

Side B

Side A

JAPANESE

Side B

ENGLISH



Changes for the Better

FX-USB-AW INTERFACE MODULE

USER'S MANUAL



Manual Number	JY997D13201
Revision	A
Date	Jan. 2004

- This manual contains text, diagrams and explanations which guide the reader in the correct installation and operation of the FX-USB-AW interface module. It should be read and understood before attempting to use the unit.
- If in doubt at any stage of the installation of FX-USB-AW, consult a professional electrical technician who is qualified and trained to the local and national standards which apply to the installation site.
- If in doubt about the operation or use of the FX-USB-AW please consult the nearest Mitsubishi Electric distributor.
- This manual is subject to change without notice.
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- The company name and the product name described in this manual are the registered trademarks or trademarks of each company.

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Guideline for the safety of the user and protection of the FX-USB-AW.

This manual provides usage information for the FX-USB-AW interface module. The manual has been written to be used by trained and competent personnel.

Notes on the symbols used in this manual

At various times throughout out this manual certain symbols will be used to highlight points of information which are intended to ensure the users personal safety and protect the integrity of equipment. Whenever any of the following symbols are encountered, its associated note must be read and understood. Each of the symbols used will now be listed with a brief description of its meaning.

Hardware Warnings



1) Indicates that the identified danger WILL cause physical and property damage.



2) Indicates that the identified danger could POSSIBLY cause physical and property damage.



3) Indicates a point of further interest or further explanation.



DISPOSAL PRECAUTIONS

When disposing of this product, treat it as industrial waste.



INSTALLATION PRECAUTIONS

Use the module in an environment that meets the general specifications contained in this manual. Using this module in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.

Do not disassemble or modify the module. Doing so may cause failure, malfunction, injury, or fire.

TRANSPORTATION AND MAINTENANCE PRECAUTIONS

During transportation avoid any impact as the module is a precision instrument. Doing so could cause trouble in the module.

If it is necessary to check the operation of module after transportation, in case of any impact damage.

1. Associated Manuals

Manual name	Manual No.	Description
FX Series Communication User's Manual	JY992D69901 MODEL CODE: 09R708	Manual describing the procedures for communications and cable wiring

2. Outline

The FX-USB-AW is a RS-422/USB conversion interface unit to connect the FX series PLC to a personal computer.

2.1 Product composition

Product	FX-USB-AW type interface unit
Included items	USB driver software (CD-ROM) USB cable (3m (118.1")) User's Manual (this manual)

3. Specification

3.1 General Specifications

Item	Description
Operating Temperature	0 to 55 °C (32 to 131 °F)
Storage Temperature	-20 to 70 °C (-4 to 158 °F)
Operating Humidity	35 to 85% Relative Humidity, No condensation
Storage Humidity	35 to 90% Relative Humidity, No condensation
Shock Resistance	Conforms to EN 68-2-27: 147m/s <sup>2</sup> Acceleration, Action Time: 11 ms 3 times in each direction X, Y, and Z
Noise Immunity	1000 Vp-p, 1microsecond, 30 - 100 Hz, tested by noise simulator
Required Operating Environment	No corrosive gases present, minimal dust

3.2 Performance Specifications

Power	DC 5V, supplied by personal computer and programmable controller	
Current consumption	RS-422:15mA, USB:30mA	
Level Conversion	Bidirectional between RS-422 and USB	
Baud Rate	115200 bits per second, maximum (The baud rate is different in PLC.)	
Conforming standard	USB2.0 (For full speed)	
FX-USB-AW Connector specification	To PLC	RS-422 (MINI DIN 8Pin male)
	To a cable	USB (MINI B plug female)
Cable Connector specification	To FX-USB-AW	USB (MINI B plug male)
	To PC	USB (A plug male)
Length of cable	5m (196.9") at most (Included cable is 3m (118.1").)	

