



FX3U-7DM-HLD

USER'S MANUAL



Manual Number	JY997D15401
Revision	D
Date	June 2005

This manual describes the part names, dimensions, mounting, and specifications of the product. Before use, read this manual and manuals of relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions.

And, store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

Registration
The company name and the product name to be described in this manual are the registered trademarks or trademarks of each company.

Effective June 2005
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Safety Precaution (Read these precautions before use.)

This manual classify the safety precautions into two categories:

⚠ DANGER and ⚠ CAUTION.

DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Depending on circumstances, procedures indicated by ⚠ CAUTION may also be linked to serious results. In any case, it is important to follow the directions for usage.

Associated Manuals

Manual name	Manual No.	Description
FX3u Series User's Manual - Hardware Edition	JY997D16501 MODEL CODE: 09R516	Explains FX3u Series PLC specification details for I/O, wiring, installation, and maintenance.
FX3u/FX3uC Series Programming Manual - Basic & Applied Instruction Edition	JY997D16601 MODEL CODE: 09R517	Describes PLC programming for basic/applied instructions and devices.

For the operation of the display module, refer to the PLC main unit manual.

Note: FX3uC Series PLC specification details for I/O, wiring, installation, and maintenance can only be found in the Japanese Manual.

→ Refer to FX3u Series User's Manual - Hardware Edition

How to obtain manuals

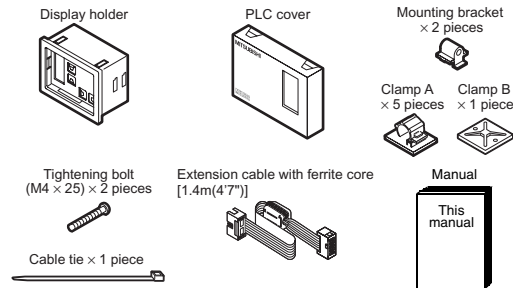
For the necessary product manuals or documents, consult with the Mitsubishi Electric dealer from where you purchase your product.

1. Outline

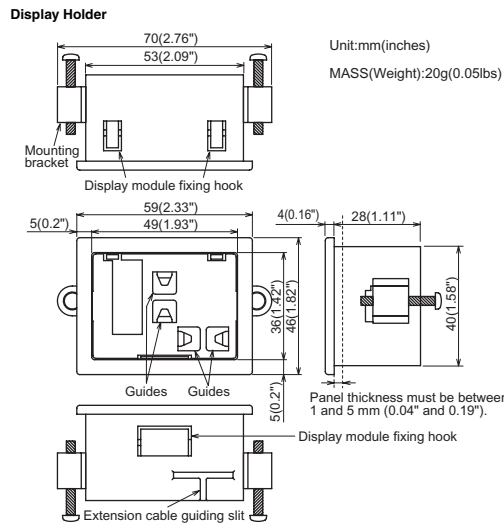
The FX3u-7DM-HLD display module holder is the attachment (cable accessory) which installs the display module (FX3u-7DM) for the FX3u or FX3uC Series PLC to near by control panel.

1.1 Incorporated Items

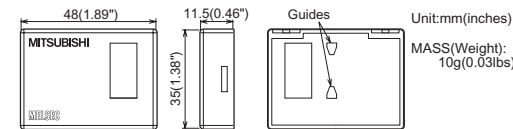
Check if the product and accessories shown below are included in the package:



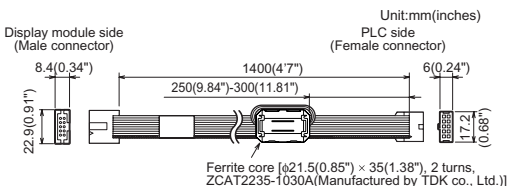
1.2 External Dimensions and Part Names



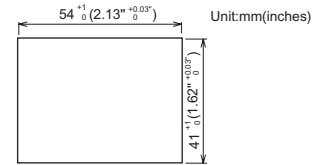
PLC Cover



Extension Cable



2. Panel Cut Dimension



In addition to the dimension above, space for mounting brackets is required by approximately 10 mm (0.4'') in the right and left directions respectively.

3. Installation

INSTALLATION PRECAUTIONS ⚠ DANGER

- Cut off all phases of the power source externally before starting the installation or wiring work, thus avoiding electric shock or damages to the product.

