

JY997D14901C

This manual describes the part names, dimensions, 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 wheneve necessary. Always forward it to the end user

Registration: The company and product names described in this manual are registered ademarks or the trademarks of their respective companies.

Effective September 2007

Specifications are subject to change without notice

Side

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Safety Precaution (Read these precautions before use.)

This manual classifies the safety precautions into two categories:

DANGER and CAUTION

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

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

It is important to follow all precautions for personal safety.

Associated Manuals

Manual name	Manual No.	Description
FX3U / FX3UC Series User's Manual - Analog Control Edition	JY997D16701 MODEL CODE: 09R619	Describes specifications for analog control and programming method for FX3U / FX3UC Series PLC.
FX3U/FX3UC Series Programming Manual - Basic & Applied Instruction Edition	JY997D16601 MODEL CODE: 09R517	Describes PLC programming for basic/applied instructions and devices.
FX3UC Series User's Manual - Hardware Edition	JY997D28701 MODEL CODE: 09R519	Explains the FX3UC Series PLC specifications for I/O, wiring, installation, and maintenance.

How to obtain manuals

For product manuals or documents, consult with the Mitsubishi Electric dealer from who you purchased your product.

Certification of UL, cUL standards The following product has UL and cUL certification. UL. cUL File Number:E95239

Models: MELSEC FX3UC series manufactured FX3UC-4AD

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 details please contact the local Mitsubishi Electric sales site.

Requirement 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 (89/336/EEC) when used as directed by the appropriate documentation.

Programmable Controller (Open Type Equipment) Type: MELSEC FX3UC series manufactured Models: from Oct

from October 1st, 2007 FX:	BUC-4AD
Standard	Remark
EN61131-2:2003 Programmable controllers - Equipment requirements and tests	Compliance with all relevant aspects of the standard. EMI • Radiated Emissions • Mains Terminal Voltage Emissions EMS • RF immunity • Fast Transients • ESD • Surge • Ordented

Caution for EC Directive

The FX3UC-4AD have been found to be compliant to the European standards in the aforesaid manual and directive. However, for the very best performance from what are in fact delicate measuring and controlled output device Mitsubishi Electric would like to make the following points;

As analog devices are sensitive by nature, their use should be considered carefully. For users of proprietary cables (integral with sensors or actuators), these

Power magnetic fields

users should follow those manufacturers installation requirements. Mitsubishi Electric recommend that shielded cables should be used. If NO other

EMC protection is provided, then users may experience temporary loss or accuracy between ±10% in very heavy industrial areas. However, Mitsubishi Electric suggest that if adequate EMC precautions are fol-

lowed for the users complete control system, users should expect accuracy as specified in this manual. · Sensitive analog cable should not be laid in the same trunking or cable

- conduit as high voltage cabling. Where possible users should run analog cables separately.
- · Good cable shielding should be used. Ground the shield of the twisted shielded cable at one point on the PLC side.
- · When reading analog values, EMC accuracy can be improved out by averaging the readings. This can be achieved either through functions on the special function block for analog input or through a users program in the FX3UC Series PLC main unit.
- · Please use FX3UC-4AD while installed in a shielded enclosure. For the details, refer to the following manual.

 \rightarrow Refer to the FX3UC Series User's Manual - Hardware Edition

1. Outline

The FX3UC-4AD special function block for analog input converts four analog input values (voltage, current) to digital values and transfers those digital values to the PLC main unit. For the purpose of this manual the FX3UC-4AD will from here be referred to as the 4AD

2. Incorporated Items

Verify that the following product and items are included in the package:



3. External Dimensions, Part Names, and Terminal Layout



- 24V (Red): Lit while 24V power is normally supplied from power supply.
- A/D (Red): Flashes during A/D conversion.
- [2] Terminal block (European type)
- Wiring of the voltage and current input
- [3] Connector (PLC side)
- Used to fix extension block on right side.
- [4] DIN rail mounting hook
- [5] Slide lock Used to connect the FX3UC main unit extension block
- [6] Connector
- Lised to co
- Remove th [7] Power conr
- The conne
- [8] Power cros

INSTALLATION PRECAU-	
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.	

