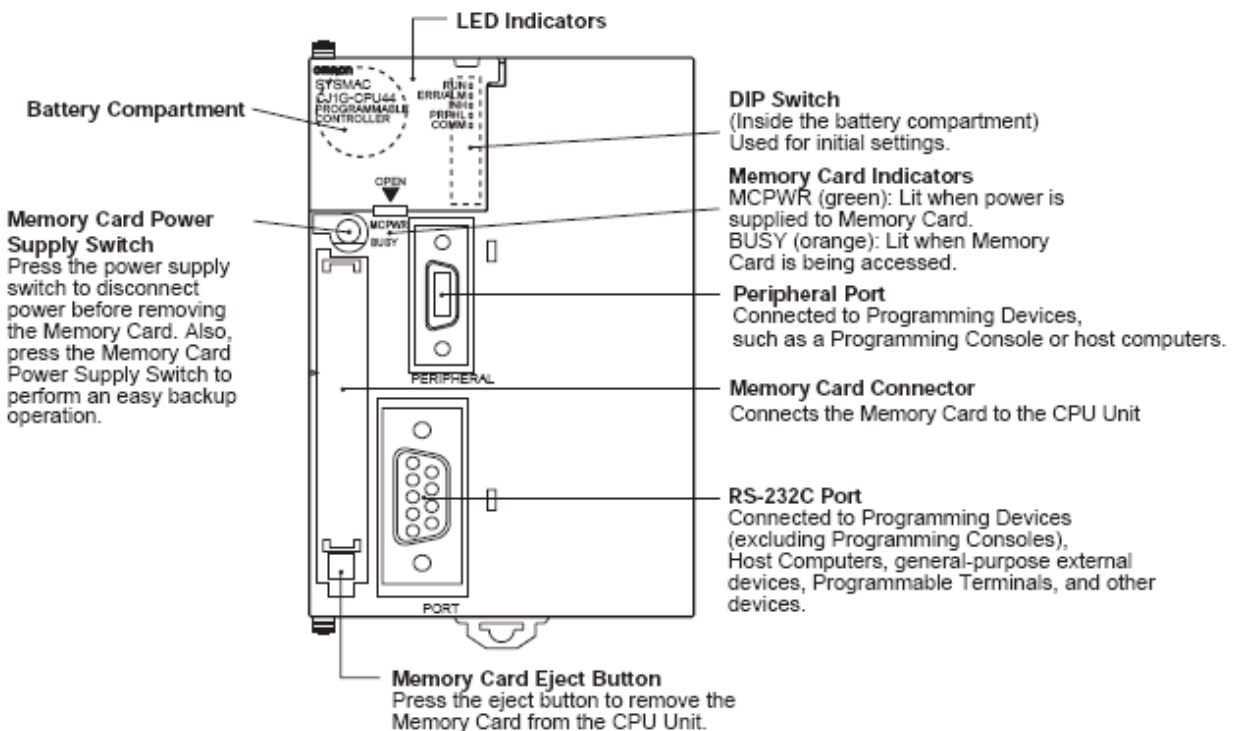## Contents:

1. Guide to make a backup copy of a running PLC
2. Guide to restore a backup copy to a replacement PLC

General: CPU Unit Components

Use the following picture to identify the CPU unit components.

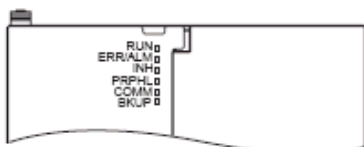The following page explains the meaning of all LED indicators.

GENERAL NOTES

1. Never turn OFF the PLC while the CPU is accessing the CF-card. (BUSY indicator is lit)

2. Never remove the CF-card while the CPU is accessing the CF-card. Press the CF-card power supply switch and wait for the BUSY indicator to go OFF before removing the CF-card. In the worst case, the CF-card may become unusable if the PLC is turned OFF or the CF-card is removed while the Card is being accessed by the CPU.