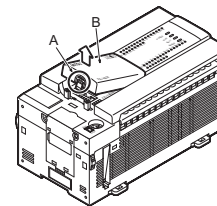
INSTALLATION PRECAUTIONS ⚠ CAUTION

- Use the product in the environment within the general specifications described in PLC main unit manual (Hardware Edition). Never use the product in areas with dust, oily smoke, conductive dusts, corrosive gas (salt air, Cl₂, H₂S, SO₂, or NO₂), flammable gas, vibrations or impacts, or expose it to high temperature, condensation, or wind and rain. If the product is used in such a place described above, electrical shock, fire, malfunction, damage, or deterioration may be caused.
- Use screwdrivers carefully when performing installation work, thus avoiding accident or product damage.
- When drilling screw holes or wiring, cutting chips or wire chips should not enter ventilation slits. Such an accident may cause fire, failure or malfunction.
- Do not touch the conductive parts of the product directly, thus avoiding failure or malfunction.
- Fix the product securely to the specified connector. Incorrect connection may cause malfunction.
- Do not pull the cable when removing/attaching the connector, otherwise, wire breakage may be caused.

3.1 Before Installation

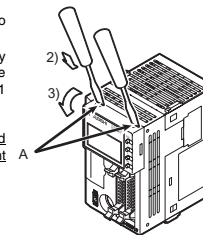
3.1.1 FX3u Series PLC case:

- Turn OFF the power.
- Pressing the top cover hook (right fig. A), remove the top cover (right fig. B), as shown in the right figure.



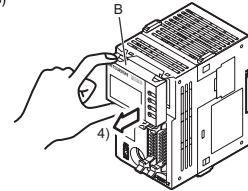
3.1.2 FX3uC Series PLC case:

- Turn OFF the power.
- Gently place the tip of a flat blade screwdriver to the Display module fixing hooks (right fig. A).
- Tilt the flat blade screwdriver at the two Display module fixing hooks (right fig. A) to lift the display module from the main unit by about 1 mm (0.04'').



⚠ Carefully perform the above trying not to bend or break the Display module fixing hooks (right fig. A).

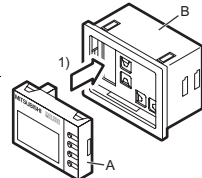
- Hold the display module (right fig. B) and remove the display module.



3.2 Installation to Display Holder

- Install the display module (right fig. A) to the display holder (right fig. B).

⚠ Press in until the display module surface becomes level with the display holder surface.



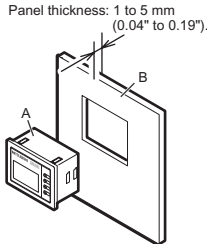
3.3 Mounting to Control Panel (Cabinet)

Mount the display module to the control panel after installing it to the display holder.

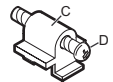
- Drill a mounting hole on the panel face.
→ For panel cut dimension, refer to chapter 2

⚠ The panel thickness to which the display module is mounted must be between 1 and 5 mm (0.04" and 0.19").

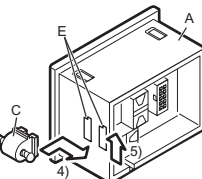
- Insert the display holder (right fig. A) from the front of the panel (right fig. B).



- Insert the tightening bolt (right fig. D) into the mounting bracket (right fig. C). Be careful of the direction and insert correctly as indicated on the right.



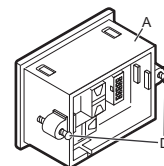
- Inset the hook of mounting bracket (right fig. C) into the mounting hook holes (right fig. E) on display holder (right fig. A) as shown in the right figure.



- Slide the mounting bracket (right fig. C) upward to fix it.

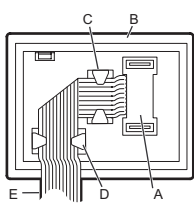
- Tighten two tightening bolts (right fig. D) on the right and left until the display holder (right fig. A) is securely fastened.

Tightening torque 0.18 to 0.22 N·m

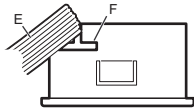


3.4 Connecting Extension Cable to Display Holder

- 1) Connect the male connector side (right fig. A) of the extension cable to the main unit connector on the display module.
- 2) Pass the extension cable (right fig. E) into the guides (right fig. C, D) on the display holder (right fig. B).