NSTALLATION PRECAU TIONS

- Use screwdrivers carefully when performing installation work, thus avoiding accident or product damage.
- Use the product within the generic environment specifications described in PLC main unit manual (Hardware Edition).
- Never use the product in areas with excessive dust, oily smoke, conductive dusts corrosive gas (salt air, Cl₂, H₂S, SO₂, or NO₂), flammable gas, vibration or impacts or exposed to high temperature, condensation, or rain and wind.
- If the product is used in such conditions, electric shock, fire, malfunctions deterioration or damage may occur
- When drilling screw holes or wiring, make sure cutting or wire debris does not enter the ventilation slits.
- Failure to do so may cause fire, equipment failures or malfunctions. Connect FX3U-4AD securely to their designated connectors.
- Loose connections may cause malfunctions

Up to 8 units^{*1} can be connected to the EX3UC Series PLC

*1 Up to 7 units can be connected to the FX3UC-32MT-LT PLC.

4.1 Connection to the PLC

- 1) Turn off the power
 - Disconnect all the cables connected to the PLC, and demount the PLC from the DIN rail.
- 2) Remove the extension block connector cover on the main unit / extension block.



- 3) Slide the special block slide lock of the main unit / extension block.
- 4) The 4AD connector (PLC side) is connected to the main unit / extension block connector whose cover was previously removed. (see the following figure.)
- 5) Slide back the slide lock of the main unit / extension block to attach the 4AD



Main unit

4.2 Installation In Enclosure

1) Push out all DIN rail mounting hooks.



2) Fit the upper edge of the DIN rail mounting groove onto the DIN rail DIN46277 rail (35 mm (1.38") wide)



3) Lock the DIN rail mounting hooks while pressing the PLC against the DIN rail



For installation/uninstallation, Refer to the FX3UC Series User's Manual Hardware Edition

4. Installation	(4.000)(d)
The 4AD can be installed on a DIN46277 rail (35	5 mm (1.38°) wide).

4. Installation The 4AD can be installed on a DIN46277 rail (35 mm (1.38") w	extension block.
	7 rail (35 mm (1.38") wid

(Extension side)
nnect extension block on right side of this special block.
is cover for connecting.
nector (24V DC)
ctor for supplying 24V power supply to 4AD.
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5. Wiring (Power supply and analog input)

WIRING PRECAUTIONS	DAN	IGEF	र		
Make sure to cut attempting installati Failure to do so ma	off all phases of the on or wiring work. y cause electric shock of	power or dama	supply ge to the	externally e product.	before

- 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 surge induction are likely to take place. As a guideline, lay the control line at least 100mm (3.94") or more away from the main circuit or high-voltage lines.
- Ground the shield wire or shield of the shielded cable at one point on the PLC. However, do not use common grounding with heavy electrical systems.
- Make sure to properly wire to the European terminal board in accordance with the following precautions.
 Entities to do ap one output allocation about a short size it with the formation of the second s

Failure to do so may cause electric shock, a short-circuit, wire breakage, or damage to the product.

- The disposal size of the cable end should be 9mm (0.35")
- Tightening torque should be between 0.22 and 0.25 N•m.
- Twist the end of strand wire and make sure that there are no loose wires
 Do not solder plate the electric wire ends
- Do not solder-plate the electric wire ends.
- Do not connect more than the specified number of wires or electric wires of unspecified size.
- Affix the electric wires so that neither the terminal block nor the connected parts are directly stressed.

5.1 Wire and Terminal Tightening Torque

.1.1	Cable	
.1.1	Cable	

1) Applicable cable

Туре		Wire size	
	Single wire	0.3mm ² to 0.5mm ² (AWG22 to 20)	
	Double wire	0.3mm ² (AWG22)*2	

2) Termination

Strip the coating of strand wire and twist the cable core before connecting it, or strip the coating of single wire before connecting it. An alternative connection is to use a ferrule with insulating sleeve.

Manufacturer	Model	Pressure bonding tool
Phoenix Contact	AI 0.5-8WH	CRIMPFOX ZA 3 (or CRIMPFOX UD 6)

Stranded wire/solid wire
 Bar terminal with insulating sleeve



When using a stick terminal with an insulating sleeve, choose a wire with proper cable sheath referring to the above outside dimensions, otherwise the wire cannot be inserted easily.

5.1.2 Tightening Torque

Tightening torque should be between 0.22 and 0.25 N·m.

