

Supplementary FX2N Series Hardware Manual

This manual contains supplementary safety guidelines and specification information, etc. for the FX2N Series Hardware Manual (Manual number: JY992D66301). This should be read and understood before attempting to install or use the FX2N Series PLC.

1. Safety Guidelines



Caution

- Do not lay signal cable near to either high voltage power cabling or cabinet housing along the same trunking duct. Effects of noise or surge induction may occur. Keep signal cables of more than 100 mm (3.94") from these power cables.
- Install necessary power supply cut off precautions to the enclosure of the final system. Attach a warning label (hazard symbol 417-IEC-5036) concerning the electric shock to the location.
- Use FX2N series PLC for an electric noise under the environmental condition provided by EN50081-2 and EN61131-2.
- Cut off all phases of power source before installation or performing wiring work to avoid electric shock, incorrect operation or damage to the product.
- Cut off all phases of power source before installing/removing the extension or communication cable to module in order to avoid electric shock, incorrect operation or damage to the product.
- Replace the terminal cover provided before supplying power and operating the unit after installation or wiring work, in order to avoid electric shock.
- After reading the manual's safety instructions, operate program changes while the PLC is in the RUN status, force outputs and initiate RUN/STOP.
- The power supply of the extension units/blocks and the special function units/blocks should be started at the same time or earlier than the FX2N Series main unit.
- DO NOT use "●" terminal in PLC.
- When supplying from incorrect power source and incorrect operation, serious damage will be received regardless of the level of the voltage and frequency.
- When performing incorrect wiring and operation, serious damage will be received.
- "L" and "N" terminal are not reversible.
If "L" and "N" terminal are reversed, the units/block may be seriously damaged.
- "24V" and "0V" terminal are not reversible.
If "24V" and "0V" terminal are reversed, the units/block may be seriously damaged.
- During transportation avoid any impact as the PLC is a precision instrument.
If is necessary to check the operation of PLC after transportation, in case of any impact damage.
- During transportation avoid any impact to the battery (F2-40BL) as the PLC may be seriously damaged by the liquid leakage etc. from the battery.
- When storing the PLC, conform to the environmental conditions specified by the general specification.
When the battery is kept, it is necessary to avoid direct sunshine, high temperature, high humidity and water splash.

- The terminal screws of the FX2N Series PLC is M3.0 (0.12"). However, the terminal screws for the FX0N-32NT-DP and Terminal Blocks are M3.5 (0.14"). The crimp style terminal (see drawing) suitable for use with these screws should be fitted to the cable for wiring. When installing 1 or 2 crimp terminals to a terminal, see each explanation below. However, 3 crimp terminals or more cannot be installed to a single terminal.
- Handle the crimp terminal of the following size as and when 1 wire is used per terminal. Refer to Figure 3 for installation instructions.

Figure 1: Crimp Terminal for M3.5 Screws

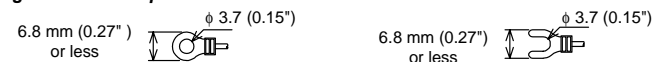
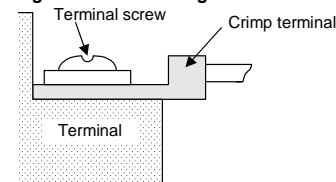


Figure 2: Crimp Terminal for M3 Screws



Figure 3: Installing 1 wire Per a Terminal



- Handle the crimp terminal of the following size as and when 2 wires are used per terminal. Refer to Figure 6 for installation instructions.

Figure 4: Crimp Terminal for M3.5 Screws

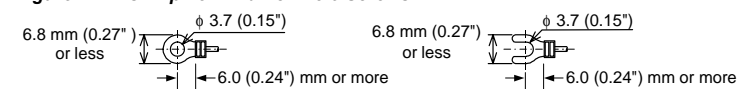


Figure 5: Crimp Terminal for M3 Screws

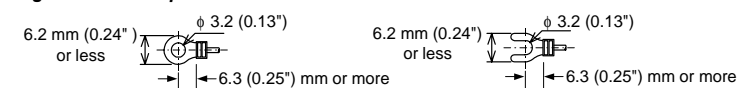
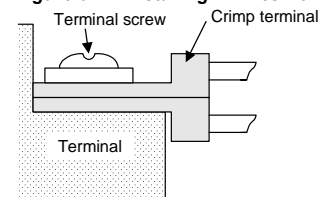


Figure 6: Installing 2 Wires Per a Terminal



2. Supplement Specifications

2.1 General Specifications

The following specifications are changed or new information.