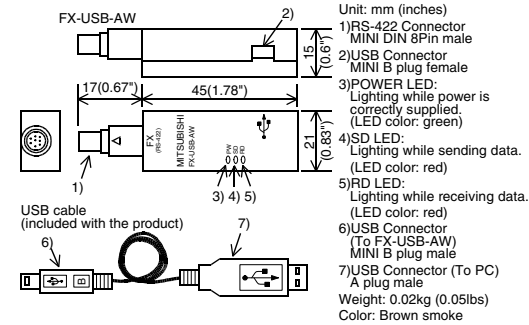
3.3 System Requirements

OS	Microsoft® Windows®98, Windows®98SE Microsoft® Windows®Millennium Edition Microsoft® Windows®2000 Microsoft® Windows®XP
Software	SWD5C-GPPW-E (GX Developer) FX-PCS/WIN-E*1 FX-PCS-VPS/WIN-E
Programmable controller	FX0, FX0S, FX0N, FX1S, FX1N, FX2N, FX2NC FX2N-10GM, FX2N-20GM, FX2N-1RM-E-SET

\*1 For versions earlier than 3.30, the communication port setting can be selected from COM1-COM4.  
For versions 3.30 or later, the communication port setting can be selected from COM1-COM9.

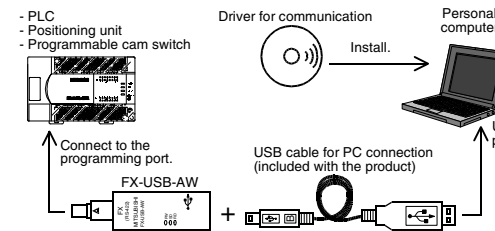
- If a communication error message is indicated while operating the programming tool (when executing "Write to PLC", "Read from PLC", or "Monitor"), disconnect the USB cable once (from either the PC or the FX-USB-AW) and connect it again. Then clear the error message and choose Write, Read, or Monitor again.
- The programming tool may not be operated properly due to a contact failure at connectors or breaking of wire. Make sure to save the program before transferring or changing it.

4. Outside Dimensions and Part Names



5. System Configuration

Connected equipment and connected cable



	Connected equipment	Baud rate	Cable for personal computer connection
Programmable controller	FX0, FX0S, FX0N, FX1S	9.6 kbps	USB cable of 5m (196.9") at most (Included cable is 3m (118.1").)
	FX1N	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	
	FX2N-10GM, FX2N-20GM	9.6 kbps	
Positioning unit	FX-10GM, FX-20GM	9.6 kbps	
	FX-10GM, FX-20GM	9.6 kbps	
Programmable cam switch	FX2N-1RM-E-SET	9.6 kbps	

Please refer to the specific PLC manual for a PLC not mentioned above.

6. Connecting Procedure

- Turn OFF the power supply of the PLC.
- Connect the USB (MINI B plug male) connector of the USB cable to the FX-USB-AW.
- Connect the RS-422 (MINI DIN 8Pin male) connector of the FX-USB-AW to the PLC.
- Connect the USB (A plug male) connector of the USB cable to the Personal computer.
- 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-USB-AW is lit. (The POWER lamp of FX-USB-AW lights when power is supplied normally by the personal computer.)

7. Method of Installing Driver

The procedure for installing the driver is explained below. A Windows XP installation follows.

- With Windows 98, Windows 98SE, Windows Millennium Edition, and Windows 2000, the installation method will vary. When the installation of the driver is canceled during the following process, the installation is not carried out correctly. If the installation is canceled, uninstall the driver and install it again. Please refer to Chapter 9 for the instructions on uninstalling the driver.

Please install the driver with the to procedure below.

- When the USB cable is connected to the personal computer, the following screen is displayed. (Installation of the software for FX-USB-AW)



Insert the included CD-ROM (USB driver software) into the personal computer's CD-ROM drive.

Click [Next >].

The installation of the FX-USB-AW software will begin. A window to select the location of the installation files. Please select the CD-ROM drive.

- The following screen is displayed. (Only in Windows XP)



Click [Continue Anyway].

3) The following screen is displayed.



Click [ Finish ].

The installation of the FX-USB-AW software will finish.

- When using Windows Millennium Edition of Windows 98 or Windows 98SE installation of the USB Serial Port software begins, and ends automatically. The CD-ROM (USB driver software) can be removed from the personal computer at this time.
- If using Windows 2000 or XP, proceed to step 4).



4) The following screen is displayed.



Click [ Next > ].