5.2 Tool

To tighten terminals, use a purchased small-sized screwdriver whose head is straight and is not widened as shown in the right figure. Note:



With

If the diameter of screwdriver grip is too small, tightening torque will not be able

to be achieved. Use the following recommended screwdriver or an appropriate replacement (grip diameter: approximately 25mm).

Manufacturer	Model
Phoenix Contact	SZS 0.4×2.5

5.3 Power supply wiring

	Supply the 24V DC power to 4AD via the power supply connector.		
	Model	Application	
	FX2NC-10BPCB1	Power crossover cable(offered as an accessory for the FX3UC-4AD)	
	FX2NC-100BPCB	Power cable(offered as an accessory for the FX3UC Series main unit)	

1) Connection example with the power supply through crossover wiring to the EX2NC input extension block



2) Connection example to the external power supply.



• Remove the resin cover from the power crossover connector and perform crossover wiring to connect the power line from 4AD to a succeeding extension block.

5.4 Wiring of Analog Input

For the terminal layout, refer to Chapter 3



- *1 Use the 2-core shielded twisted pair cable for the analog input lines, and separate the analog input lines from the other motive power lines or inductive lines.
- *2 To use the current input, be sure to short circuit the line between the V□ + terminal and the I□ + terminal (□: channel number).
- *3 The SLD and " 🛓 " terminals are connected to each other inside.
- *4 Do not connect any lines to the "•" terminal.

6. Specifications

STARTUP AND MAINTE-NANCE PRECAUTIONS

- Do not disassemble or modify the PLC.
 Doing so may cause fire, equipment failures, or malfunctions.
- For repair, contact your local Mitsubishi Electric distributor.
 Do not drop the product or exert strong impact to it.

Doing so may cause damage

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

TRANSPORT AND STOR-

 The product is a precision instrument. During transportation, avoid any impacts. Failure to do so may cause failures in the product. After transportation, verify the operations of the product.

6.1 Applicable PLC

	FX3UC Series PLC (Ver.1.30 or later)
Applicable PLC	From the production manufactured in August, 2004 with SER
	No.48****

6.2 General Specifications

The general specifications are equivalent to the PLC main unit. (For general specifications, refer to the manual of the PLC main unit.)

6.3 Power Supply Specifications

	Item	Specifications	
	A/D conversion circuit driving power	24V DC \pm 10%, 80mA (24V DC power is supplied from the power connector.)	
	Interface driving	5V DC, 100mA (5V DC power is supplied from the internal power supply of ma	
power unit, it is not		unit, it is not necessary to prepare power supply of that	

6.4 Performance Specifications

Itom	Specifications		
item	Voltage input	Current input	
Analog input range	-10 to +10V DC (Input resistance: 200 kΩ)	-20 to +20mA, 4 to 20mA DC (Input resistance: 250 Ω)	
Offset ^{*1}	-10 to +9V	-20 to +17mA	
Gain ^{*1}	10V or less, Gain - Offset≥1V	30mA or less, Gain - Offset⊵3mA	
Maximum absolute input	±15V	±30mA	
Digital output	Effective numeric value 15bits + Sign 1bit	Effective numeric value 14bits + Sign 1bit	
Resolution*2	0.32mV (20V×1/64000) 2.50mV (20V×1/8000)	1.25mA (40mA×1/32000) 5.00μA (40mA×1/8000)	
Total accuracy	 ±0.3% (±60mV) for full scale of 20V (when ambient temperature is 25°C±5°C) ±0.5% (±100mV) for full scale of 20V (when ambient temperature is 0°C to 55°C) 	 ±0.5% (±200µA) for full scale of 40mA (when ambient temperature is 25°C±5°C and a current of -20 mA to +20 mA is input) Same when input is 4mA to 20mA ±1.0% (±400µA) for full scale of 40mA (when ambient temperature is 25°C±5°C and a current of -20 mA to +20 mA is input) Same when input is 4mA to 20mA 	
A/D conversion time	500μs × number of selected channels (If channels use the digital filter(s): 5ms × number of se channels)		
Insulation method	 The photo-coupler insulates the analog input area from PLC. The DC-DC converter insulates the analog input area from power supply unit. Channels are not insulated from each other. 		
Occupied points	8 point (Count either the input or output points of the PLC.)		

