

PROGRAMMABLE CONTROLLER BATTERY

MODEL

**FX3U-32BL**

QUICK START MANUAL



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## 1. BATTERY

Safety Precaution (Read these precautions before use.) This manual classifies the safety precautions into two categories: **DANGER** and **CAUTION**.

**⚠ DANGER** Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

**⚠ CAUTION** Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Depending on the circumstances, procedures indicated by **CAUTION** may also cause severe injury. It is important to follow all precautions for personal safety.

### DANGER STARTUP AND MAINTENANCE PRECAUTIONS

- Use the battery for memory backup correctly in conformance to this manual.
  - ▶ Use the battery only for the specified purpose.
  - ▶ Connect the battery correctly.
  - ▶ Do not charge, disassemble, heat, put in fire, short-circuit, connect reversely, weld, swallow or burn the battery, or apply excessive forces (vibration, impact, drop, etc.) to the battery.
  - ▶ Do not store or use the battery at high temperatures or expose to direct sunlight.
  - ▶ Do not expose to water, bring near fire or touch liquid leakage or other contents directly.
  - ▶ Incorrect handling of the battery may cause heat excessive generation, bursting, ignition, liquid leakage or deformation, and lead to injury, fire or failures and malfunctions of facilities and other equipment

### CAUTION STARTUP AND MAINTENANCE PRECAUTIONS

- Turn off the power to the PLC before attaching or detaching the following devices. Failure to do so may cause equipment failures or malfunctions.
  - ▶ Peripheral devices, display module, expansion boards, and special adapters
  - ▶ Extension units/blocks and FX Series terminal blocks
  - ▶ Battery

### CAUTION TRANSPORTATION AND STORAGE PRECAUTIONS

- When transporting the FX3G Series PLC incorporating the optional battery, turn on the PLC before shipment, confirm that the battery mode is set using a parameter and the ALM LED is OFF, and check the battery life. If the PLC is transported with the ALM LED on or the battery exhausted, the battery-backed data may be unstable during transportation.
- When transporting lithium batteries, follow required transportation regulations.

The battery is not incorporated in the PLC main unit at shipment from the factory. Order it if necessary.

### 1.1 BATTERY PURPOSE

The battery backs up the following contents against power interruption. Proper parameter setting is required to back up the device memory and current time. For the parameter setting method, refer to Section 1.5.

Item	Data Retained By Backup Battery
Device Memory	Auxiliary relay M1536 to M7679, state S1000 to S4095, data register D1100 to D7999, extended register R0 to R23999
Current Time *1	Current time clock

\*1. The data is backed up by the large-capacity capacitor built in the PLC at shipment from the factory

### 1.2 SPECIFICATIONS

Item	Specifications	Remarks
Nominal voltage	3V	Battery voltage can be monitored with PLC data register D8005.

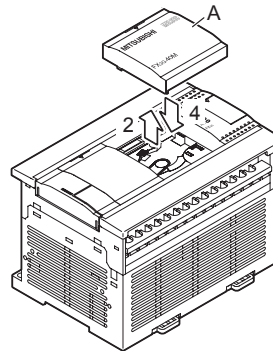
### 1.3 SETTING FOR BATTERY

The battery is not incorporated in the main unit at shipment from the factory. It is necessary to attach the optional battery if backup is required. In addition, the battery mode is set via a parameter.

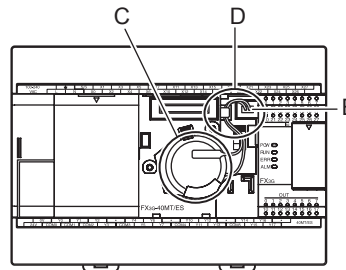
### 1.4 ATTACHING THE BATTERY

#### 1. Turn the power OFF.

2. **Remove the top cover (A in the figure below).** When the expansion board is attached, remove it.



3. **Attach the battery.** Insert the battery connector (B in figure below) of the battery. Push the battery into the battery holder (C in figure below). Set the battery cable as shown in D in figure below.

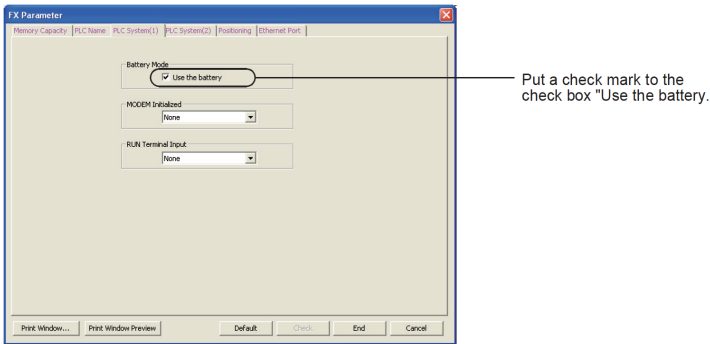


4. **Attach the top cover.** When the expansion board was removed in the step 2, attach it again.

### 1.5 SETTING THE BATTERY MODE USING GX WORKS2

The following setting using a parameter is required to use the battery.  
**NOTE:** The battery does not back up the data if the following setting is not provided.