The installation of the USB Serial Port software will begin.

- A window to select the location of the installation files. Please select the CD-ROM drive.

5) The screen of 2) is displayed. (Only in Windows XP)

Click [ Continue Anyway ].

6) The following screen is displayed.



Click [ Finish ].

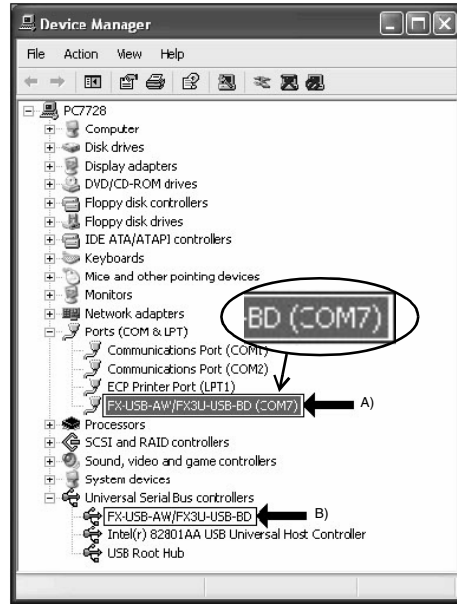
The installation of the USB Serial Port software will finish.

The CD-ROM (USB driver software) can be removed from the personal computer at this time.


## 8. Installation Confirmation of Driver

The procedure for confirming the installation of the driver is described below. A Windows XP example follows.

- In Windows XP, click [ Start ] → [ Control Panel ] → [ System ] → [ Hardware ] → [ Device Manager (D) ] and the window below will be displayed. Please confirm the COM number to which the FX-USB-AW is allocated (COM and LPT).
- When using Windows Millennium Edition of Windows 98 and Windows 98SE, Windows 2000 A screen that is equivalent to the one below is displayed by clicking [ My Computer ] → [ Control Panel ] → [ System ] → [ Device Manager ] in the menu of the personal computer.



### Check following:

- FX-USB-AW/FX3U-USB-BD is indicated at A).
- FX-USB-AW/FX3U-USB-BD (COM \*) is indicated at B).
- \* indicates the COM number used in FX-USB-AW.
- Install the driver again when  is displayed.

Match the COM number of the programming software to the COM number displayed here.

### Setting GX Developer:

Double-click [ Online ] → [ Transfer setup ] → [ Serial ] of PC side I/F.

Select the same COM number as the COM number of the personal computer when the PC side I/F serial setting Dialog Box appears.

Click [ OK ] of [ Connection Setup ] screen to end.



## 9. Method for Uninstalling Driver

The procedure for uninstalling the driver is explained below. A Windows XP example follows.

Please uninstall the driver by the procedure below.

- 1) Detach the USB cable from the personal computer. Click [ Start ] → [ Control Panel ] → [ Add or Remove Programs ] in the menu of the personal computer, the window below will be displayed.
  - In case of Windows Millennium Edition of Windows 98 and Windows 98SE, Windows 2000 A screen that is equivalent to the one below is displayed by clicking [ My Computer ] → [ Control Panel ] → [ Add/Remove Programs ] in the menu of the personal computer.



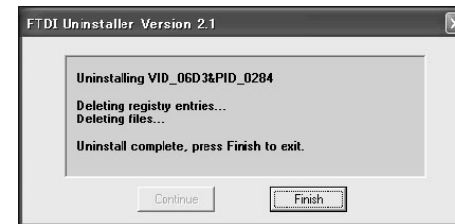
Click [ Change/Remove ].

2) The following screen is displayed.



Click [ Continue ].

3) The following screen is displayed.



Click [ Finish ].

## 10. Troubleshooting

If communication cannot be established between the PLC (as well as a positioning unit or a programmable cam switch) and a PC using FX-USB-AW, confirm the following status by checking POWER LED, SD LED, and RD LED in FX-USB-AW.

