

MITSUBISHI PROGRAMMABLE CONTROLLERS MELSEC-F
FX-232AWC-H
USER'S MANUAL

Manual Number	JY997D12601
Revision	C
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
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 Effective June 2005
 Specifications are subject to change without notice.
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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
FX Series User's Manual - Data Communication Edition	JY997D16901 MODEL CODE: 09R715	Explains N:N link, parallel link, computer link, no protocol communication by RS instructions/FX2N-232IF.

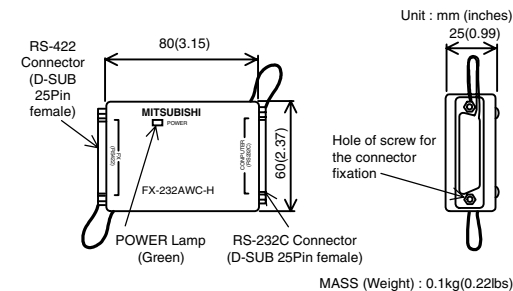
How to obtain manuals
 For the necessary product manuals or documents, consult with the Mitsubishi Electric dealer from where you purchase your product.

1. Outline
 The FX-232AWC-H is a RS-422/RS-232C converter to connect the FX series PLC with a personal computer.

1.1 Incorporated Items
 Check if the following product and items are included in the package:

Product	Contents
Product	FX-232AWC-H type interface unit
Included items	User's Manual (this manual)

1.2 External Dimensions and Part Names



2. Specification

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, NH₃, 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.

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.
- Since the FX-232AWC-H case is made of resin, do not drop it 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 the product.

TRANSPORT AND STORAGE PRECAUTIONS ⚠ **CAUTION**

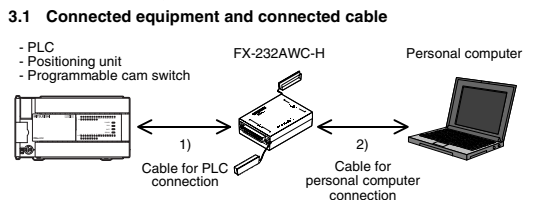
- During transportation avoid any impact as the product is a precision instrument. Check the operation of the product after transportation.

2.1 General Specifications
 General specifications are the same as the PLC main unit. For general specifications, refer to the PLC main unit manual.

2.2 Electrical Specification

Power	5V DC, supplied by programmable controller
Current consumption	120mA or less
Level Conversion	Bidirectional between RS-422 and RS-232C
Baud Rate	115200 bits per second, maximum (The baud rate is different in PLC.)

3. System Configuration



1) Cable for PLC connection
 Select the cable depending on the connected PLC (The positioning units and the programmable cam switch are included).

Connected equipment	Baud rate	1) RS-422 cable for PLC connection	
FX0, FX0S, FX0N, FX1S	9.6 kbps	FX-422CAB0 ²	
FX1N, FX1NC ¹	19.2 kbps or less		
FX2N (Earlier than Ver.3.00), FX2NC (Earlier than Ver.3.00)	9.6 kbps		
FX2N (Ver.3.00 or later), FX2NC (Ver.3.00 or later)	19.2 kbps or less		
FX3U, FX3UC ¹	115.2 kbps or less		
FX1 ¹ , FX2(FX), FX2C	9.6 kbps	FX-422CAB ² , FX-422CAB-150 ²	
Positioning unit	FX2N-10GM, FX2N-20GM	9.6 kbps	FX-422CAB0 ²
	FX-10GM, FX-20GM	9.6 kbps	FX-422CAB/GM ²
Programmable cam switch	FX2N-1RM(-E)-SET	9.6 kbps	FX-422CAB0 ²

*1 FX1 / FX1NC / FX3UC Series PLC specification details for I/O, wiring, installation, and maintenance can only be found in the Japanese Manual.
 *2 The cables are sold separately.

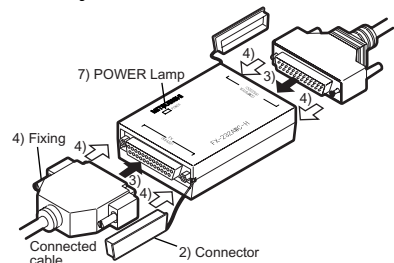
2) Cable for personal computer connection
 Select the cable according to the shape of the RS-232C connector of the personal computer used.

- 9-Pin D-Sub: F-232CAB-1
- 14-Pin Half pitch: F-232CAB-2
- 25-Pin D-Sub: F-232CAB

• The cable is sold separately.

4. Connecting Procedure

- Turn OFF the power supply of the PLC.
- Remove the connector cover of the FX-232AWC-H.
- Connect the cables to the connectors of the FX-232AWC-H. (Select the cable referring to "3. System Configuration")
- Fix the connector of the FX-232AWC-H and the connected cable with the fixing screws.
- Turn on the power supply of the PLC.
- Turn on the power supply of the Personal computer.
- Make sure the POWER Lamp of the FX-232AWC-H is lit. (The POWER Lamp of the FX-232AWC-H lights when the power supply is normally supplied by the PLC)
- When the FX-232AWC-H is not in use, reattach the connector cover to prevent dust from entering.



5. Troubleshooting

When it is not possible to communicate between the PLC (The positioning units and the programmable cam switch are included,) and the personal computer via the FX-232AWC-H, check the following depending on the status of the POWER Lamp of the FX-232AWC-H.

State of POWER Lamp	Contents
POWER Lamp is lit.	The DC5V power supply from PLC is normally supplied. Check the following when it is not possible to communicate. <ul style="list-style-type: none"> Check if the correct cable is connected between the FX-232AWC-H and the personal computer. Confirm whether the selection of the communication setting and the connected model is correctly set referring to the manual of the software which is installed on the personal computer.
POWER Lamp is not lit.	The DC5V power supply from PLC is not supplied. Confirm the items below. <ul style="list-style-type: none"> Ensure that the FX-232AWC-H and the PLC are connected with the specified cable. Confirm whether the power supply is supplied to the PLC. (POWER Lamp of PLC lights when the power supply is correctly supplied to the PLC.) Confirm whether the DC5V power supply capacity of PLC is sufficient. The PLC supplies DC5V to the special function blocks. (The PLC will not operate when a configuration that exceeds the DC5V capacity is used. It will also be impossible to communicate normally.)

Note Concerning the CE Marking
 The CE marking does not guarantee that an entire mechanical module produced in accordance with the contents of the notification comply with the following standards. Compliance to EMC standards of the entire mechanical module should be checked by the user / manufacturer.

Standards with which this product complies
 Type: Programmable Controller (Open Type Equipment)
 Models: Products manufactured from July 1st, 2004.

Electromagnetic Compatibility Standards (EMC)	Remark
EN61000-6-4:2001 Electromagnetic compatibility - Generic standards - Emission standard for Industrial environment	Compliance with all relevant aspects of the standard. (Radiated Emissions and Mains Terminal Voltage Emissions)
EN61131-2:2003 Programmable controllers Equipment requirements and tests	Compliance with all relevant aspects of the standard. (RF Immunity, Fast transients, ESD, Damped oscillatory wave, Conducted, Surges and Power magnetic fields)
EN61000-6-2:2001 Electromagnetic compatibility - Generic standards Immunity for industrial environments.	Compliance with all relevant aspects of the standard. (RF Immunity, Fast transients, ESD, Conducted, Surges, Power magnetic fields, Voltage dips and Voltage interruptions)

Notes for compliance to the EMC regulation.
 It is necessary to install the FX-232AWC-H module in a shielded metal control panel. For more details please contact the local Mitsubishi Electric sales site.

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.