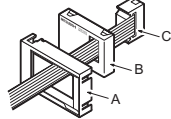
- 3) Pass the extension cable (right fig. E) through the extension cable guiding slit (right fig. F).



3.5 Connecting Extension Cable to Main Unit

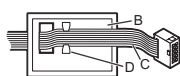
3.5.1 Connecting to FX3U Series PLC:

- 1) Pass the female connector side (right fig. C) of extension cable through the display module mounting top cover¹ (right fig. A) and PLC cover (right fig. B).

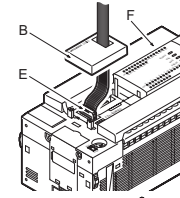


¹ It is an accessory of the FX3U-7DM.

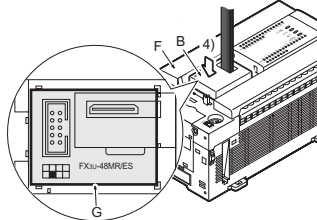
- 2) Pass the extension cable (right fig. C) into the guides (right fig. D) through the PLC cover (right fig. B).



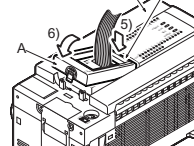
- 3) Connect the female connector side (right fig. E) of the extension cable to the display module connector on the main unit (right fig. F).



- 4) Insert the sliding PLC cover (right fig. B) to G position as per the right figure of the main unit (right fig. F).



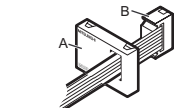
- 5) Place the right figure H side of the display module mounting top cover (right fig. A) on the main unit (right fig. F).



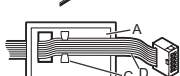
- 6) The display module mounting top cover (right fig. A) is installed in the main unit (right fig. F) as shown in the right figure.

3.5.2 Connecting to FX3UC Series PLC:

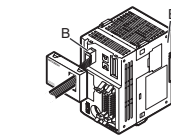
- 1) Pass the female connector side (right fig. B) of extension cable through the PLC cover (right fig. A).



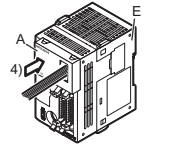
- 2) Pass the extension cable (right fig. D) into the guides (right fig. C) through the PLC cover (right fig. A).



- 3) Connect the female connector side (right fig. B) of the extension cable to the display module connector on the main unit (right fig. E).



- 4) Slide PLC cover (right fig. A), and install to the main unit (right fig. E), as shown in the right figure.



4. Wiring

WIRING PRECAUTIONS **DANGER**

- Cut off all phases of the power source externally before starting the installation or wiring work, thus avoiding electric shock or damages to the product.

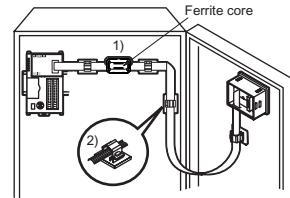
WIRING PRECAUTIONS **CAUTION**

- Do not use the product with force applied to the extension cable. Otherwise, cable breakage or trouble may occur.
- Never let cutting chips and wire chips enter the ventilation slits of this product or PLC when drilling screw holes or performing wiring. Otherwise, fire, failure or malfunction may be caused.
- Make sure to observe the precaution below in order to prevent any damage to a machine or any accident that might be caused by abnormal data written in the PLC due to the influence of noise:
 - Do not bundle main circuit wiring. The high-voltage line or the load carrying wire, or proximity to each line should be separated. Otherwise effects of noise or surge induction are likely to take place. Keep a safe distance of more than 100 mm (3.94") from the above when wiring.

When wiring the extension cable, keep a safe distance of more than 100 mm (3.94") from the noise source such as output cables of a PLC or power source.

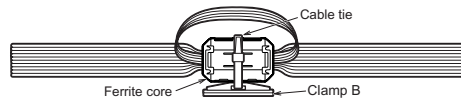
4.1 Wiring inside Control Panel

Effects of noise are likely to take place if the extension cable touches the control panel. Use the clamps offered as an accessory to space the extension cable from the cabinet and the panel face as much as possible. Moreover, the ferrite core with extension cable should be fixed so that it will not move.

