Requirement for Compliance with LVD 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 Low Voltage (73/23/EEC) when used as directed by the appropriate documentation.

Type :   **Programmable Controller (Open Type Equipment)**
Models :   **MELSEC FX3U series manufactured**

from May 1st, 2005   FX3U-★★MR/ES

Where ★★ indicates:16,32,48,64,80

Standard	Remark
EN61131-2:2003 Programmable controllers - Equipment requirements and tests	The equipment has been assessed as a component for fitting in a suitable enclosure which meets the requirements of EN61131-2:2003

Models :   **MELSEC FX2N series manufactured**

from July 1st, 1997   FX2N-★★ER-ES/UL   FX2N-★★ET-ESS/UL

Where ★★ indicates:32,48

FX2N-16EYR-ES/UL

from August 1st, 1998   FX2N-48ER-UA1/UL

to March 31st,2002 (compliance with IEC1010-1)
from April 1st 2002: Above mentioned products (compliance with EN61131-2)

Standard	Remark
IEC1010-1:1990 Safety requirements for electrical /A1:1992 equipment for measurement, control, and laboratory use - General requirements	The equipment has been assessed as a component for fitting in a suitable enclosure which meets the requirements of IEC 1010-1:1990+A1:1992
EN61131-2:1994 Programmable controllers /A12:1996 - Equipment requirements and tests /A11:2000	The equipment has been assessed as a component for fitting in a suitable enclosure which meets the requirements of EN61131-2:1994+A11:1996+A12:2000

Caution for compliance with EC Directive

1. Installation in Enclosure

Please use FX3U PLCs while installed in a shielded enclosure. PLCs are open type equipment and should be installed in enclosures when used. This is not only for the safety but for the shielding of noise. The effect of noise-shielding by enclosure is important.

2. Caution for Analog Products in use

The analog special adapters (FX3U-4AD-ADP, FX3U-4DA-ADP, FX3U-4AD-PT-ADP, FX3U-4AD-TC-ADP) 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 devices, 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 users should follow those manufacturers' installation requirements.

Mitsubishi Electric recommends that shielded cables be used. If NO other EMC protection is provided, users may experience temporary induced errors not exceeding +10%/-10% in very heavy industrial areas.

However, Mitsubishi Electric suggests that if adequate EMC precautions are followed with general good EMC practice for the users complete control system, users can expect errors as specified in this manual.

- Sensitive analog cables 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. When terminating the shield at Earth - ensure that no earth loops are accidentally created.
- When reading analog values, EMC induced errors can be smoothed out by averaging the readings. This can be achieved either through functions on the analog special adapters or through a user's program in the FX3U Series PLC main unit.

Abbreviation/ generic name	Description
FX2N Series special function blocks	Generic name for the following models FX2N-232IF, FX2N-16CCL-M, FX2N-32CCL, FX2N-64CL-M, FX2N-16LNK-M, FX2N-32ASI-M, FX2N-2AD, FX2N-4AD, FX2N-8AD, FX2N-4AD-PT, FX2N-4AD-TC, FX2N-2LC, FX2N-2DA, FX2N-4DA, FX2N-5A, FX2N-1HC, FX2N-1PG(-E), FX2N-10PG The devices that can be added depend on the main unit to be used. For applicable devices, refer to the User's Manual - Hardware Edition for the main unit to be used.
FX0N Series special function blocks	Generic name for the following models FX0N-3A
Memory cassettes	Generic name for the following models FX3U-FLROM-16, FX3U-FLROM-64 and FX3U-FLROM-64L
Battery	Abbreviation of model FX3U-32BL battery
FX Series terminal blocks	Generic name for the following models FX-16E-TB, FX-32E-TB, FX-16EX-A1-TB, FX-16EYR-TB, FX-16EYS-TB, FX-16EYT-TB, FX-16EYT-H-TB The devices that can be added depend on the main unit to be used. For applicable devices, refer to the User's Manual - Hardware Edition for the main unit to be used.
Extension cables	Generic name for the following models FX0N-30EC, FX0N-65EC
Input/output cables	Generic name for the following models FX-16E-500CAB-S, FX-16E-□□□CAB, FX-16E-□□□CAB-R, FX-A32E-□□□CAB 150, 300 or 500 is entered in □□□.
Connectors for input/output	Generic name for the following models FX2C-I/O-CON, FX2C-I/O-CON-S, FX2C-I/O-CON-SA
CC-Link master	Abbreviation of FX2N-16CCL-M
Remote I/O stations	Remote stations that handle information in bit units only
Remote stations	Generic name for remote I/O stations and remote device stations
Power supply adapter	Unit to be connected to supply power to the CC-Link/LT system
Dedicated power supply	Power supply to be connected to supply power to the CC-Link/LT system
AS-i master	Abbreviation of model FX2N-32ASI-M AS-i system master block
Peripheral devices	Generic name for programming software, handy programming panel (HPP) and indicator
Programming tool	Generic name for programming software and handy programming panel (HPP)
Programming software	Generic name for GX Developer and FX-PCS/WIN (-E)
GX Developer	Abbreviation of programming software packages SW□D5C-GPPW-J and SW□D5C-GPPW-E
FX-PCS/WIN (-E)	Abbreviation of model FX-PCS/WIN and FX-PCS/WIN-E programming software packages
Handy programming panels (HPP)	Generic name for the following models FX-20P, FX-20P-E, FX-10P, FX-10P-E
RS-232C/RS-422 converters	Generic name for the following models FX-232AW, FX-232AWC, FX-232AWC-H
RS-232C/RS-485 converters	Abbreviation of FX-485PC-IF
Indicators	
GOT1000 Series	Generic name for GT15 and GT11
GOT-900 Series	Generic name for GOT-A900 Series and GOT-F900 Series
GOT-A900 Series	Generic name for GOT-A900 Series
GOT-F900 Series	Generic name for GOT-F900 Series
Manuals	
FX3U Hardware Edition	Abbreviation of FX3U Series User's Manual - Hardware Edition
Programming manual	Abbreviation of FX3U/FX3UC Series Programming Manual - Basic & Applied Instructions
Data Communication Edition	Abbreviation of FX Series User's Manual - Data Communication Edition
Analog Control Edition	Abbreviation of FX3U/FX3UC Series User's Manual - Analog Control Edition
Positioning Control Edition	Abbreviation of FX3U/FX3UC Series User's Manual - Positioning Control Edition

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3 Introduction of Products (Compliant with Overseas Standards)
3.1 List of Products (to be Connected) and Interpretation of Model Names

3.1.4 [D] [E] Special function units/blocks

For the details of each product, refer to the product manual.

1. Analog control

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

Model name	Analog		Description	CE		UL cUL	Marine
	Input	Output		EMC	LVD		
Analog input							
FX2N-2AD	2ch	–	Voltage/current input	✓	□	✓	△
FX2N-4AD	4ch	–	Voltage/current input	✓	□	✓	✓
FX2N-8AD	8ch	–	Voltage/current/temperature (thermocouple) input	✓	□	✓	–
FX2N-4AD-PT	4ch	–	Temperature (resistance thermometer sensor) input	✓	□	✓	✓
FX2N-4AD-TC	4ch	–	Temperature (thermocouple) input	✓	□	✓	✓
Analog output							
FX2N-2DA	–	2ch	Voltage/current output	✓	□	✓	△
FX2N-4DA	–	4ch	Voltage/current output	✓	□	✓	✓
Analog input/output mixed							
FX0N-3A	2ch	1ch	Voltage/current input/output	✓	□	–	–
FX2N-5A	4ch	1ch	Voltage/current input/output	✓	□	✓	–
Temperature control							
FX2N-2LC	2 loops	–	Temperature control (resistance thermometer sensor/ thermocouple)	✓	□	✓	–