*1 Change the offset and gain values to change the input characteristics. However, the resolution doesn't change even when the offset and gain values change.

- In the direct indication mode, however, the offset/gain cannot be adjusted.
- *2 The resolution depend on the input mode.

6.5 Input characteristics

For the 4AD, the nine kinds of input characteristics are provided for each input mode.

For the details of the input character, refer to the following.

Input mode Set value	Input mode	Analog input range	Digital output range	Resolu- tion
0	Voltage input mode	-10 to +10V	-32000 to +32000	0.32mV
1	Voltage input mode	-10 to +10V	-4000 to +4000	2.50mV
2	Voltage input mode Analog value direct indication	-10 to +10V	-10000 to +10000	1.00mV
3	Current input mode	4 to 20mA	0 to 16000	1.25µA
4	Current input mode	4 to 20mA	0 to 4000	5.00µA
5	Current input mode Analog value direct indication	4 to 20mA	4000 to 20000	1.25µA
6	Current input mode	-20 to +20mA	-16000 to +16000	1.25µA
7	Current input mode	-20 to +20mA	-4000 to +4000	5.00μΑ
8	Current input mode Analog value direct indication	-20 to +20mA	-20000 to +20000	1.25µA
9 to E	Not used.			
F	No channels used			

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

Misubishi will not be held liable for damage caused by factors found not to be the cause of Misubishi; opportunity loss or lost profits caused by faults in the Misubishi 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 Mitsubish 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 ELECTRIC CORPORATION

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PROGRAMMABLE CONTROLLE	Change T RS	es for the Better	Certification o The following produc UL, cUL File Numb Models: MELSEC FX3UC-4	fUL, CUL s t has UL and c er:E95239 C FX3UC series 4AD	standards :UL certification s manufacture
FX3UC-4AD			Compliance w	ith EC dire	that an entire
INSTAL	_ATION I	MANUAL	accordance with the Compliance to EMC should be checked	contents of this contective and by the user / I	s note will com I LVD directive manufacturer.
	Manual Number	JY997D14901	local Mitsubishi Elec	tric sales site.	nanalaotaron.
	Revision	С	Requirement for	r Complianc	e with EMC
FX 30C	Date	September 2007	The following product standards below) an file) to the Europear	cts have shown d design analys n Directive for	sis (through the Electromagnet
This manual describes the part specifications of the product. Before u all relevant products fully to acquire p product. Make sure to learn all the pro precautions.	names, dimension se, read this manua proficiency in handlin oduct information, sa	ns, mounting, and I and the manuals of ng and operating the fety information, and	used as directed by f Type: Program Models: MELSE(from October 1st, 20	the appropriate nmable Contro C FX3UC series 007 FX30	documentatio oller (Open Ty s manufacture UC-4AD
Store this manual in a safe place so the necessary. Always forward it to the en-	at it can be taken ou d user.	t and read whenever	Standa	rd	
Registration: The company and product names of trademarks or the trademarks of their	lescribed in this ma respective companie	anual are registered s.	EN61131-2:2003 Programmable cont - Equipment req	rollers juirements and	Compliance standard. EMI
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DANGER and CAUTION.

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Associated Manuals

Manual name	Manual No.	Description
FX3U / FX3UC Series User's Manual - Analog Control Edition	JY997D16701 MODEL CODE: 09R619	Describes specifications for analog control and programming method for FX3U / FX3UC Series PLC.
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FX3UC Series User's Manual - Hardware Edition	JY997D28701 MODEL CODE: 09R519	Explains the FX3UC Series PLC specifications for I/O, wiring, installation, and maintenance.

ow to obtain manuals

nents, consult with the Mitsubishi Electric deale For product manuals or documents, or from who you purchased your product.