State of POWER LED	Contents
POWER LED is lit.	The DC5V power supply from the personal computer is normally supplied. In case of no communication, check the status of SD LED and RD LED.
POWER LED is not lit.	The DC 5V power supply from the personal computer is not supplied. Check the items below. <ul style="list-style-type: none"> <li>• Confirm that the specified cable is used to connect the FX-USB-AW and the personal computer.</li> <li>• Confirm whether the power supply is supplied to personal computer.</li> </ul>

### The status of SD LED and RD LED.

The status of SD LED and RD LED.		Contents
SD	Blinking	Communicating correctly
	Extinguished	<ul style="list-style-type: none"> <li>• Confirm that the power supply is supplied to the personal computer.</li> <li>• Confirm the PC and the PLC are connected properly with the specified cable.</li> <li>• Confirm that the communication setting and connected PLC are correctly set in the software. Refer to the software manual.</li> </ul>
RD	Blinking	Receiving correctly
	Extinguished	<ul style="list-style-type: none"> <li>• Confirm that the power supply is supplied to PLC.</li> <li>• The PLC will not operate when a configuration that exceeds the DC 5V or DC 24V capacity is used. It will also be impossible to communicate normally.</li> <li>• Confirm that the specified cable is used to connect the PC and PLC.</li> <li>• Confirm that the communication setting and connected PLC are correctly set in the software. Refer to the software manual.</li> </ul>

**MITSUBISHI** PROGRAMMABLE CONTROLLERS  
**FX-USB-AW INTERFACE MODULE**  
**USER'S MANUAL**

Manual Number: JY997D13201  
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This manual contains text, diagrams and explanations which guide the reader in the correct installation and operation of the FX-USB-AW interface module. It should be read and understood before attempting to use the unit.

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**1. Associated Manuals**

Manual name	Manual No.	Description
FX Series Communication User's Manual	JY992D69901 MODEL CODE: 09R708	Manual describing the procedures for communications and cable wiring

**2. Outline**

The FX-USB-AW is a RS-422/USB conversion interface unit to connect the FX series PLC to a personal computer.

**2.1 Product composition**

Product	FX-USB-AW type interface unit
Included items	USB driver software (CD-ROM) USB cable (3m (118.1")) User's Manual (this manual)

**3. Specification**

**3.1 General Specifications**

Item	Description
Operating Temperature	0 to 55 °C (32 to 131 °F)
Storage Temperature	-20 to 70 °C (-4 to 158 °F)
Operating Humidity	35 to 85% Relative Humidity, No condensation
Storage Humidity	35 to 90% Relative Humidity, No condensation
Shock Resistance	Conforms to EN 68-2-27: 147m/s <sup>2</sup> Acceleration, Action Time: 11 ms 3 times in each direction X, Y, and Z
Noise Immunity	1000 Vp-p, 1microsecond, 30 - 100 Hz, tested by noise simulator
Required Operating Environment	No corrosive gases present, minimal dust

**3.2 Performance Specifications**

Power	DC 5V, supplied by personal computer and programmable controller
Current consumption	RS-422:15mA, USB:30mA
Level Conversion	Bidirectional between RS-422 and USB
Baud Rate	115200 bits per second, maximum (The baud rate is different in PLC.)
Conforming standard	USB2.0 (For full speed)
FX-USB-AW Connector specification	To PLC: RS-422 (MINI DIN 8Pin male) To a cable: USB (MINI B plug female)
Cable Connector specification	To FX-USB-AW: USB (MINI B plug male) To PC: USB (A plug male)
Length of cable	5m (196.9") at most (Included cable is 3m (118.1"))

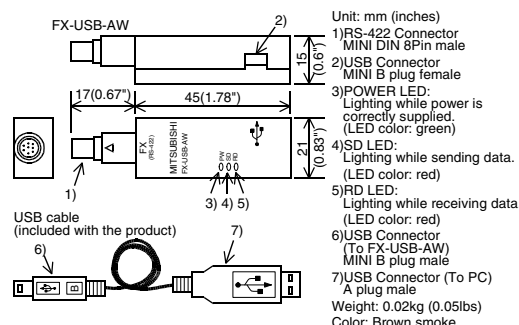
**3.3 System Requirements**

OS	Microsoft® Windows®98, Windows®98SE Microsoft® Windows®Millennium Edition Microsoft® Windows®2000 Microsoft® Windows®XP
Software	SWD5C-GPPW-E (GX Developer) FX-PCSWIN-E*1 FX-PCSWIN-E
Programmable controller	FX0, FX0S, FX0N, FX1S, FX1N, FX2N, FX2NC FX2N-10GM, FX2N-20GM, FX2N-1RM-E-SET

\*1 For versions earlier than 3.30, the communication port setting can be selected from COM1-COM4.  
 For versions 3.30 or later, the communication port setting can be selected from COM1-COM9.