→ **For more information for CE, UL and cUL, refer to Page 15.**

2. High-speed counter

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

Model name	Description	CE		UL cUL	Marine
		EMC	LVD		
FX2N-1HC	1-ch high-speed counter	✓	✓	✓	✓

→ **For more information for CE, UL and cUL, refer to Page 15.**

3. Pulse output and positioning

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

Model name	Description	CE		UL cUL	Marine
		EMC	LVD		
FX2N-1PG D	Pulse output for independent 1-axis control (manual in Japanese supplied) [100 kHz open collector output]	–	–	–	–
FX2N-1PG-E D	Pulse output for independent 1-axis control (manual in English supplied) [100 kHz open collector output]	✓	✓	✓	✓
FX2N-10PG D	Pulse output for independent 1-axis control [1 MHz differential line driver output]	✓	□	–	–
FX2N-10GM E	Pulse output for independent 1-axis control [200 kHz open collector output]	✓	✓	✓	–
FX2N-20GM E	Pulse output for simultaneous 2-axis (independent 2-axis) control [200 kHz open collector output]	✓	✓	✓	–
FX2N-1RM-SET E [*1]	1-axis programmable cam switch (manual in Japanese supplied)	–	–	–	–
FX2N-1RM-E-SET E [*1]	1-axis programmable cam switch (manual in English supplied)	✓	✓	–	△

→ **For more information for CE, UL and cUL, refer to Page 15.**

FX3U Series Programmable Controllers
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3 Introduction of Products (Compliant with Overseas Standards)
3.1 List of Products (to be Connected) and Interpretation of Model Names

3.1.7 [H] Special adapters

1.Analog functions

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

H	Model name	Description	CE		UL cUL	Marine
			EMC	LVD		
	FX3U-4AD-ADP	4-ch voltage input/current input	✓*1	□	✓*1	–
	FX3U-4DA-ADP	4-ch voltage output/current output	✓*1	□	✓*1	–
	FX3U-4AD-PT-ADP	4-ch platinum resistance thermometer sensor input	✓*1	□	✓*1	–
	FX3U-4AD-TC-ADP	4-ch thermocouple (K, J type) temperature sensor input	✓*1	□	✓*1	–

*1. Products manufactured in and after May, 2005 will comply with the overseas standard.

→ **For more information for CE, UL and cUL, refer to Page 15.**

2.Communication functions

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

H	Model name	Description	CE		UL cUL	Marine
			EMC	LVD		
	FX3U-232ADP	RS-232C communication	✓*1	□	✓*1	–
	FX3U-485ADP	RS-485 communication	✓*1	□	✓*1	–

*1. Products manufactured in and after May, 2005 will comply with the overseas standard.

→ **For more information for CE, UL and cUL, refer to Page 15.**

3.High-speed input/output functions

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

H	Model name	Description	CE		UL cUL	Marine
			EMC	LVD		
	FX3U-4HSX-ADP	For differential line driver input (for high-speed counter)	✓	□	✓	–
	FX3U-2HSY-ADP	For differential line driver output (for positioning output)	✓	□	✓	–

→ **For more information for CE, UL and cUL, refer to Page 15.**

3.1.8 [I] Power supply unit

✓ : Compliance with standard or self-declaration □ : Not targeted △ : Partial compliance

I	Model name	Description	Driving power supply	CE		UL cUL	Marine
				EMC	LVD		
	FX2N-20PSU	24V DC power supply	100 to 240V AC	✓	✓	✓	–

→ **For more information for CE, UL and cUL, refer to Page 15.**

GOT/programming tool

−: Need not be calculated

No.	Type	Number of input/output occupied points	Current consumed (mA)	
			5V DC	Internal 24V DC
F1	FX-20P(-E)	–	150[*1]	–
	FX-10P(-E)	–	120	–
	FX-232AW	–	220	–
	FX-232AWC	–	220	–
	FX-232AWC-H	–	120	–
	FX-USB-AW	–	15	–
	FX-10DM(-SET0)(-E)	–	220	–
	F920GOT-BBD5-K(-E)	–	220	–

*1. When FX-20P-RWM is used, the current is 180 mA.

6.7.3 [C] Special adapters

−: Need not be calculated

No.	Type	Number of input/output occupied points	Current consumed (mA)		
			5V DC	Internal 24V DC	External 24V DC
C1	FX3U-4HSX-ADP	–	30	30	0
	FX3U-2HSY-ADP	–	30	60	0
C2	FX3U-4AD-ADP	–	15	0	40
	FX3U-4DA-ADP	–	15	0	150
	FX3U-4AD-PT-ADP	–	15	0	50
	FX3U-4AD-TC-ADP	–	15	0	45
C3	FX3U-232ADP	–	30	0	0
	FX3U-485ADP	–	20	0	0

6.7.4 [D] Input/output powered extension units/blocks

1. Input/output powered extension units

No.	Type	Number of input/output points	Output current (mA)	
			5V DC power supply	24V DC service power supply
D1	FX2N-32ER-ES/UL	32	690	250
	FX2N-32ET-ESS/UL	32		
	FX2N-32ER	32		
	FX2N-32ES	32		
	FX2N-32ET	32		
	FX2N-48ER-ES/UL	48		460
	FX2N-48ET-ESS/UL	48		
	FX2N-48ER	48		
	FX2N-48ES	48		
	FX2N-48ET	48		

6.7.5   [E] Special extension devices

1. Special function blocks

E

No.	Type	Number of input/ occupied output points	Current consumed (mA)		
			5V DC	Internal 24V DC	External 24V DC
E1	FX2N-2AD	8	20	50[*6]	0
	FX2N-2DA	8	30	85[*6]	0
	FX2N-4AD	8	30	0	55
	FX2N-4DA	8	30	0	200
	FX2N-4AD-TC	8	30	0	50
	FX2N-4AD-PT	8	30	0	50
	FX2N-8AD	8	50	0	80
	FX2N-5A	8	70	0	90
	FX2N-2LC	8	70	0	55
	FX2N-1HC	8	90	0	0
	FX2N-1PG(-E)	8	55	0	40
	FX2N-10PG	8	120	0	70[*1]
	FX2N-232IF	8	40	0	80
	FX2N-16CCL-M	8[*2]	0	0	150
	FX2N-32CCL	8	130	0	50
	FX2N-64CL-M	8[*3]	190	Supplied from power supply for CC-Link/LT	
	FX2N-16LNK-M	0[*4]	200	0	90
	FX2N-32ASI-M	8[*5]	150	0	70
E2	FX0N-3A	8	30	90[*6]	0

*1. When the voltage of the external DC power supply is 24V DC and 5V DC, the current is 70 mA and 100 mA, respectively.

*2. This block cannot be used together with FX2N-32ASI-M.
The following number of points is added according to the products connected on the network.
Number of remote I/O stations × 32 points

*3. The following number of points is added according to the products connected on the network.
Total number of input/output points of remote I/O stations

*4. The number of points varies according to the products connected on the network.
For the details, refer to FX2N-16LNK-M Manual.

*5. This block cannot be used together with FX2N-16CCL-M. Only one unit can be added on the whole system.
The following number of points is added according to the products connected on the network.
Number of active slaves × 8 points

*6. When analog special function blocks (FX0N-3A, FX2N-2AD and FX2N-2DA) are connected to the input/ output powered extension unit (FX2N-32E□ or FX2N-48E□), the following limitation must be taken into consideration. (When the blocks are connected to the main unit, this limitation is not applied.)
The total current consumption of the analog special function blocks (FX0N-3A, FX2N-2AD and FX2N-2DA) should be less than the following current value.