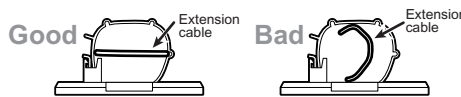


Caution on using a clamp

- 1) When fixing ferrite core to the extension cable with clamp B, fix them together as the figure shown below.



- 2) When fixing the extension cable with clamp A, Do not twist the cable as the figure shown left below.



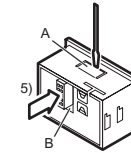
5 Remove

Follow the below procedures when uninstalling the display module in such a case as display module replacement.

5.1 Removing Display Module from Display Holder

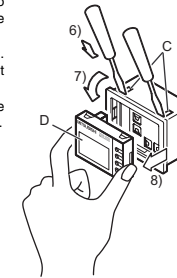
Take these steps after dismounting the holder from the control panel.

- 1) Turn OFF the power.
- 2) Disconnect the extension cable.
- 3) Remove the display holder from the panel face.
- 4) Float the display module fixing hook (right fig. A) at the bottom of the display holder a little using a flat blade screwdriver.
- 5) Push out the main unit connector (right fig. B) part of the display module from the rear while keeping the display module fixing hook (right fig. A) up a little.



Be careful not to drop the display module.

- 6) Gently place the tip of the flat blade screwdriver to the display module fixing hooks (right fig. C) on the top face of the display holder.
- 7) Float the two display module fixing hook (right fig. C) at the top of the display holder a little by the flat blade screwdriver.
- 8) Hold the display module (right fig. D) and remove the display module (right fig. D) from the front side.



5.2 Removing PLC Cover from PLC

→ For the FX3U PLC, refer to FX3U Series User's Manual - Hardware Edition

- Removing PLC Cover from FX3UC PLC
The removing method from PLC is the same as the removing method of display module (FX3U-7DM).

→ For the FX3UC PLC, refer to subsection 3.1.2

6. Specification

6.1 Applicable PLC

Item	Description
Applicable PLC	FX3U Series PLC (from the first product) FX3UC Series PLC (from the first product)

6.2 General Specifications

Item	Specification				
Ambient temperature	0 to 55°C (32 to 131°F) when operating and -25 to 75°C (-4 to 158°F) when stored				
Ambient humidity	5 to 95%RH (no condensation) when operating				
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dusts				
Vibration resistance	Conforms to EN 68-2-6				
	Under intermittent vibration	Frequency (Hz)	Acceleration (m/s ²)	Half amplitude (mm)	Sweep Count for X, Y, Z: 10 times (80 min in each direction)
		10 to 57Hz	-	0.075mm	
	Under continuous vibration	57 to 150Hz	9.8m/s ²	-	
10 to 57Hz		-	0.035mm		
57 to 150Hz	4.9m/s ²	-			
Shock resistance	Conforms to EN 68-2-27 (147 m/s ² Acceleration, Action time: 11ms, 3 times in each direction X, Y, and Z)				
Working altitude	Conforms to IEC61131-2 (<2000m)				
Protection	Equivalent to IP940 (Non - watertight type construction)				

7. Caution on use

STARTUP AND MAINTENANCE PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> • Do not disassemble or modify the unit. Doing so may cause failure, malfunction or fire. * For repair, contact your local Mitsubishi Electric distributor. • Do not drop the product or do not exert strong impact, doing so may cause damage. 	
DISPOSAL PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> • Please contact a company certified in the disposal of electronic waste for environmentally safe recycling and disposal of your device. 	
TRANSPORT AND STORAGE PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> • During transportation avoid any impact as the product is a precision instrument. Check the operation of the product after transportation. 	

This product or display module does not have protective construction against water and such. Do not let a drop of water touch either.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Warranty
Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

For safe use
<ul style="list-style-type: none"> • 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 failsafe functions in the system.