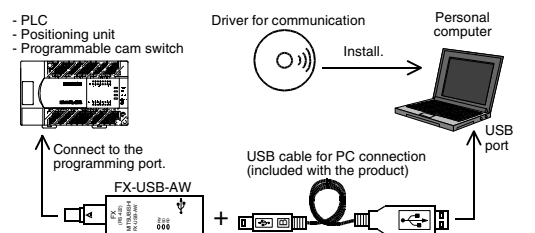
- If a communication error message is indicated while operating the programming tool (when executing "Write to PLC", "Read from PLC", or "Monitor"), disconnect the USB cable once (from either the PC or the FX-USB-AW) and connect it again. Then clear the error message and choose Write, Read, or Monitor again.
- The programming tool may not be operated properly due to a contact failure at connectors or breaking of wire. Make sure to save the program before transferring or changing it.

**4. Outside Dimensions and Part Names**



**5. System Configuration**

**Connected equipment and connected cable**



Connected equipment	Baud rate	Cable for personal computer connection
Programmable controller	FX0, FX0S, FX0N, FX1S	9.6 kbps
	FX1N	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
Positioning unit	FX2N-10GM, FX2N-20GM	9.6 kbps
	FX-10GM, FX-20GM	9.6 kbps
Programmable cam switch	FX2N-1RM-E-SET	9.6 kbps

\* Please refer to the specific PLC manual for a PLC not mentioned above.

**6. Connecting Procedure**

- Turn OFF the power supply of the PLC.
- Connect the USB (MINI B plug male) connector of the USB cable to the FX-USB-AW.
- Connect the RS-422 (MINI DIN 8Pin male) connector of the FX-USB-AW to the PLC.
- Connect the USB (A plug male) connector of the USB cable to the Personal computer.
- 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-USB-AW is lit. (The POWER lamp of FX-USB-AW lights when power is supplied normally by the personal computer.)

**7. Method of Installing Driver**

The procedure for installing the driver is explained below. A Windows XP installation follows.

- With Windows 98, Windows 98SE, Windows Millennium Edition, and Windows 2000, the installation method will vary. When the installation of the driver is canceled during the following process, the installation is not carried out correctly. If the installation is canceled, uninstall the driver and install it again. Please refer to Chapter 9 for the instructions on uninstalling the driver.

Please install the driver with the to procedure below.

- When the USB cable is connected to the personal computer, the following screen is displayed. (Installation of the software for FX-USB-AW)



Insert the included CD-ROM (USB driver software) into the personal computer's CD-ROM drive. Click [ Next > ]. The installation of the FX-USB-AW software will begin. A window to select the location of the installation files. Please select the CD-ROM drive.

- The following screen is displayed. (Only in Windows XP)



Click [ Continue Anyway ].

- The following screen is displayed.



Click [ Finish ]. The installation of the FX-USB-AW software will finish. When using Windows Millennium Edition of Windows 98 or Windows 98SE installation of the USB Serial Port software begins, and ends automatically. The CD-ROM (USB driver software) can be removed from the personal computer at this time. If using Windows 2000 or XP, proceed to step 4).

- The following screen is displayed.



Click [ Next > ]. The installation of the USB Serial Port software will begin. A window to select the location of the installation files. Please select the CD-ROM drive.

- The screen of 2) is displayed. (Only in Windows XP) Click [ Continue Anyway ].