-    Total current consumption of blocks connected to FX2N-32E□: 190 mA or less

-    Total current consumption of blocks connected to FX2N-48E□: 300 mA or less

6.1.1　List of system components

Classification	Types (extracted) *1	Max. number of connect-able units	Other items to be considered				Reference
			Max. number of input/output points	Number of input/output (occupied) points	5V DC power supply	24V DC power supply	
A Main unit	FX3U-16MR/ES ⋮ FX3U-80MR/ES	1 unit	✓ 256 points or less	✓*6	–	–	Subsection 6.7.1
D Input/output powered extension unit	FX2N-32ER FX2N-48ER	Not specified	✓ 256 points or less	✓*6	–	–	Subsection 6.7.4
D Input/output extension block	FX2N-16EX FX2N-16EYR	Not specified	✓ 256 points or less	✓*6	–	✓	
B Expansion board	FX3U-232-BD FX3U-422-BD FX3U-CNV-BD	1 unit	–	–	✓	–	Subsection 6.7.2
C Special adapter	Analog FX3U-4AD-ADP FX3U-4AD-TC-ADP	Up to 4 units	–	–	✓	✓*4	Subsection 6.7.3
	Commu-nication FX3U-232-ADP FX3U-485-ADP	Up to 2 units*2	–	–	✓	–	
	High-speed input FX3U-4HSX-ADP	Up to 2 units	–	–	✓	✓	
	High-speed output FX3U-2HSY-ADP	Up to 2 units	–	–	✓	✓	
E Special function unit/block	Analog FX0N-3A FX2N-2AD FX2N-2DA	Up to 8 units*2	✓ 256 points or less	✓*7	✓	✓	Subsection 6.7.5
	FX2N-4AD FX2N-8AD FX2N-2LC		✓ 256 points or less	✓*7	✓	✓*4	
	Commu-nication FX2N-232IF		✓ 256 points or less	✓*7	✓	✓*4	
	Position-ing FX2N-10PG FX2N-10/20GM FX2N-1RM-SET		✓ 256 points or less	✓*7	✓	✓*4	
	Network FX2N-64CL-M		✓ 256 points or less	✓*7	–	✓*4	
	FX2N-16CCL-M		✓*3 384 points or less	✓*7	–	✓*4	
	FX2N-32ASI-M				✓		
Extension cable	FX0N-30EC FX0N-65EC FX2N-GM-65EC	One of them*5	–	–	✓	–	Subsection 6.7.1

*1. For the types of connectable products, refer to the following chapter.
→ **For the details, refer to Chapter 3 "Introduction of products (complying with overseas standards)."**

*2. For some products, there are restrictions on combination and number of connected units.
→ **For the details of the special adapters, refer to Subsection 6.4.1.**
→ **For the details of the special function units/blocks, refer to Subsection 6.4.2.**

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10 Input Wiring

4 **Enter the specifications for the products to be added to the input/output powered extension unit.**
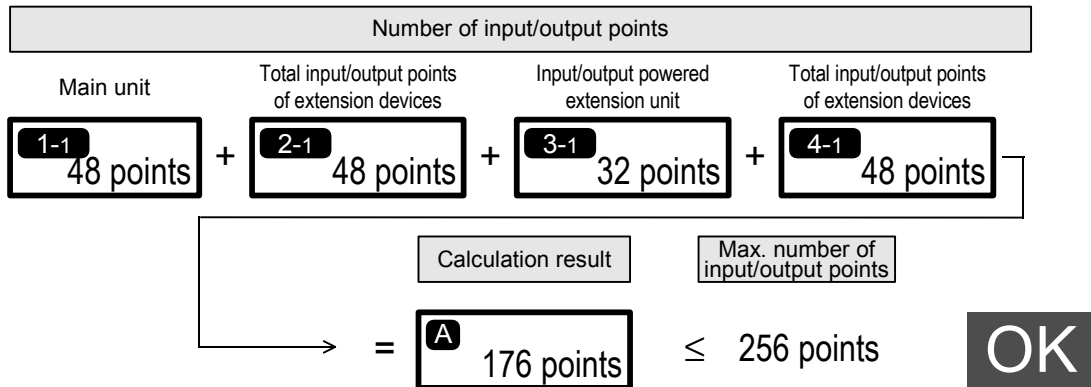
	Classification	Number of connected units	Type	Number of input/output occupied points [points]	Calculation of current consumption of built-in power supply	
					5V DC power supply[mA]	Internal 24V DC power supply[mA]
Enter the products connected to the Input/output powered extension unit	E Special function unit/block	4	FX2N-2LC	8	70	0
			FX2N-64CL-M	8+16[*1]	190	0
			FX2N-16CCL-M	8	0	0
			FX2N-32CCL	8	130	0
				4-1	4-2	4-3
Calculate the totals				48	390	0

*1. The number for FX2N-64CL-M is calculated by adding the number of input/output points at the connected remote I/O station to 8 points.
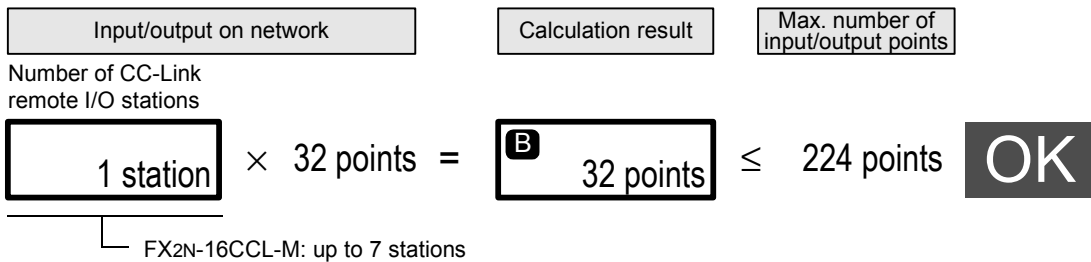
5 **Calculate the number of input/output points.**

Calculate the number of input/output points on the whole system.

1. Calculate the number of input/output points of the main unit and extension devices.

Number of input/output points

Main unit
1-1 48 points

Total input/output points of extension devices
2-1 48 points

Input/output powered extension unit
3-1 32 points

Total input/output points of extension devices
4-1 48 points

Calculation result
= A 176 points ≤ 256 points   OK
Max. number of input/output points

2. Calculate the number of remote I/O points on the network.
Since this system uses CC-Link, calculate the number of the remote I/O stations.

Input/output on network
Number of CC-Link remote I/O stations

1 station × 32 points = B 32 points ≤ 224 points   OK

Calculation result
Max. number of input/output points

FX2N-16CCL-M: up to 7 stations

8.6 Procedures for Installing Directly (with M4 Screws)

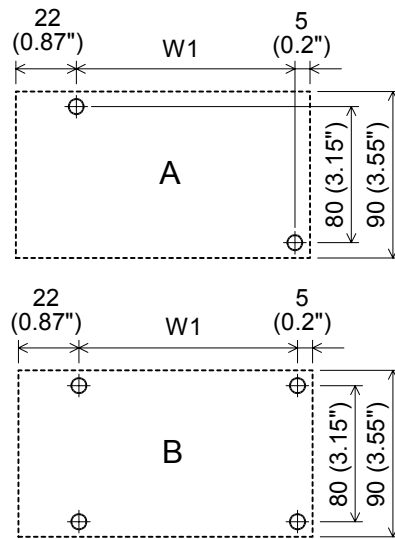The product can be installed directly in the enclosure (with screws).