MITSUBISHI PROGRAMMABLE CONTROLLERS
FX3U-7DM-HLD
USER'S MANUAL

Manual Number: JY997D15401
 Revision: D
 Date: June 2005

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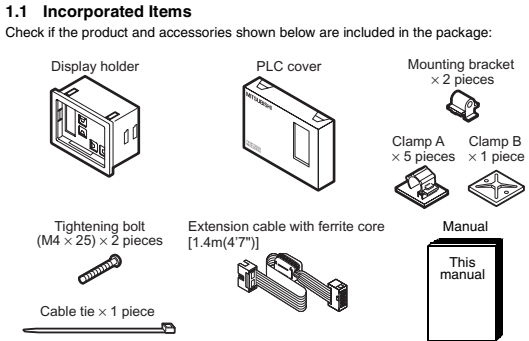
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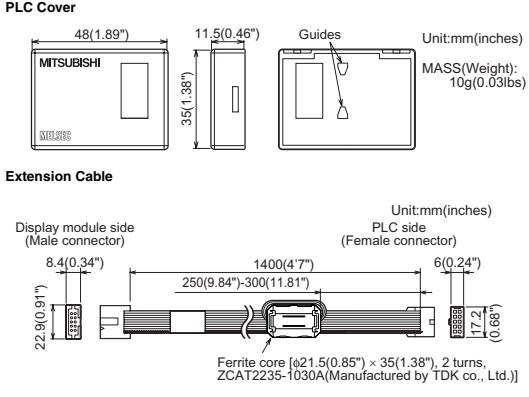
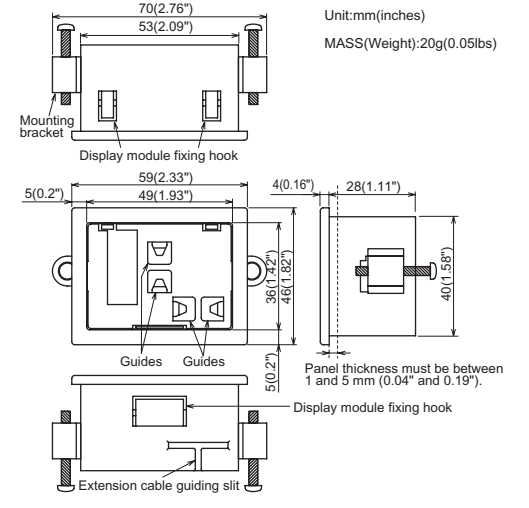
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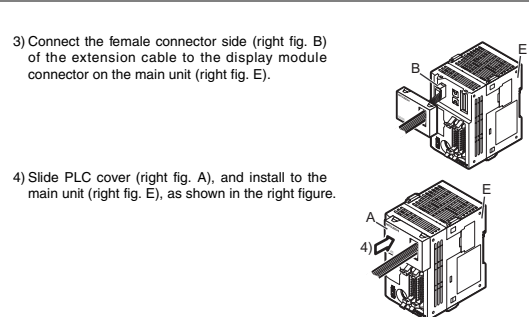
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1.2 External Dimensions and Part Names



3.5 Connecting Extension Cable to Main Unit



4. Wiring

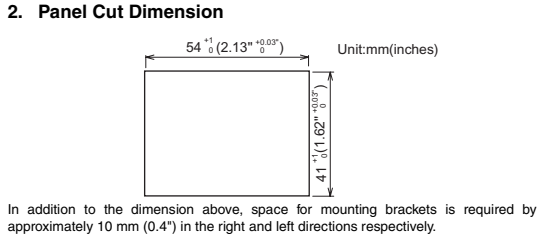
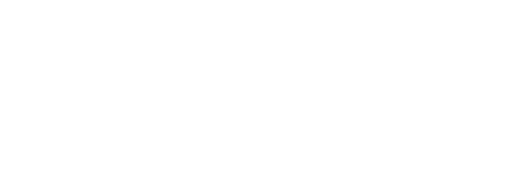
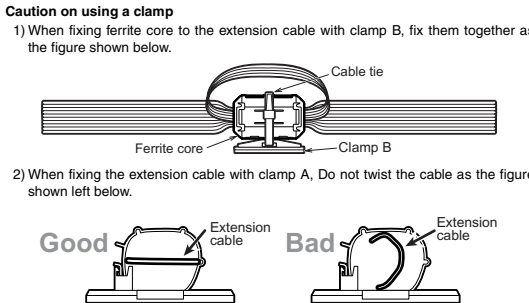
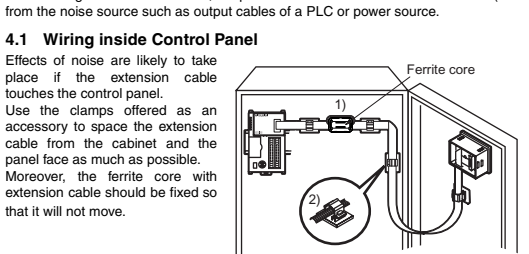
WIRING PRECAUTIONS **⚠ DANGER**

