely using a DIN rail or mounting screws.

- Connect extension cables securely to their designated connectors. Loose connections may cause malfunctions.

2.1 Connection with PLC

The FX3U-CAN connects on the right side of a PLC main unit or extension unit/ blocks (including special function units/blocks). For connection to an FX3GC/FX3UC Series PLC or FX3NCX Series PLC extension block, an FX3GNCN-IF or FX3UCNCN-IF must be used.

For details, refer to the respective PLC manual:
- Refer to the FX3G Series User's Manual - Hardware Edition
- Refer to the FX3UC Series User's Manual - Hardware Edition
- Refer to the FX3UC Series User's Manual - Hardware Edition
- Refer to the FX3GC Series User's Manual - Hardware Edition
- Refer to the MELSEC iQ-F FX5U User's Manual (Hardware)
- Refer to the MELSEC iQ-F FX5UC User's Manual (Hardware)

2.2 Mounting

The product is mounted by the following method:

- DIN rail mounting
- Direct mounting (mounting screw: M4 screw)

For details, refer to the respective PLC manual:
- Refer to the FX3G Series User's Manual - Hardware Edition
- Refer to the FX3UC Series User's Manual - Hardware Edition
- Refer to the FX3UC Series User's Manual - Hardware Edition
- Refer to the FX3G Series User's Manual - Hardware Edition
- Refer to the MELSEC iQ-F FX5U User's Manual (Hardware)
- Refer to the MELSEC iQ-F FX5UC User's Manual (Hardware)

2.3 Wiring

For wiring details, refer to the following manuals.

WIRING PRECAUTIONS

- Make sure to cut off all phases of the power supply externally before attempting installation or wiring work.

- Failure to do so may cause electric shock or damage to the product.

- When drilling screw holes or wiring, make sure cutting or wire damage does not enter the screw hole or terminal block.

- Failure to do so may cause fire, equipment failures or malfunctions.

- Install mounting bolts so that excessive force will not be applied to the terminal block, connector or communication cables.

- Failure to do so may damage the terminal block, connector or communication cables.

- Make sure to affix the CAN bus connector with fixing screws.

- Failure to do so may result in communication failure.
WIRING PRECAUTIONS

- Make sure to properly wire to the terminal block (CAN bus connector) in accordance with the following precautions.
  a. Do not bundle or cause shock, equipment failures, a short-circuit, wire breakage, malfunctions, or damage to the product.
 b. The shielding of twisted pair cables is connected to the main circuit or high-voltage lines.
 c. Do not connect more than the specified number of wires or electric wires of unspecified size.
 d. Affix the electric wires so that neither the terminal block nor the connected parts are directly stressed.
- Make sure to observe the following precautions in order to prevent any damage to the machinery or accidents due to abnormal data written to the PLC under the influence of noise.
  1. Do not bundle the main circuit line together with or lay it close to the main circuit, high-voltage line or load line. Otherwise, noise disturbance and/or the line induction are likely to take place. As a guideline, lay the control line at least 0.3 (3.4") or more away from the main circuit or high-voltage line.
  2. Ground the shield wire or shield of a shielded cable. Do not use common grounding with heavy electrical systems (refer to the manual of the PLC main unit).
  3. Place the communication cable in ground metallic ducts or conduits both inside and outside of the control panel wherever possible.

3.1 Applicable Cable and Connector

3.1.1 Applicable connector
FX3U-CAN uses a CAN bus connector. This connector is removable. For removal and installation of the CAN bus connector, refer to the following section.

3.1.2 Applicable cable

- Refer to subsection 3.1.4

Cable Type | Applicable Cable
---|---
Unshielded/Shielded | Shielded

3.2 CAN-Bus Wiring

3.2.1 Connecting communication cables

3.2.2 Module wiring
For PLC wiring details, refer to the manual of the PLC main unit.
- Refer to the FX3S Series User’s Manual - Hardware Edition
- Refer to the FX3G Series User’s Manual - Hardware Edition
- Refer to the FX3G-CPU User’s Manual
- Refer to the MELSEC iQ-F FX3U/1FX3U User’s Manual (Hardware)

3.2.3 Shielding the twisted pair cable or wire
Strip a part of the coating of the shielded twisted pair cable as shown subsection 3.2.3.

3.2.4 Termination

- The CANopen® Communication Standards
  - According to CiA® Standards
  - Application Profiles
  - According to CiA® Standards
  - CANopen® Device and Application Profiles

4. Specifications

- For safety, always check the potential differences between the grounding points. If potential differences are found, proper measures must be taken to avoid damage.

4.1 Applicable PLC

- FX2U-Series PLC
  - Ver. 1.12 and later (Up to 8 blocks can be extended)
- FX3U-Series PLC
  - Ver. 1.12 and later (Up to 8 blocks can be extended)
- FX3U-CAN User’s Manual
- Refer to the FX3U Series User’s Manual - Hardware Edition
- Refer to the MELSEC iQ-F FX3U User’s Manual (Hardware)
- Refer to the MELSEC iQ-F FX2U User’s Manual (Hardware)

4.2 General Specifications

- Items other than those following are for the PLC main unit.
  - FX3U-CAN User’s Manual
  - Refer to the FX3G Series User’s Manual - Hardware Edition
  - Refer to the FX3G-CPU User’s Manual
  - Refer to the MELSEC iQ-F FX3U/1FX3U User’s Manual (Hardware)
  - Refer to the MELSEC iQ-F FX3U User’s Manual
  - Refer to the MELSEC iQ-F FX3U User’s Manual

4.3 Power Supply Specification

- For details on the DC power supply of main unit, refer to the manual of the PLC main unit.
- For details on the DC power supply of main unit, refer to the manual of the PLC main unit.
- Refer to the FX3G Series User’s Manual - Hardware Edition
- Refer to the FX3G Series User’s Manual - Hardwa

5. Warranty

- Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents in this manual.

For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.

- Special damages and secondary damages whether foresaw or not, compensation for damages to products other than Mitsubishi Electric products.

- Replacing the user, maintenance of on-site equipment, start-up test and other tasks.

Note: This symbol mark is for China only.
- Contains hazardous substances. Name,含有量,含有部品

- This product has been manufactured under strict quality control. However when installing the product, do not cause any accidents or losses could occur if the product fails, install appropriate backup or fail-safe functions in the system.