Point

Position the holes so that there is a gap of 1 to 2 mm (0.04" to 0.08") between the products.
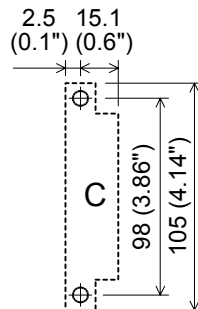
8.6.1 Hole pitches for direct mounting

The product mounting hole pitches are shown below.
For the pitch that varies depending on the product, refer to the table.
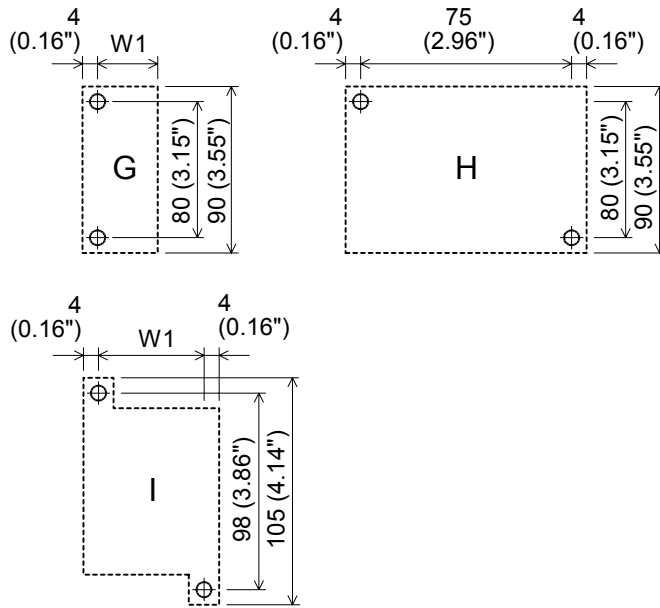
1. Main unit (A or B)

Unit: mm (inches)

	Model name	Mounting hole pitch (W1)
A	FX3U-16MR/ES	103 (4.06")
	FX3U-32MR/ES	123 (4.85")
B	FX3U-48MR/ES	155 (6.11")
	FX3U-64MR/ES	193 (7.6")
	FX3U-80MR/ES	258 (10.16")

2. Special adapter (C)

Unit: mm (inches)

	Model name	Mounting hole pitch(W1)
C	FX3U-4AD-ADP FX3U-4DA-ADP FX3U-4AD-PT-ADP FX3U-4AD-TC-ADP FX3U-232ADP FX3U-485ADP FX3U-4HSX-ADP FX3U-2HSY-ADP	Refer to the figure shown left.

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5. Special function unit/block (G, H or I)

Unit: mm (inches)

	Model name	Mounting hole pitch(W1)
G	FX0N-3A FX2N-2AD FX2N-2DA FX2N-1PG FX2N-1PG-E FX2N-10PG FX2N-64CL-M FX2N-32CCL FX2N-16LNK-M	39 (1.54")
	FX2N-4AD FX2N-4DA FX2N-4AD-PT FX2N-4AD-TC FX2N-5A FX2N-2LC FX2N-1HC FX2N-1RM-SET FX2N-1RM-SET-E FX2N-232IF FX2N-32ASI-M	51 (2.01")
H	FX2N-16CCL-M	Refer to the figure shown left.
I	FX2N-8AD	67 (2'64")
	FX2N-20PSU	52 (2'05")
–	FX2N-10GM FX2N-20GM	These units cannot be installed directly.

8.6.2 Example of mounting hole pitches

Unit:mm (inches)
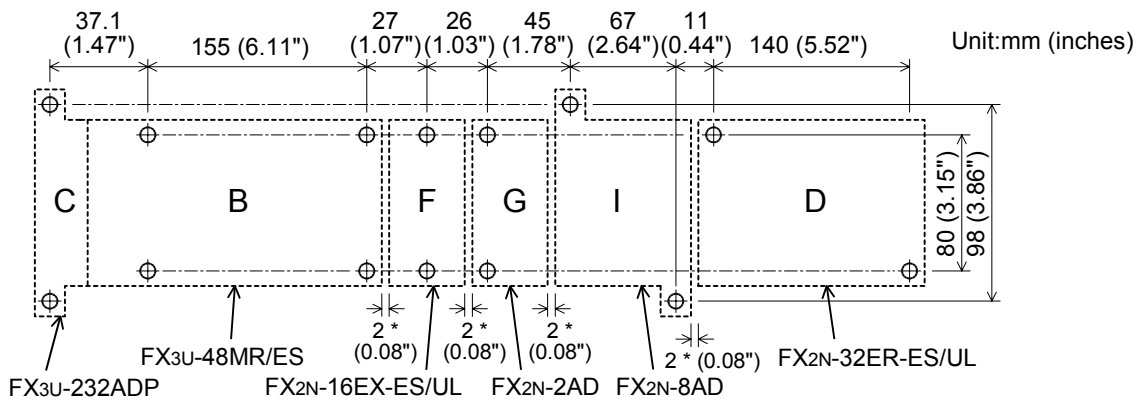
* The gap between products is 2 mm (0.08").

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9 Preparation for Wiring and Power Supply Wiring Procedures
9.2 Cable Connecting Procedures

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4) Certified connectors (commercially available connectors)
Connectors made by DDK Ltd. shown in Item (3) described in the previous page and connectors made by Matsushita Electric Works, Ltd. shown in the following table

Model name of connector		Compliant electric wires (UL-1061 is recommended)	Pressure bonding tool
Housing	AXW1204A	AWG22 (0.3mm^2) AWG24 (0.2mm^2)	AXY52000
Contact	AXW7221		
Semi-cover	AXW62001A		

9.2.3 Terminal block (for europe) [expansion board and special adapters]

WIRING PRECAUTIONS ⬦!⬦ **DANGER**

- Cut off all phases of the power source externally before installation or wiring work in order to avoid electric shock or damage of product.
- Observe the following items to wire the lines to the European terminal board. Ignorance of the following items may cause electric shock, short circuit, disconnection, or damage of the product.
  - The disposal size of the cable end should follow the dimensions described in this manual.
  - Tightening torque should be between 0.22 to 0.25 N•m.
  - Twist the end of strand wire and make sure there is no loose wires.
  - Do not solder-plate the electric wire ends.
  - Do not connect electric wires of unspecified size or beyond the specified number of electric wires.
  - Fix the electric wires so that the terminal block and connected parts of electric wires are not directly stressed.

The expansion board and special adapters of a terminal block type have terminal blocks for Europe.

1. **Applicable products**

Classification	Model names
Expansion Board	FX3U-485-BD
Special Adapters	FX3U-485ADP, FX3U-4AD-ADP, FX3U-4DA-ADP, FX3U-4AD-PT-ADP, FX3U-4AD-TC-ADP, FX3U-4HSX-ADP, FX3U-2HSY-ADP

2. **Electric wires**
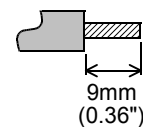
Compliant electric wires and tightening torque

	Electric wire size (stranded wire/solid wire)	Tightening torque	End treatment
One electric wire	0.3mm^2 to 0.5mm^2 (AWG22 to 20)	0.22 to 0.25N•m	• Remove the coating of the stranded wire, twist the core wires, and connect the wires directly. • Remove the coating from the solid wire, and connect the wire directly.
Two electric wires	0.3mm^2 (AWG22)		
Bar terminal with insulating sleeve	0.3 mm^2 to 0.5 mm^2 (AWG22 to 20) (Refer to the following outline drawing of bar terminal.)		• Bar terminal with insulating sleeve (recommended product) AI 0.5-8WH (Phoenix Contact) • Caulking tool CRIMPFOX UD6 (Phoenix Contact)

3. **Treatment of electric wire ends**
Treat the ends of stranded wires and solid wires without coating or using bar terminals with insulating sleeve.
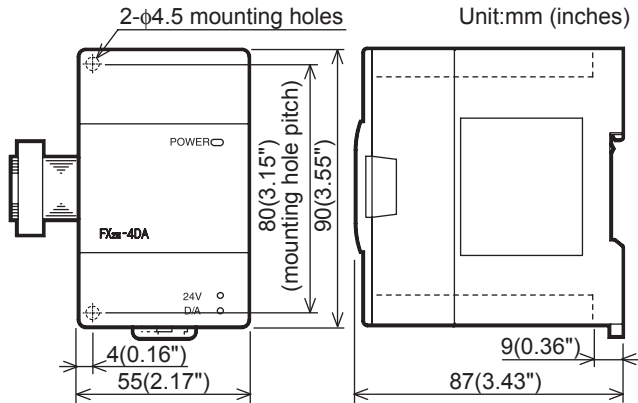
- Treatment of stranded wires and solid wires without coating
  - Twist the ends of stranded wires tightly so that loose wires will not stick out.
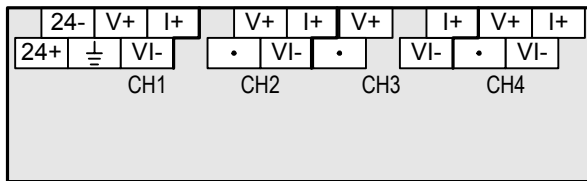 - Do not solder-plate the electric wire ends.