[1] Status indicator LED

[4] DIN rail mounting hook

[2] Terminal block (European type)

Wiring of the voltage and current input [3] Connector (PLC side)

Remove this cover for connecting. [7] Power connector (24V DC)

[8] Power crossover connector

INSTALLATION PRECAU-

INSTALLATION PRECAU-

unit manual (Hardware Edition).

deterioration or damage may occur

4. Installation

TIONS

Used to fix extension block on right side

Caution for EC Directive

The FX3UC-4AD have been found to be compliant to the European standards in The FX3uC-4AD have been found to be compliant to the European standards in the aforesaid manual and directive. However, for the very best performance from what are in fact delicate measuring and controlled output device Mitsubishi Electric would like to make the following points; As analog devices are sensitive by nature, their use should be considered care-fully. For users of proprietary cables (integral with sensors or actuators), these users should follow those manufacturers installation requirements. Mitsubishi Electric recommend that shielded cables should be used. If NO other EMC protection is provided, then users may experience temporary loss or accuracy between ±10% in very heavy industrial areas. However, Mitsubishi Electric suggest that if adequate EMC precautions are fol-lowed for the users complete control system, users should expect accuracy as

EMS

lowed for the users complete control system, users should expect accuracy as specified in this manual.

- Specified in this finalual.
 Sensitive analog cable should not be laid in the same trunking or cable conduit as high voltage cabling. Where possible users should run analog cables separately.
 Good cable shielding should be used. Ground the shield of the twisted shielded cable at one point on the PLC side.
- When reading analog values, EMC accuracy can be improved out by averaging the readings. This can be achieved either through functions on the
- special function block for analog input or through a users program in the FX3UC Series PLC main unit. • Please use FX3UC-4AD while installed in a shielded enclosure. For the details, refer to the follo
- → Refer to the FX3UC Series User's Manual Hardware Edition

1. Outline

The FX3UC-4AD special function block for analog input converts four analog input values (voltage, current) to digital values and transfers those digital values to the PLC main unit. For the purpose of this manual the FX3UC-4AD will from here be referred to as the 4AD.

2. Incorporated Items

5.3 Power supply wiring

Verify that the following product and items are included in the package: Product



3. External Dimensions, Part Names, and Terminal Layout

PW (Green): Lit while 5 V power is normally supplied from PLC

A/D (Red): Flashes during A/D conversion.

[4] DIN rail mounting nook
[5] Slide lock
Used to connect the FX3UC main unit extension block.
[6] Connector (Extension side)
Used to connect extension block on right side of this special block

The connector for supplying 24V power supply to 4AD.

The 4AD can be installed on a DIN46277 rail (35 mm (1.38") wide).

Used to supply power supply to the extension block.

24V (Red); Lit while 24V power is normally supplied from power supply

Use screwdrivers carefully when performing installation work, thus avoiding accider or product damage. Use the product within the generic environment specifications described in PLC mai

Never use the product in areas with excessive dust, oily smoke, conductive dusts

corrosive gas (salt air, Cl₂, H₂S, SO₂, or NO₂), flammable gas, vibration or impacts or exposed to high temperature, condensation, or rain and wind. If the product is used in such conditions, electric shock, fire, malfunctions

Make sure to cut off all phases of the power supply externally before attempting

nstallation or wiring work. Failure to do so may cause electric shock or damage to the product.

Logooog

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[4]

4.1 Connection to the PLC

V1+

11+

COM1

SLD

V2+

l2+

COM2

SLD

• • V3+

I3+ COM3

SLD

V4+ I4+

COM4

SLD

+

- Turn off the power. Disconnect all the cables connected to the PLC, and demount the PLC from the DIN rail.
- 2) Remove the extension block connector cover on the main unit / extension block.



- 3) Slide the special block slide lock of the main unit / extension block 4) The 4AD connector (PLC side) is connected to the main unit / extension block connector whose cover was previously removed
- (see the following figure.) 5) Slide back the slide lock of the main unit / extension block to attach the 4AD.



4.2 Installation In Enclosure



Fit the upper edge of the DIN rail mounting groove onto the DIN rail.
 DIN46277 rail (35 mm (1.38")

wide)



3) Lock the DIN rail mounting hooks while pressing the PLC against the DIN



For installation/u tion, Refer to the FX3UC Series User's Manual Hardware Edition.

*1 Up to 7 units can be connected to the FX3UC-32MT-LT PLC.

- *1 Change the offset and gain values to change the input characteristics. However, the resolution doesn't change even when the offset and gain
- values change. In the direct indication mode, however, the offset/gain cannot be adjusted. *2 The resolution depend on the input mode.

6.5 Input characteristics

For the 4AD, the nine kinds of input characteristics are provided for each input For the details of the input character, refer to the following.