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WIRING PRECAUTIONS **⚠ CAUTION**

- Do not use the product with force applied to the extension cable. Otherwise, cable breakage or trouble may occur.
- Never let cutting chips and wire chips enter the ventilation slits of this product or PLC when drilling screw holes or performing wiring. Otherwise, fire, failure or malfunction may be caused.
- Make sure to observe the precaution below in order to prevent any damage to a machine or any accident that might be caused by abnormal data written in the PLC due to the influence of noise:
 - Do not bundle main circuit wiring. The high-voltage line or the load carrying wire, or proximity to each line should be separated.
 - Otherwise effects of noise or surge induction are likely to take place. Keep a safe distance of more than 100 mm (3.94") from the above when wiring.

When wiring the extension cable, keep a safe distance of more than 100 mm (3.94") from the noise source such as output cables of a PLC or power source.



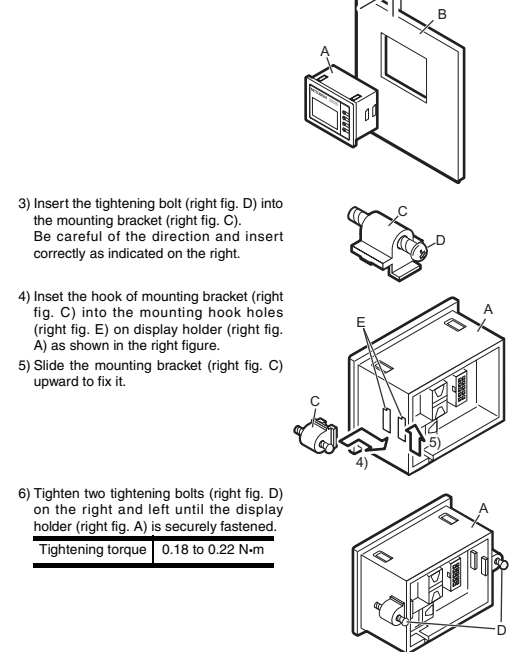
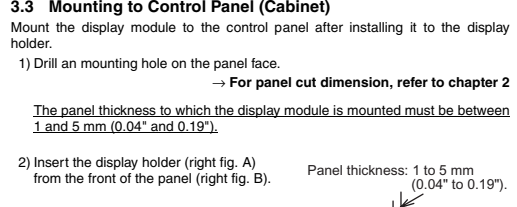
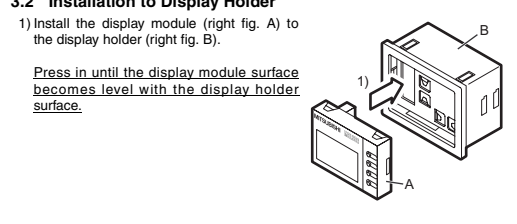
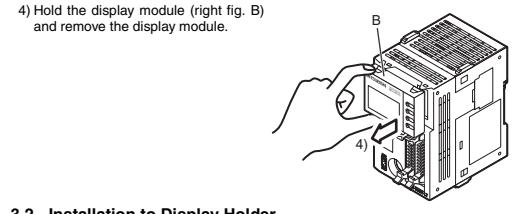
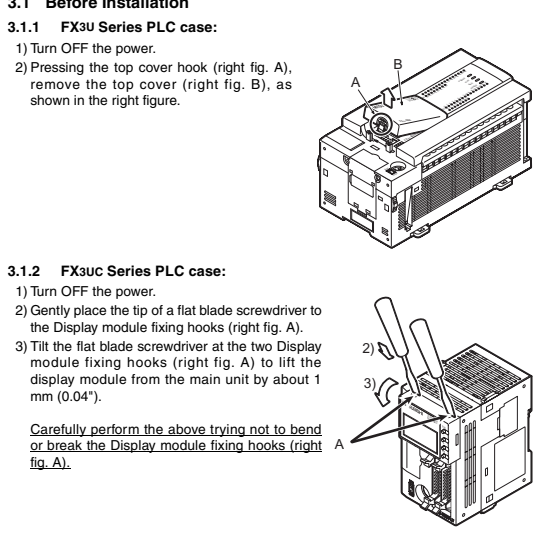
3. Installation