• Stranded wire/solid wire

9mm (0.36")

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17 Other Extension Devices and Optional Units (External Dimensions and Terminal Arrangement)
17.1 Special Function Units/Blocks

17.1.5 FX2N-4DA

External Dimensions

2-φ4.5 mounting holes   Unit:mm (inches)

POWER○

FX2N-4DA

80(3.15") (mounting hole pitch)
90(3.55")
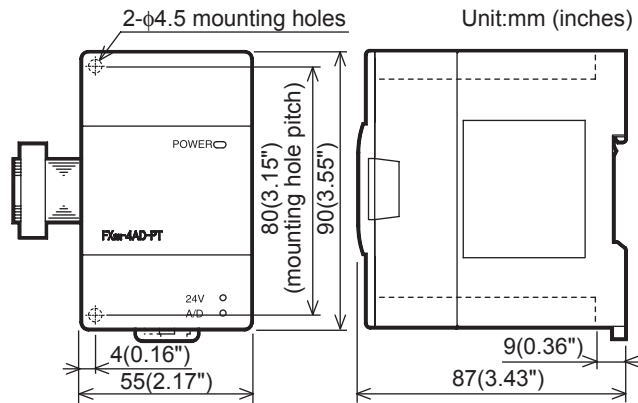
24V ○
D/A ○

4(0.16")
55(2.17")

9(0.36")
87(3.43")

- MASS(Weight): 0.3kg (0.66lbs)
- Installation: DIN rail of 35 mm (1.38") in width or screws.
- Accessories: Label for indication of special unit/block number
- Terminal block: M3 screws
- The extension cable is already connected to the extension block.

Terminal Layout

24-	V+	I+		V+	I+	V+		I+	V+	I+
24+	⏚	VI-		•	VI-	•		VI-	•	VI-
	CH1			CH2		CH3			CH4	

17.1.6 FX2N-4AD-PT

External Dimensions

2-φ4.5 mounting holes   Unit:mm (inches)

POWER○

FX2N-4AD-PT

80(3.15") (mounting hole pitch)
90(3.55")

24V ○
A/D ○

4(0.16")
55(2.17")

9(0.36")
87(3.43")

- MASS(Weight): 0.3kg (0.66lbs)
- Installation: DIN rail of 35 mm (1.38") in width or screws.
- Accessories: Label for indication of special unit/block number
- Terminal block: M3 screws
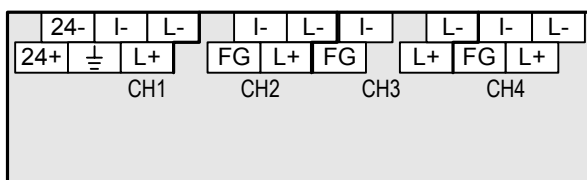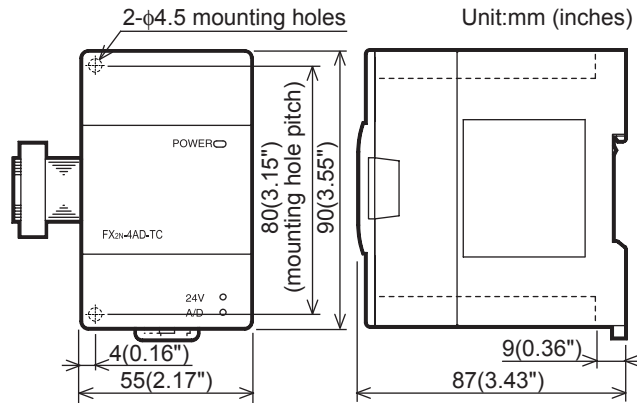- The extension cable is already connected to the extension block.

Terminal Layout

24-	I-	L-		I-	L-	I-		L-	I-	L-
24+	⏚	L+		FG	L+	FG		L+	FG	L+
	CH1			CH2		CH3			CH4	

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17 Other Extension Devices and Optional Units (External Dimensions and Terminal Arrangement)
17.1 Special Function Units/Blocks

17.1.7 FX2N-4AD-TC

External Dimensions

2-φ4.5 mounting holes
Unit:mm (inches)

POWER

FX2N-4AD-TC

24V
A/D

80(3.15")
(mounting hole pitch)
90(3.55")

4(0.16")
55(2.17")

9(0.36")
87(3.43")

- •MASS(Weight): 0.3kg (0.66lbs)
- •Installation: DIN rail of 35 mm (1.38") in width or screws.
- •Accessories: Label for indication of special unit/block number
- •Terminal block: M3 screws
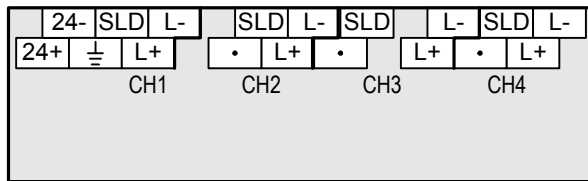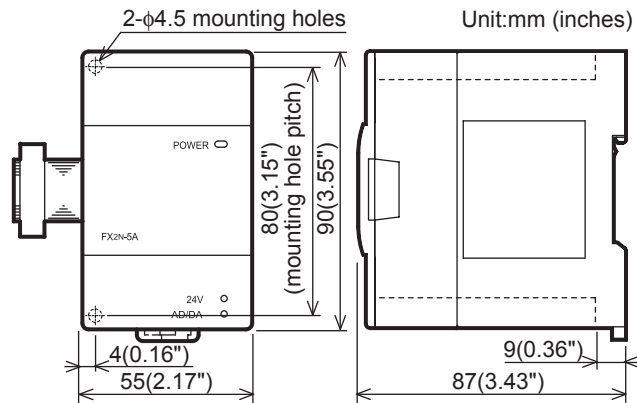- •The extension cable is already connected to the extension block.

Terminal Layout

24-	SLD	L-		SLD	L-	SLD		L-	SLD	L-
24+	⏚	L+		•	L+	•		L+	•	L+
	CH1			CH2		CH3			CH4	

17.1.8 FX2N-5A

External Dimensions

2-φ4.5 mounting holes
Unit:mm (inches)

POWER

FX2N-5A

24V
AD/DA

80(3.15")
(mounting hole pitch)
90(3.55")

4(0.16")
55(2.17")

9(0.36")
87(3.43")

- •MASS(Weight): 0.3kg (0.66lbs)
- •Installation: DIN rail of 35 mm (1.38") in width or screws.
- •Accessories: Label for indication of special unit/block number
- •Terminal block: M3 screws
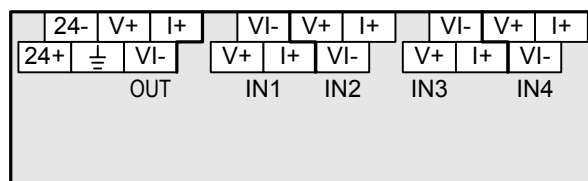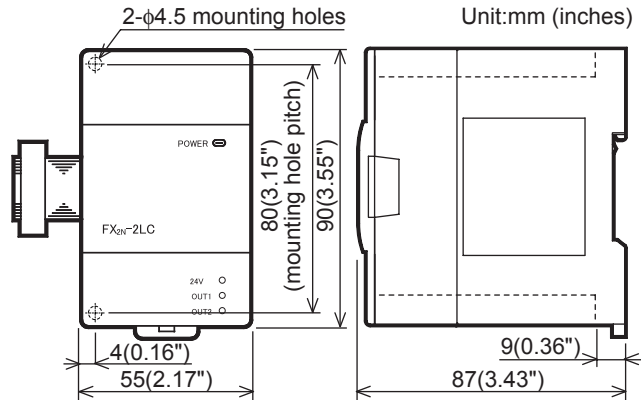- •The extension cable is already connected to the extension block.