Input mode Set value	Input mode	Analog input range	Digital output range	Resolu- tion
0	Voltage input mode	-10 to +10V	-32000 to +32000	0.32mV
1	Voltage input mode	-10 to +10V	-4000 to +4000	2.50mV
2	Voltage input mode Analog value direct indication	-10 to +10V	-10000 to +10000	1.00mV
3	Current input mode	4 to 20mA	0 to 16000	1.25µA
4	Current input mode	4 to 20mA	0 to 4000	5.00µA
5	Current input mode Analog value direct indication	4 to 20mA	4000 to 20000	1.25µA
6	Current input mode	-20 to +20mA	-16000 to +16000	1.25µA
7	Current input mode	-20 to +20mA	-4000 to +4000	5.00μΑ
8	Current input mode Analog value direct indication	-20 to +20mA	-20000 to +20000	1.25µA
9 to E	9 to E Not used.			
F	No channels used			

5. Wiring (Power supply and analog input)

WIRING PRECAUTIONS		
Make sure to attempting insta Failure to do so	cut off all phases of the power supply externally beforulation or wiring work. may cause electric shock or damage to the product.	ore

WIRING RECAUTIONS

- 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:
- 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 surge induction are likely to take place. As a guideline, lay the control line at least 100mm (3.94") or more
- away from the main circuit or high-voltage lines. 2) Ground the shield wire or shield of the shielded cable at one point on the PLC. However, do not use common grounding with heavy electrical and a statement of the shield with the shield of the s
- Make sure to properly wire to the European terminal board in accordance
- with the following precautions. Failure to do so may cause electric shock, a short-circuit, wire breakage, o damage to the product.
- The disposal size of the cable end should be 9mm (0.35").
- Tightening torque should be between 0.22 and 0.25 N·m Twist the end of strand wire and make sure that there are no loose wires
- Do not solder-plate the electric wire ends. Do not connect more than the specified number of wires or electric wires
- of unspecified size. Affix the electric wires so that neither the terminal block nor the comparts are directly stressed.

5.1 Wire and Terminal Tightening Torque

••	The ana	. criminai	ingincoming	101940
1.1	Cable			

1) Applicable cable

Туре	Wire size	
Single wire	0.3mm ² to 0.5mm ² (AWG22 to 20)	
Double wire	0.3mm ² (AWG22)*2	

- Supply the 24V DC power to 4AD via the power supply connector Application Power crossover cable(offered as an accessory fo FX3UC-4AD) FX2NC-10BPCB1 Power cable(offered as an accessory for the FX3U FX2NC-100BPCB Series main unit) 1) Connection example with the power supply through crossover wirin FX2NC input exte ion block FX3UC Series PLC [Main unit] FX3UC-4AD FX2NC Series PLC nput extension block 150 Powe crosso ower connecto 24- 24+ 24- 2 24- 24+ 上 Black Rec Black Red Black Green 10BPCB1 ssover cable FX2N X2NC-100BPCB Po 24V DC Class-D grounding 2) Co ple to the external power supply. FX3UC-4AD FX3UC Series PLC [Main unit]
- When drilling screw holes or wiring, make sure cutting or wire debris does no enter the ventilation slits. Failure to do so may cause fire, equipment failures or malfunctions Connect FX3U-4AD securely to their designated connectors. Loose connections may cause malfunctions Up to 8 units*1 can be connected to the FX3UC Series PLC.

6. S	pecification	ons			
STAR	TUP AND MA	AINTE- IONS			
Do Do * / Do Do Do Do	not disassem ing so may ca For repair, con not drop the p ing so may ca	able or modify the ause fire, equipn atact your local M product or exert ause damage.	e PLC. nent failures, or malfunction: Mitsubishi Electric distributor strong impact to it.	S . r.	
DISPO	DSAL CAUTIONS				
• Ple en	ease contact vironmentally	a certified of safe recycling a	electronic waste disposal nd disposal of your device.	l company	
TRANSPORT AND STOR- AGE PRECAUTIONS					
 Th Fa Aft 	e product is a ilure to do so i er transportati	precision instru may cause failu ion, verify the op	ment. During transportation, res in the product. perations of the product.	, avoid any	
6.1	Applicable	PLC			
Applic	able PLC	FX3UC Serie From the pr No.48****	es PLC (Ver.1.30 or later) oduction manufactured in A	ugust, 200	
6.2 The ge (For ge	General Specification	pecifications ations are equiv- ations, refer to t	alent to the PLC main unit. he manual of the PLC main	unit.)	
6.3	6.3 Power Supply Specifications				
	ltem		Specifications		
A/D c circu	it driving	24V DC ±10%, 8 24V DC power i	30mA is supplied from the power of	connector.)	

