This manual describes the product names, mounting, and specifications of the product. Before use, read this manual and the manuals of all relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions. Store this manual in a safe place so that it can be taken out and read whenever necessary. Always forward it to the end user.

**Safety Precautions** (Read these precautions before use.)

- **The company and product names described in this manual are registered trademarks or trade names of their respective companies.**

Effective May 2018

Specifications are subject to change without notice.

**Manual No.**

- FX3U-J1939
- FX3UC-J1939

**Warning and Caution**

- Indicates that incorrect handling may cause hazardous conditions, resulting in death or serious injury.
- Indicates that incorrect handling may cause hazardous conditions, resulting in minor injuries or property damage.

Depending on the circumstances, procedures indicated by may also cause severe injury.

It is important to follow all precautions for personal safety.

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**Compliance with EC directive (CE Marking)**

This note does not guarantee that an entire mechanical 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.

- Equipment requirements and tests
- Compliance with relevant aspects of the standards

**For safe use**

- This product has been manufactured to be used in any ordinary environment.
- Before using the product in 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 fail-safe systems in the function.  

**1. Incorporated Items**

Check to ensure the following product and items are included in the package.

**1.2 External Dimensions and Part Names**

**Standard**

**Remark**

Compliance with all relevant aspects of the standards

- EMI
- Radiated electromagnetic field
- Fast transient burst
- Electrosurgical 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, ground at least 35 mm (1.38") of the twisted-pair cable along the grounding plane to which the ground terminal is connected.
2. Installation in Enclosure
   - For details regarding installation in an enclosure, refer to the User’s Manual - Hardware Edition of the respective PLC main unit.

**1. Introduction**

The FX3U-J1939 communication block is an interface block that allows FX3U/FX3GC/FX3U-J1939 to FX3U-J1939 connection directly to a J1939 system. FX3U-J1939 can be connected either to the FX3U(FX3GC) FMUX2/FX3UC/J1939 PLC’s extension port, or to any other extension unit / block’s right side extension port.

**Specification abstract:**

- 75 messages (8 bytes / message) and 4 extension messages (a maximum of 250 bytes / message) can be sent and received on J1939 communication.
- A Command Interface (CIF) for asynchronous services and configuration, and discovery.
- CAN Layer 2 communication:
  - *An FX2CMM-QFIF or FX2CMM-1PS-SV is necessary to connect the FX3U-J1939 to an FX3GFX2C Series PLC.*
  - *An FX3C-VNS-US or FX3C-VNS-BUS is necessary to connect the FX3U-J1939 to an FX3GFX3C Series PLC.*

**2. Installation**

- **For detailed installation, refer to the following manual:**
  - **FX3U-J1939 User’s Manual**

**3. Wiring**

- **For detailed wiring, refer to the following manual:**
  - **FX3U-J1939 User’s Manual**

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**Certification of UL, cUL standards**

FX3U-J1939 units comply with the UL standards (UL, cUL).

**Lül cUL File Number E92699**

Regard the standards that comply with the main unit, please refer to either the FX series product catalog or consult with your nearest Mitsubishi product provider.
3.2 CAN-Bus Wiring

3.2.1 Applicable connector

- FXX-J1939 uses a CAN-Bus connector. This connector is removable.

For removal and installation of the CAN bus connector, refer to the following manual:
- \( \rightarrow \) Refer to subsection 3.1.4

3.2.2 Shielding of twisted pair cable

Strip a part of the coating of the shielded twisted pair cable as shown below. Section 3.2.3

Grounding mounting plate or grounded DIN rail with a grounding resistance of 100 Ω or less (Class D).

3.2.3 Termination

The J1939 network requires terminating resistors for each network end. When FXXU-\( \rightarrow \) is the network end, connect the included terminating resistor ( CAN_L and CAN_H ).

3.2.4 Grounding

For details, refer to the following manual:
- \( \rightarrow \) FXX-J1939 User’s Manual

4. Specifications

WARNING

- Make sure to have the following safety circuits outside of the PLC to ensure safe operation even in the event of an external power outage or PLC failure. Otherwise, malfunctions may cause serious accidents.

- 1. Most importantly, the following: an emergency stop circuit, a stop circuit, an interlock circuit for opposite movements (such as normal vs. reverse rotation), and an interlock circuit (to prevent damage to the equipment at the upper and lower position limits).

2. When the PLC CPU detects an error, such as a watchdog timer error, during self-diagnosis, all outputs are turned off. Also, when an error occurs, an alarm is generated.

- Do not pull the cable.

- 2) Install

- Place the CAN connector in the specified position, and evenly tighten both CAN connector mounting screws.

- If the cable is not connected to the connector, hold and pull the connector on the CAN bus side.

- Do not touch the terminal block mounting screws with a torque outside the allowable range. Failure to do so may cause equipment failures or malfunctions.

3.3 CAN-Bus Wiring

3.3.1 Connect the CAN bus wiring

Connect CAN bus wiring as shown below. Section 3.3.2

3.3.2 Shielding

- For electromagnetic compatibility (EMC), it is recommended to ground the cable shield at both ends.

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

3.4 Module wiring

For wiring details, refer to the following manual:
- \( \rightarrow \) Refer to the FXX3G Series User’s Manual - Hardware Edition

- \( \rightarrow \) Refer to the FXX3UC Series User’s Manual - Hardware Edition

- \( \rightarrow \) Refer to the MELSEC iQ-F FX5U User’s Manual (Hardware)