Terminal Layout

24-	V+	I+		VI-	V+	I+		VI-	V+	I+
24+	⏚	VI-		V+	I+	VI-		V+	I+	VI-
	OUT			IN1		IN2		IN3		IN4

11 High-Speed Counters

12 External Wiring

13 Wiring for Various Uses

14 Test Run, Maintenance, Troubleshooting

15 Iinput/Output Powered Extension Units

16 Input/Output Extension Blocks

17 Other Extension Units and Options

18 Display Module

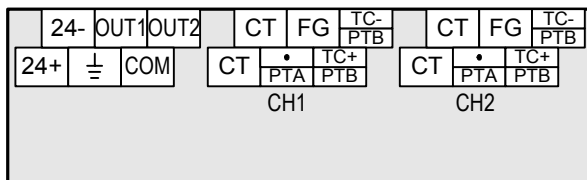19 Terminal Block

20 Memory Cassette

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17 Other Extension Devices and Optional Units (External Dimensions and Terminal Arrangement)
17.1 Special Function Units/Blocks

17.1.9 FX2N-2LC

External Dimensions

2-φ4.5 mounting holes

Unit:mm (inches)

POWER

FX2N-2LC

80(3.15")
(mounting hole pitch)
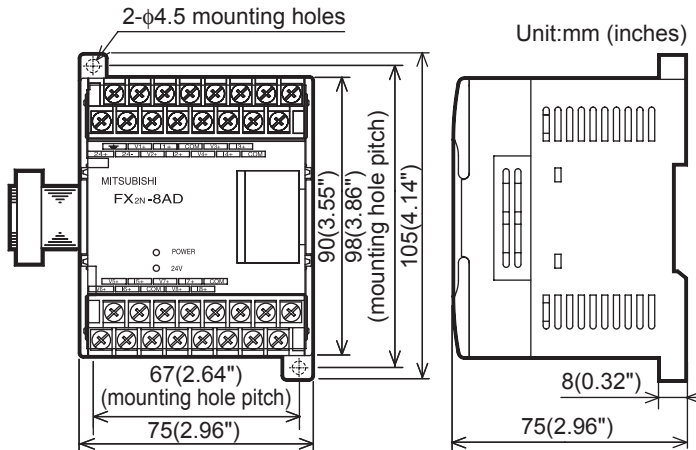90(3.55")

24V
OUT1
OUT2

4(0.16")
55(2.17")

9(0.36")
87(3.43")

•MASS(Weight): 0.3kg (0.66lbs)
•Installation: DIN rail of 35 mm (1.38") in width or screws.
•Accessories: Label for indication of special unit/block number
•Terminal block: M3 screws
•The extension cable is already connected to the extension block.

Terminal Layout

24-	OUT1	OUT2		CT	FG	TC-PTB		CT	FG	TC-PTB
24+	⏚	COM	CT	• PTA	TC+ PTB		CT	• PTA	TC+ PTB	
				CH1				CH2		

17.1.10 FX2N-8AD

External Dimensions

2-φ4.5 mounting holes

Unit:mm (inches)

MITSUBISHI
FX2N-8AD

POWER
24V

90(3.55")
98(3.86")
(mounting hole pitch)
105(4.14")

67(2.64")
(mounting hole pitch)
75(2.96")

8(0.32")
75(2.96")

•MASS(Weight): 0.4kg (0.88lbs)
•Installation: DIN rail of 35 mm (1.38") in width or screws.
•Accessories: Label for indication of special unit/block number
•Terminal block: M3.5 screws
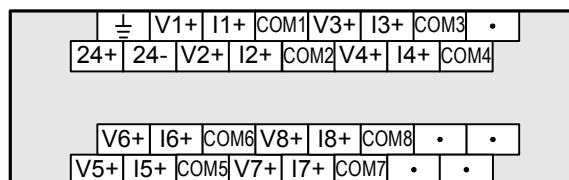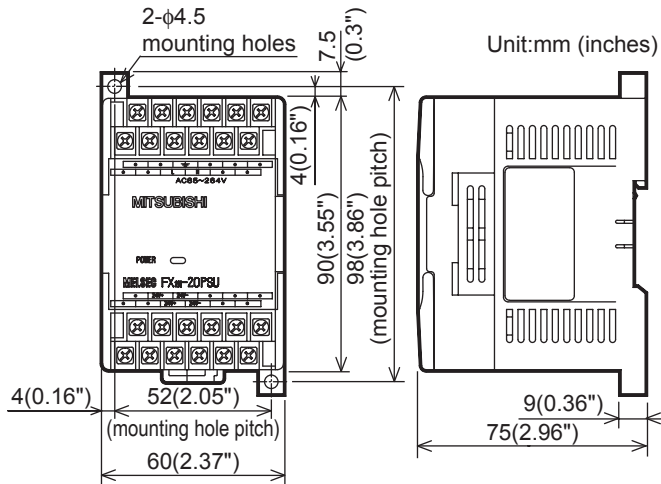•The extension cable is already connected to the extension block.