INSTALLATION PRECAUTIONS **⚠ DANGER**

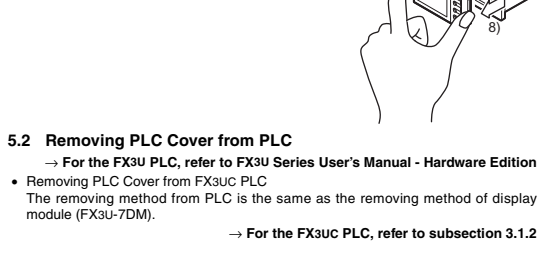
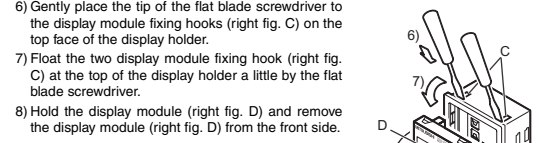
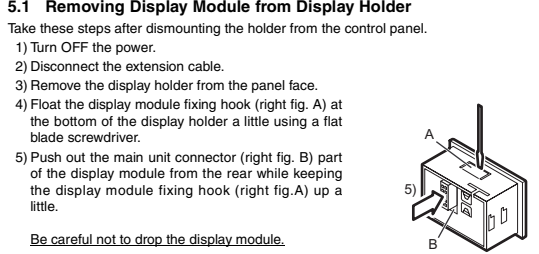
- Cut off all phases of the power source externally before starting the installation or wiring work, thus avoiding electric shock or damages to the product.

INSTALLATION PRECAUTIONS **⚠ CAUTION**

- Use the product in the environment within the general specifications described in PLC main unit manual (Hardware Edition). Never use the product in areas with dust, oily smoke, conductive dusts, corrosive gas (salt air, Cl₂, H₂S, SO₂, or NO₂), flammable gas, vibrations or impacts, or expose it to high temperature, condensation, or wind and rain. If the product is used in such a place described above, electrical shock, fire, malfunction, damage, or deterioration may be caused.
- Use screwdrivers carefully when performing installation work, thus avoiding accident or product damage.
- When drilling screw holes or wiring, cutting chips or wire chips should not enter ventilation slits. Such an accident may cause fire, failure or malfunction.
- Do not touch the conductive parts of the product directly, thus avoiding failure or malfunction.
- Fix the product securely to the specified connector. Incorrect connection may cause malfunction.
- Do not pull the cable when removing/attaching the connector, otherwise, wire breakage may be caused.



5. Remove
 Follow the below procedures when uninstalling the display module in such a case as display module replacement.



6. Specification

6.1 Applicable PLC

Item	Description
Applicable PLC	FX3U Series PLC (from the first product) FX3UC Series PLC (from the first product)

6.2 General Specifications

Item	Specification
Ambient temperature	0 to 55°C (32 to 131°F) when operating and -25 to 75°C (-4 to 158°F) when stored
Ambient humidity	5 to 95%RH (no condensation) when operating
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dusts
	Conforms to EN 68-2-6
Vibration resistance	Frequency (Hz)
	Acceleration (m/s ²)
	Half amplitude (mm)
	Sweep Count for X, Y, Z: 10 times (80 min in each direction)
	Under intermittent vibration
	Under continuous vibration
Shock resistance	Conforms to EN 68-2-27 (147 m/s ² Acceleration, Action time: 11ms, 3 times in each direction X, Y, and Z)
Working altitude	Conforms to IEC61131-2 (<2000m)
Protection	Equivalent to IP940 (Non - watertight type construction)

7. Caution on use

STARTUP AND MAINTENANCE PRECAUTIONS **⚠ CAUTION**

- Do not disassemble or modify the unit. Doing so may cause failure, malfunction or fire. * For repair, contact your local Mitsubishi Electric distributor.
- Do not drop the product or do not exert strong impact, doing so may cause damage.

DISPOSAL PRECAUTIONS **⚠ CAUTION**

- Please contact a company certified in the disposal of electronic waste for environmentally safe recycling and disposal of your device.

TRANSPORT AND STORAGE PRECAUTIONS **⚠ CAUTION**

- During transportation avoid any impact as the product is a precision instrument. Check the operation of the product after transportation.

This product or display module does not have protective construction against water and such. Do not let a drop of water touch either.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Warranty
 Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

⚠ 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 failsafe functions in the system.