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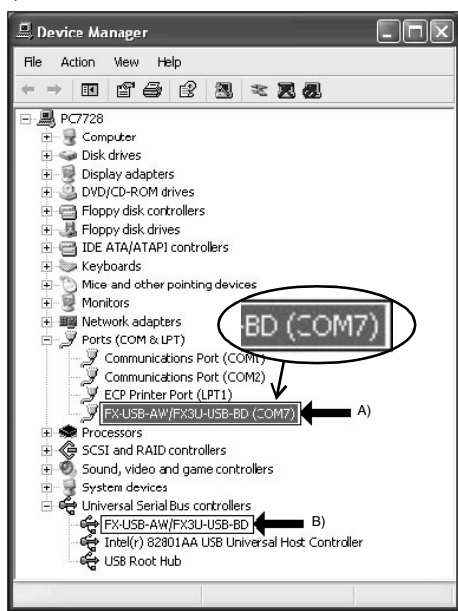


Click [ Finish ]. The installation of the USB Serial Port software will finish. The CD-ROM (USB driver software) can be removed from the personal computer at this time.

**8. Installation Confirmation of Driver**

The procedure for confirming the installation of the driver is described below. A Windows XP example follows.

- In Windows XP, click [ Start ] → [ Control Panel ] → [ System ] → [ Hardware ] → [ Device Manager (D) ] and the window below will be displayed. Please confirm the COM number to which the FX-USB-AW is allocated (COM and LPT).
- When using Windows Millennium Edition of Windows 98 and Windows 98SE, Windows 2000 A screen that is equivalent to the one below is displayed by clicking [ My Computer ] → [ Control Panel ] → [ System ] → [ Device Manager ] in the menu of the personal computer.



- Check following:**
- FX-USB-AW/FX3U-USB-BD is indicated at A).
  - FX-USB-AW/FX3U-USB-BD (COM \*) is indicated at B).
  - \* indicates the COM number used in FX-USB-AW.

Match the COM number of the programming software to the COM number displayed here.

**Setting GX Developer:**

Double-click [ Online ] → [ Transfer setup ] → [ Serial ] of PC side I/F. Select the same COM number as the COM number of the personal computer when the PC side I/F serial setting Dialog Box appears. Click [ OK ] of [ Connection Setup ] screen to end.



**9. Method for Uninstalling Driver**

The procedure for uninstalling the driver is explained below. A Windows XP example follows.

Please uninstall the driver by the procedure below.

- Detach the USB cable from the personal computer. Click [ Start ] → [ Control Panel ] → [ Add or Remove Programs ] in the menu of the personal computer, the window below will be displayed. In case of Windows Millennium Edition of Windows 98 and Windows 98SE, Windows 2000 A screen that is equivalent to the one below is displayed by clicking [ My Computer ] → [ Control Panel ] → [ Add/Remove Programs ] in the menu of the personal computer.



Click [ Change/Remove ].

- The following screen is displayed.



Click [ Continue ].

- The following screen is displayed.



Click [ Finish ].

**10. Troubleshooting**

If communication cannot be established between the PLC (as well as a positioning unit or a programmable cam switch) and a PC using FX-USB-AW, confirm the following status by checking POWER LED, SD LED, and RD LED in FX-USB-AW.

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POWER LED is lit.	The DC5V power supply from the personal computer is normally supplied. In case of no communication, check the status of SD LED and RD LED.
POWER LED is not lit.	The DC 5V power supply from the personal computer is not supplied. Check the items below. <ul style="list-style-type: none"> <li>Confirm that the specified cable is used to connect the FX-USB-AW and the personal computer.</li> <li>Confirm whether the power supply is supplied to personal computer.</li> </ul>

**The status of SD LED and RD LED.**

The status of SD LED and RD LED.	Contents
Blinking	Communicating correctly
SD Extinguished	<ul style="list-style-type: none"> <li>Confirm that the power supply is supplied to the personal computer.</li> <li>Confirm the PC and the PLC are connected properly with the specified cable.</li> <li>Confirm that the communication setting and connected PLC are correctly set in the software. Refer to the software manual.</li> </ul>
Blinking	Receiving correctly
RD Extinguished	<ul style="list-style-type: none"> <li>Confirm that the power supply is supplied to PLC.</li> <li>The PLC will not operate when a configuration that exceeds the DC 5V or DC 24V capacity is used. It will also be impossible to communicate normally.</li> <li>Confirm that the specified cable is used to connect the PC and PLC.</li> <li>Confirm that the communication setting and connected PLC are correctly set in the software. Refer to the software manual.</li> </ul>