Terminal Layout

	⏚	V1+	I1+	COM1	V3+	I3+	COM3	•	
24+	24-	V2+	I2+	COM2	V4+	I4+	COM4		

	V6+	I6+	COM6	V8+	I8+	COM8	•	•
V5+	I5+	COM5	V7+	I7+	COM7	•	•	

17.2 Power Supply
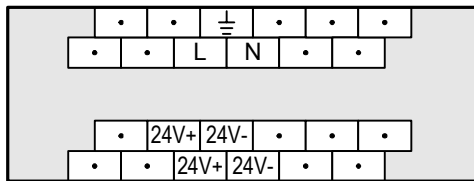
17.2.1 FX2N-20PSU

External Dimensions

• MASS(Weight): 0.3kg (0.66lbs)
• Installation: DIN rail of 35 mm (1.38") in width or screws.
• Terminal block: M3 screws
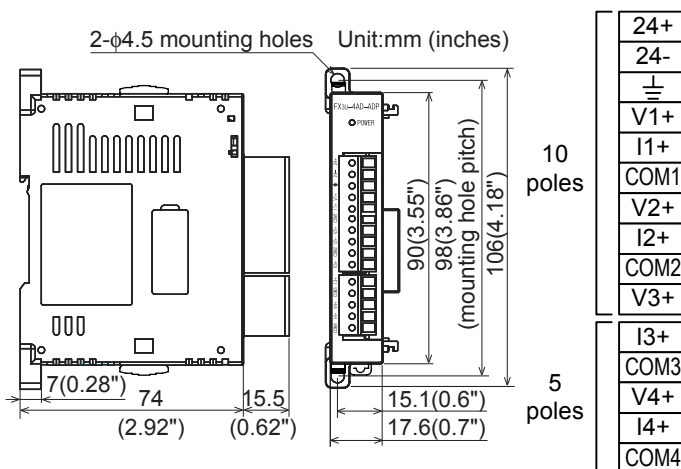
Terminal Layout
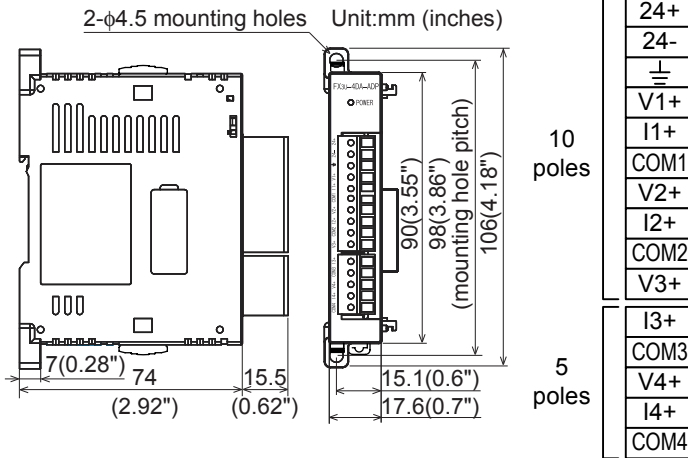

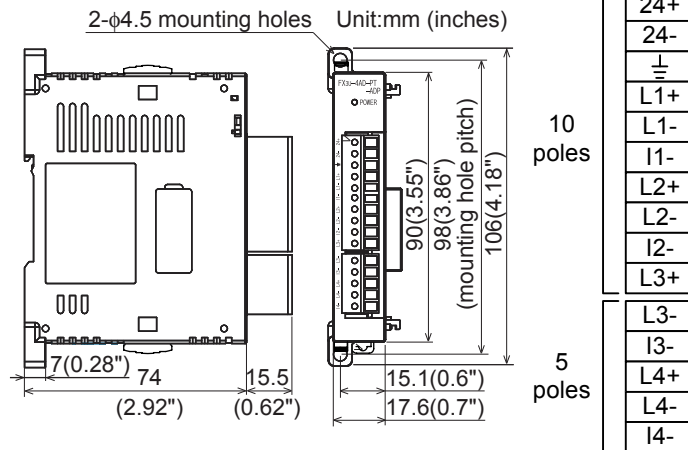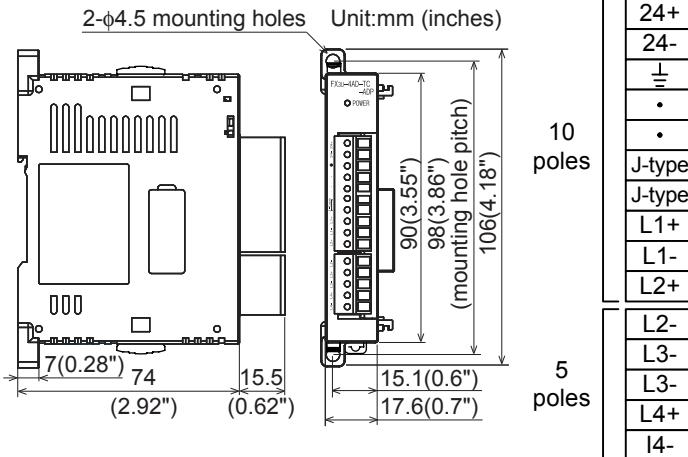## 17.3 Special Adapters

17.3.1 FX3U-4AD-ADP

External Dimensions, Terminal Layout

• MASS(Weight): 0.1kg (0.22lbs)
• Installation: DIN rail of 35 mm (1.38") in width or screws.
• Terminal block: European type

17.3.2 FX3U-4DA-ADP

External Dimensions, Terminal Layout

2-φ4.5 mounting holes   Unit:mm (inches)

90(3.55")
98(3.86") (mounting hole pitch)
106(4.18")

7(0.28")   74 (2.92")   15.5 (0.62")   15.1(0.6")   17.6(0.7")

10 poles

| 24+ |
| 24- |
| ⏚ |
| V1+ |
| I1+ |
| COM1 |
| V2+ |
| I2+ |
| COM2 |
| V3+ |

5 poles

| I3+ |
| COM3 |
| V4+ |
| I4+ |
| COM4 |

- MASS(Weight): 0.1kg (0.22lbs)
- Installation: DIN rail of 35 mm (1.38") in width or screws.
- Terminal block: European type

17.3.3 FX3U-4AD-PT-ADP

External Dimensions, Terminal Layout

2-φ4.5 mounting holes   Unit:mm (inches)

90(3.55")
98(3.86") (mounting hole pitch)
106(4.18")

7(0.28")   74 (2.92")   15.5 (0.62")   15.1(0.6")   17.6(0.7")

10 poles

| 24+ |
| 24- |
| ⏚ |
| L1+ |
| L1- |
| I1- |
| L2+ |
| L2- |
| I2- |
| L3+ |

5 poles

| L3- |
| I3- |
| L4+ |
| L4- |
| I4- |

- MASS(Weight): 0.1kg (0.22lbs)
- Installation: DIN rail of 35 mm (1.38") in width or screws.
- Terminal block: European type

17.3.4 FX3U-4AD-TC-ADP

External Dimensions, Terminal Layout

2-φ4.5 mounting holes   Unit:mm (inches)

90(3.55")
98(3.86") (mounting hole pitch)
106(4.18")

7(0.28")   74 (2.92")   15.5 (0.62")   15.1(0.6")   17.6(0.7")

10 poles

| 24+ |
| 24- |
| ⏚ |
| • |
| • |
| J-type |
| J-type |
| L1+ |
| L1- |
| L2+ |

5 poles

| L2- |
| L3- |
| L3- |
| L4+ |
| I4- |

- MASS(Weight): 0.1kg (0.22lbs)
- Installation: DIN rail of 35 mm (1.38") in width or screws.
- Terminal block: European type

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A Operation of Special Devices (M8000 -, D8000 -)
A-3 Analog special adapters [M8260 to M8299 and D8260 to D8299]

21
Battery

A
Special Devices
(M8000-,D8000-)

B
Instruction List

C
Character-code

Appendix A-3 Analog special adapters [M8260 to M8299 and D8260 to D8299]

When analog special adapters are connected, operations and functions are assigned to the devices shown in the tables below in accordance with the number of connected analog special adapters.
Devices which cannot be written are shaded in "Operation and function" column.

→ **For the details, refer to the manual of each product.**

Appendix A-3-1 Special auxiliary relays (M8260 to M8299)