Item		Description
Vibration Resistance - Direct Mounting		Conforms to EN68-2-6; 10 - 57 Hz: 0.075 mm Half Amplitude 57 - 150 Hz: 9.8 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Vibration Resistance - DIN rail Mounting		Conforms to EN68-2-6; 10 - 57 Hz: 0.035 mm Half Amplitude 57 - 150 Hz: 4.9 m/s ² Acceleration Sweep Count for X, Y, Z: 10 times (80 min in each direction)
Shock Resistance		Conforms to EN68-2-27: 147m/s ² Acceleration, Action Time: 11 ms 3 times in each direction X, Y, and Z
Dielectric Withstand Voltage	AC Power Supply Type	1,500 V AC > 1 min, tested between all points, terminals and ground
	DC Power Supply Type	500 V AC > 1 min., tested between all points, terminals and ground
Grounding		Grounding resistance 100 Ω or less
Certifications		CE, UL/cUL
Complies with		UL508, EN61131-2, EN50081-2

2.2 Power Supply Specifications

The following specifications are changed or new information.

		FX2N-☆☆M/E-ES/ESS/E	FX2N-☆☆M/E-DS/DSS
Max. allowable momentary power failure period		10 ms. 10 ms. > PLC = RUN, 10 ms. < PLC = STOP	PS1: 5ms (D8008 = K-1) ^{*1} 5 ms. > PLC = RUN, 5 ms. < PLC = STOP
Current	Repeatedly ^{*2}	FX2N-16M*-E**/UL = 660 mA, 100V AC FX2N-32M*-E**/UL = 720 mA, 100V AC FX2N-48M*-E**/UL = 1090 mA, 100V AC FX2N-64M*-E**/UL = 1170 mA, 100V AC FX2N-80M*-E**/UL = 1250 mA, 100V AC FX2N-128M*-E**/UL = 1480 mA, 100V AC FX2N-32M*-E**/UL = 710 mA, 100V AC FX2N-48M*-E**/UL = 980 mA, 100V AC	-
	Typical ^{*2}	FX2N-16M*-E**/UL = 270 mA, 100V AC FX2N-32M*-E**/UL = 300 mA, 100V AC FX2N-48M*-E**/UL = 430 mA, 100V AC FX2N-64M*-E**/UL = 460 mA, 100V AC FX2N-80M*-E**/UL = 490 mA, 100V AC FX2N-128M*-E**/UL = 610 mA, 100V AC FX2N-32M*-E**/UL = 290 mA, 100V AC FX2N-48M*-E**/UL = 390 mA, 100V AC	-

*1 When using 5ms at the Max. allowable momentary power failure period, please store K-1 using the MOV instruction.

*2 These are the reference values measured at a power supply of 100V AC.

2.3 Input Specifications

The following specifications are changed or new information.

2.3.1 DC Input Specifications

Items		FX2N	
		X0 - X7	X10 - ∞
OFF ⇄ ON / ON ⇄ OFF;	Voltage ^{*1}	>16.1V / <6.1V	>16.3V / <7.6V
	Current	>4.5mA / <1.5mA	>3.5mA / <1.5mA
Type of Action		EN61131-2, Section 3.3.1.2 - Type 1	

*1 The input switching voltage measures between each input terminal and S/S terminal.

2.4 Output Specifications

The following specifications are changed or new information.

2.4.1 Relay Output Specifications

Items	Specifications
FX2N internal protection for outputs	None
Protection circuit device (Fuse)	Rated value according to the load (Please refer to the output specification of the FX2N Series Hardware Manual.)

2.4.2 Triac Output Specifications

Items	Specifications
FX2N internal protection for outputs	None
Protection circuit device (Fuse)	Rated value according to the load (Please refer to the output specification of the FX2N Series Hardware Manual.)

2.4.3 Transistor Output Specifications

Items	Specifications
FX2N internal protection for outputs	None
Protection circuit device (Fuse)	Rated value according to the load (Please refer to the output specification of the FX2N Series Hardware Manual.)

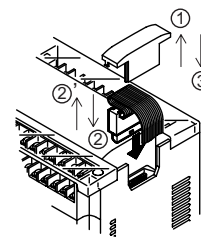
3. Supplement Other Informations

- Further information for programming can be found in the FX Programming Manual II.
- Further information for the programming tool's operation or option module can be found in each manual. Further information for special function units/blocks can be found in each manual.
- Install/remove extension module as shown in the figure below.



Caution

Cut off all phases of power source before installing/removing the extension module.



Ref.	Description
1	Remove the extension bus cover.
2 or 2'	2: Install extension cable. 2': Remove extension cable.
3	Install the extension bus cover.