100m Interface driving CV DC power is supplied from the internal power supply of main unit, it is not necessary to prepare power supply)

power

power

6.4 Performance Specifications

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2) Termination

Strip the coating of strand wire and twist the cable core before connecting it or strip the coating of single wire before connecting it. An alternative connection is to use a ferule with insulating sleeve.

Manufacturer	Model	Pressure bonding tool
Phoenix Contact	AI 0.5-8WH	CRIMPFOX ZA 3 (or CRIMPFOX UD 6)

· Stranded wire/solid wire

Bar terminal with insulating sleeve



When using a stick terminal with an insulating sleeve, choose a wire with proper cable sheath referring to the above outside dimensions, otherwise the wire cannot be inserted easily.

5.1.2 Tightening Torque

Tightening torque should be between 0.22 and 0.25 N·m

5.2 Tool

To tighten terminals, use a purchased small-sized screwdriver whose head is straight and is not widened as shown in the right figure.

Note

(0.02" f the diameter of screwdriver grip is too small, tightening torque will not be able to be achieved. Use the following recommended replacement (grip diameter: approximately 25mm). ended scre

Manufacturer	Model
Phoenix Contact	SZS 0.4×2.5



• Ground the " $\frac{1}{2}$ " terminal to the Class - D grounding line (100 Ω or less) together with the ground terminal of the main unit.

- 24

Black

Remove the resin cover from the power crossover connector and perform crossover wiring to connect the power line from 4AD to a succeeding extension block

5.4 Wiring of Analog Input

Blac

For the terminal layout, refer to Chapter 3

24- 24+ 🛓



- *1 Use the 2-core shielded twisted pair cable for the analog input lines, and separate the analog input lines from the other motive power lines or inductive lines.
- *2 To use the current input, be sure to short circuit the line between the VD + terminal and the ID + terminal (D: channel number).
- *3 The SLD and " $\stackrel{-}{=}$ " terminals are connected to each other inside
- *4 Do not connect any lines to the "•" terminal.

láom	Specifications			
item	Voltage input	Current input		
Analog input range	-10 to +10V DC (Input resistance: 200 kΩ)	-20 to +20mA, 4 to 20mA DC (Input resistance: 250 Ω)		
Offset ^{*1}	-10 to +9V	-20 to +17mA		
Gain ^{*1}	10V or less, Gain - Offset≥1V	30mA or less, Gain - Offset⊵3mA		
Maximum absolute input	±15V	±30mA		
Digital output	Effective numeric value 15bits + Sign 1bit	Effective numeric value 14bits + Sign 1bit		
Resolution*2	0.32mV (20V×1/64000) 2.50mV (20V×1/8000)	1.25mA (40mA×1/32000) 5.00μA (40mA×1/8000)		
Total accuracy	 ±0.3% (±60mV) for full scale of 20V (when ambient temperature is 25°C±5°C) ±0.5% (±100mV) for full scale of 20V (when ambient temperature is 0°C to 55°C) 	 ±0.5% (±200µA) for full scale of 40mA (when ambient temperature is 25°C±5°C and a current of -20 mA to +20 mA is input) Same when input is 4mA to 20mA ±1.0% (±400µA) for full scale of 40mA (when ambient temperature is 25°C±5°C and a current of -20 mA to +20 mA is input) Same when input is 4mA to 20mA 		
A/D conversion time	$\begin{array}{l} 500 \mu s \times number \ of \ selected \ channels \\ (If \ channels \ use \ the \ digital \ filter(s): \ 5ms \times number \ of \ selected \\ channels) \end{array}$			
Insulation method	 The photo-coupler insulates the analog input area from the PLC. The DC-DC converter insulates the analog input area from the power supply unit. Channels are not insulated from each other. 			
Occupied points	8 point (Count either the input or output points of the PLC.)			

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straight tip