Number	Operation and function			
	FX3U-4AD-ADP	**FX3U-4DA-ADP**	**FX3U-4AD-PT-ADP**	**FX3U-4AD-TC-ADP**
1st analog special adapter				
M 8260	Input mode switching Ch1	Output mode switching Ch1	Temperature unit selection	Temperature unit selection
M 8261	Input mode switching Ch2	Output mode switching Ch2	Not used	Type-K/-J switching
M 8262	Input mode switching Ch3	Output mode switching Ch3	Not used	Not used
M 8263	Input mode switching Ch4	Output mode switching Ch4	Not used	Not used
M 8264	Not used	Output hold mode cancel Ch1	Not used	Not used
M 8265	Not used	Output hold mode cancel Ch2	Not used	Not used
M 8266	Not used	Output hold mode cancel Ch3	Not used	Not used
M 8267	Not used	Output hold mode cancel Ch4	Not used	Not used
M 8268	Not used	Not used	Not used	Not used
M 8269	Not used	Not used	Not used	Not used
2nd analog special adapter				
M 8270	Input mode switching Ch1	Output mode switching Ch1	Temperature unit selection	Temperature unit selection
M 8271	Input mode switching Ch2	Output mode switching Ch2	Not used	Type-K/-J switching
M 8272	Input mode switching Ch3	Output mode switching Ch3	Not used	Not used
M 8273	Input mode switching Ch4	Output mode switching Ch4	Not used	Not used
M 8274	Not used	Output hold mode cancel Ch1	Not used	Not used
M 8275	Not used	Output hold mode cancel Ch2	Not used	Not used
M 8276	Not used	Output hold mode cancel Ch3	Not used	Not used
M 8277	Not used	Output hold mode cancel Ch4	Not used	Not used
M 8278	Not used	Not used	Not used	Not used
M 8279	Not used	Not used	Not used	Not used
3rd analog special adapter				
M 8280	Input mode switching Ch1	Output mode switching Ch1	Temperature unit selection	Temperature unit selection
M 8281	Input mode switching Ch2	Output mode switching Ch2	Not used	Type-K/-J switching
M 8282	Input mode switching Ch3	Output mode switching Ch3	Not used	Not used
M 8283	Input mode switching Ch4	Output mode switching Ch4	Not used	Not used
M 8284	Not used	Output hold mode cancel Ch1	Not used	Not used
M 8285	Not used	Output hold mode cancel Ch2	Not used	Not used
M 8286	Not used	Output hold mode cancel Ch3	Not used	Not used
M 8287	Not used	Output hold mode cancel Ch4	Not used	Not used
M 8288	Not used	Not used	Not used	Not used
M 8289	Not used	Not used	Not used	Not used
4th analog special adapter				
M 8290	Input mode switching Ch1	Output mode switching Ch1	Temperature unit selection	Temperature unit selection
M 8291	Input mode switching Ch2	Output mode switching Ch2	Not used	Type-K/-J switching
M 8292	Input mode switching Ch3	Output mode switching Ch3	Not used	Not used
M 8293	Input mode switching Ch4	Output mode switching Ch4	Not used	Not used
M 8294	Not used	Output hold mode cancel Ch1	Not used	Not used
M 8295	Not used	Output hold mode cancel Ch2	Not used	Not used
M 8296	Not used	Output hold mode cancel Ch3	Not used	Not used
M 8297	Not used	Output hold mode cancel Ch4	Not used	Not used
M 8298	Not used	Not used	Not used	Not used
M 8299	Not used	Not used	Not used	Not used

Appendix A-3-2   Special data registers (D8260 to D8299)

Number	Operation and function			
	FX3U-4AD-ADP	**FX3U-4DA-ADP**	**FX3U-4AD-PT-ADP**	**FX3U-4AD-TC-ADP**
1st analog special adapter				
D 8260	Input data Ch1	Output data Ch1	Measured temperature Ch1	Measured temperature Ch1
D 8261	Input data Ch2	Output data Ch2	Measured temperature Ch2	Measured temperature Ch2
D 8262	Input data Ch3	Output data Ch3	Measured temperature Ch3	Measured temperature Ch3
D 8263	Input data Ch4	Output data Ch4	Measured temperature Ch4	Measured temperature Ch4
D 8264	Number of averaging times for Ch1 (1 to 4095)	Not used	Number of averaging times for Ch1 (1 to 4095)	Number of averaging times for Ch1 (1 to 4095)
D 8265	Number of averaging times for Ch2 (1 to 4095)	Not used	Number of averaging times for Ch2 (1 to 4095)	Number of averaging times for Ch2 (1 to 4095)
D 8266	Number of averaging times for Ch3 (1 to 4095)	Not used	Number of averaging times for Ch3 (1 to 4095)	Number of averaging times for Ch3 (1 to 4095)
D 8267	Number of averaging times for Ch4 (1 to 4095)	Not used	Number of averaging times for Ch4 (1 to 4095)	Number of averaging times for Ch4 (1 to 4095)
D 8268	Error status	Error status	Error status	Error status
D 8269	Model code: K1	Model code: K2	Model code: K20	Model code: K10
2nd analog special adapter				
D 8270	Input data Ch1	Output data Ch1	Measured temperature Ch1	Measured temperature Ch1
D 8271	Input data Ch2	Output data Ch2	Measured temperature Ch2	Measured temperature Ch2
D 8272	Input data Ch3	Output data Ch3	Measured temperature Ch3	Measured temperature Ch3
D 8273	Input data Ch4	Output data Ch4	Measured temperature Ch4	Measured temperature Ch4
D 8274	Number of averaging times for Ch1 (1 to 4095)	Not used	Number of averaging times for Ch1 (1 to 4095)	Number of averaging times for Ch1 (1 to 4095)
D 8275	Number of averaging times for Ch2 (1 to 4095)	Not used	Number of averaging times for Ch2 (1 to 4095)	Number of averaging times for Ch2 (1 to 4095)
D 8276	Number of averaging times for Ch3 (1 to 4095)	Not used	Number of averaging times for Ch3 (1 to 4095)	Number of averaging times for Ch3 (1 to 4095)
D 8277	Number of averaging times for Ch4 (1 to 4095)	Not used	Number of averaging times for Ch4 (1 to 4095)	Number of averaging times for Ch4 (1 to 4095)
D 8278	Error status	Error status	Error status	Error status
D 8279	Model code: K1	Model code: K2	Model code: K20	Model code: K10
3rd analog special adapter				
D 8280	Input data Ch1	Output data Ch1	Measured temperature Ch1	Measured temperature Ch1
D 8281	Input data Ch2	Output data Ch2	Measured temperature Ch2	Measured temperature Ch2
D 8282	Input data Ch3	Output data Ch3	Measured temperature Ch3	Measured temperature Ch3
D 8283	Input data Ch4	Output data Ch4	Measured temperature Ch4	Measured temperature Ch4
D 8284	Number of averaging times for Ch1 (1 to 4095)	Not used	Number of averaging times for Ch1 (1 to 4095)	Number of averaging times for Ch1 (1 to 4095)
D 8285	Number of averaging times for Ch2 (1 to 4095)	Not used	Number of averaging times for Ch2 (1 to 4095)	Number of averaging times for Ch2 (1 to 4095)
D 8286	Number of averaging times for Ch3 (1 to 4095)	Not used	Number of averaging times for Ch3 (1 to 4095)	Number of averaging times for Ch3 (1 to 4095)
D 8287	Number of averaging times for Ch4 (1 to 4095)	Not used	Number of averaging times for Ch4 (1 to 4095)	Number of averaging times for Ch4 (1 to 4095)
D 8288	Error status	Error status	Error status	Error status
D 8289	Model code: K1	Model code: K2	Model code: K20	Model code: K10
4th analog special adapter				
D 8290	Input data Ch1	Output data Ch1	Measured temperature Ch1	Measured temperature Ch1
D 8291	Input data Ch2	Output data Ch2	Measured temperature Ch2	Measured temperature Ch2
D 8292	Input data Ch3	Output data Ch3	Measured temperature Ch3	Measured temperature Ch3
D 8293	Input data Ch4	Output data Ch4	Measured temperature Ch4	Measured temperature Ch4
D 8294	Number of averaging times for Ch1 (1 to 4095)	Not used	Number of averaging times for Ch1 (1 to 4095)	Number of averaging times for Ch1 (1 to 4095)
D 8295	Number of averaging times for Ch2 (1 to 4095)	Not used	Number of averaging times for Ch2 (1 to 4095)	Number of averaging times for Ch2 (1 to 4095)
D 8296	Number of averaging times for Ch3 (1 to 4095)	Not used	Number of averaging times for Ch3 (1 to 4095)	Number of averaging times for Ch3 (1 to 4095)
D 8297	Number of averaging times for Ch4 (1 to 4095)	Not used	Number of averaging times for Ch4 (1 to 4095)	Number of averaging times for Ch4 (1 to 4095)
D 8298	Error status	Error status	Error status	Error status
D 8299	Model code: K1	Model code: K2	Model code: K20	Model code: K10