On the «PLC system(1)» tab on the “FX parameter” window, check the check box “Use the battery.” (Refer to the window below.)



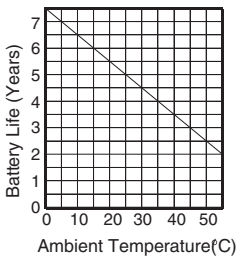
### 1.6 BATTERY HANDLING

When the battery voltage is low, a “ALM” LED lights (red) while the power is ON, and M8005 and M8006 are switched ON. Although the battery will continue to function for approximately 1 month after the “ALM” LED switches ON, a replacement battery should be ordered and installed as soon as possible.

### 1.7 BATTERY LIFE AND REPLACEMENT GUIDELINES

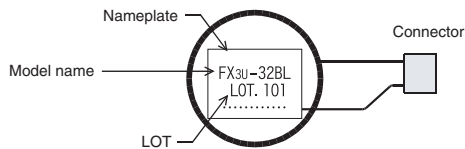
**FX3U-32BL BATTERY LIFE:** Approx. 5 years (ambient temperature: 25°C(77°F)) [Guarantee period: 1 year after delivery or 18 months after production] The life of the battery changes with respect to ambient temperature. When planning for battery replacement, please estimate the battery life according to the graph to the right and order the replacement batteries in advance.

Battery Life vs. Temperature

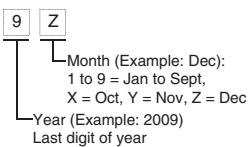


### 1.8 READING THE DATE OF MANUFACTURE

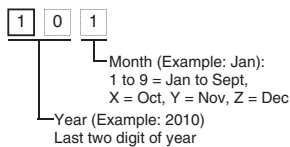
How to read the battery lot number (reference)



<Product during December, 2009 or earlier>



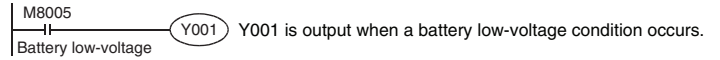
<Product from January, 2010>



### 1.9 SPECIAL “BATTERY LOW-VOLTAGE” DEVICE & NOTIFICATION PROGRAM EXAMPLE

Prepare a system which allows constant external monitoring of the battery status, using an indicator lamp, etc.

- M8005



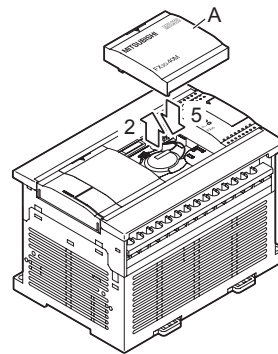
- M8006  
Battery low-voltage is latched.
- D8005  
Battery voltage can be monitored.

### 1.10 BATTERY REPLACEMENT

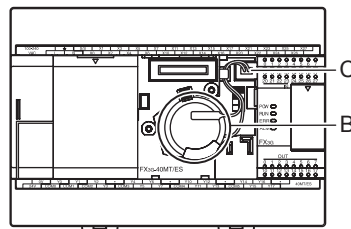
#### BEFORE REPLACING THE BATTERY

Step 4 of the replacement procedure (below), must be performed within 20 seconds after step 3, or the memory content could be lost.

1. Turn the power OFF.
2. Remove the top cover (A in the figure below). When the expansion board is attached, remove it.



3. Remove the old battery. Extract the old battery from the battery holder (B in the figure below), and disconnect the battery connector (C in the figure below).



4. Install the new battery. For the installation procedure, refer to section 1.4

5. Attach the top cover. When the expansion board was removed in step 2, attach it again.

#### CAUTION

- After replacing the battery, check whether the backup target devices (keep devices) and clock data are backed up correctly, confirm safety, and then run the PLC.
- If the backup target devices (keep devices) are not backed up correctly, clear them, and set their initial values and clock data again if necessary.

For the clear method of keeping devices, refer to the GX Works2 help menu.

### 1.11 BATTERY RELATED PRECAUTIONS

- Make sure to select the battery mode using a parameter when using the battery.

## 2. PRECAUTIONS FOR BATTERY TRANSPORTATION

When transporting lithium batteries, follow the transportation regulations.

Product Name	Battery Type	Product Supply Status	Lithium Content (Gram/Unit)	Weight *1 (Gram/Unit)
FX3U-32BL	lithium metal battery	Cell	0.15	30

\*1 The value indicates the weight with packaging. Comply with IATA Dangerous Goods Regulations, IMDG code and the local transport regulations when transporting products listed above. Also, consult with the shipping carrier.

## 3. HANDLING OF BATTERIES IN EU MEMBER STATES

for battery  
EU



This symbol to the left is for EU member states only.

The symbol is specified in the new EU Battery Directive (2006/66/EC) Article 20 "Information for end-users" and Annex II.

- The symbol above indicates that batteries need to be disposed of separately from other wastes.
- The new EU Battery Directive (2006/66/EC) requires the following when marketing or exporting batteries and/or devices with built-in batteries to EU member states.
  - To print the symbol on batteries, devices, or their packaging
  - To explain the symbol in the manuals of the products

Product Name	Battery Type
FX3U-32BL	Lithium Manganese Dioxide Battery

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