3. Never insert the CF-card facing the wrong way. If the CF-card is inserted forcibly, it may become unusable.
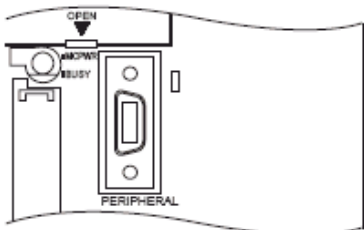
Indicators

The following table describes the LED indicators located on the front panel of the CPU Units.

| Indicator	Color	Status	Meaning
RUN	Green	ON	PLC is operating normally in MONITOR or RUN mode.
		Flashing	System download mode error or DIP switch settings error.
		OFF	PLC has stopped operating while in PROGRAM mode, or has stopped operating due to a fatal error, or is downloading data from the system.
ERR/ALM	Red	ON	A fatal error has occurred (including FALS instruction execution), or a hardware error (watchdog timer error) has occurred. The CPU Unit will stop operating, and the outputs from all Output Units will turn OFF.
		Flashing	A non-fatal error has occurred (including FAL instruction execution) The CPU Unit will continue operating.
		OFF	CPU Unit is operating normally.
INH	Orange	ON	Output OFF Bit (A50015) has been turned ON. The outputs from all Output Units will turn OFF.
		OFF	Output OFF Bit (A50015) has been turned OFF.
PRPHL	Orange	Flashing	CPU Unit is communicating (sending or receiving) via the peripheral port.
		OFF	CPU Unit is not communicating via the peripheral port.
COMM	Orange	Flashing	CPU Unit is communicating (sending or receiving) via the RS-232C port.
		OFF	CPU Unit is not communicating via the RS-232C port.
BKUP (CJ1-H CPU Units only)	Orange	ON	User program and parameter area data is being backed up to flash memory in the CPU Unit or being restored from flash memory. **Note** Do not turn OFF the power supply to the PLC while this indicator is lit.
		OFF	Data is not being written to flash memory.

| Indicator	Color	Status	Meaning
MCPWR	Green	ON	Power is being supplied to the Memory Card.
		Flashing	Flashes once: Easy backup read, write, or verify normal Flashes five times: Easy backup write malfunction Flashes three times: Easy backup write warning Flashes continuously: Easy backup read or verify malfunction
		OFF	Power is not being supplied to the Memory Card.
BUSY	Orange	Flashing	Memory Card is being accessed.
		OFF	Memory Card is not being accessed.

1: Guide to make a backup copy of a running PLC

### 1-1: Install CF-card in the running and powered PLC

1. Pull the top end of the Memory Card cover forward and remove from the Unit.
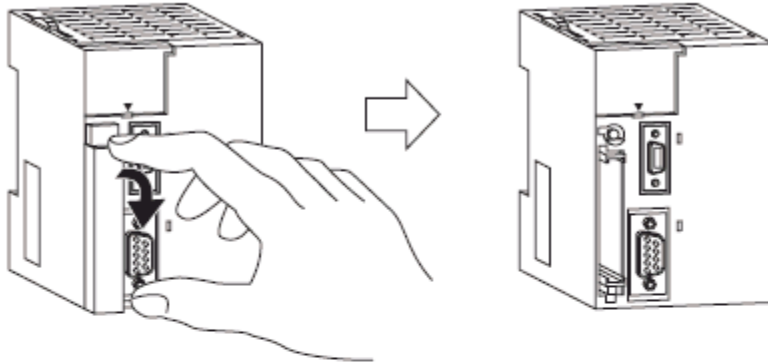
2. Insert the Memory Card with the label facing to the left. (Insert with the Δ on the Memory Card label and the Δ on the CPU Unit facing each other.)

Product label
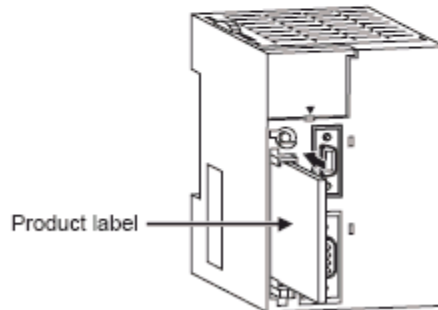
3. Push the Memory Card securely into the compartment. If the Memory Card is inserted correctly, the Memory Card eject button will be pushed out.
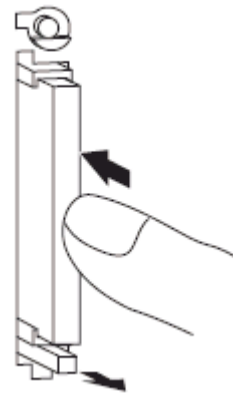
*As soon as the CF-card is inserted the MCPWR and BUSY indicators will go ON.*

The MCPWR indicator will stay ON and the BUSY indicator will go OFF after a few seconds.

1-2: Enable read/write operations for the CF-card

Insert a small flat-blade screwdriver into the opening at the bottom of the battery compartment cover and lift open the cover.
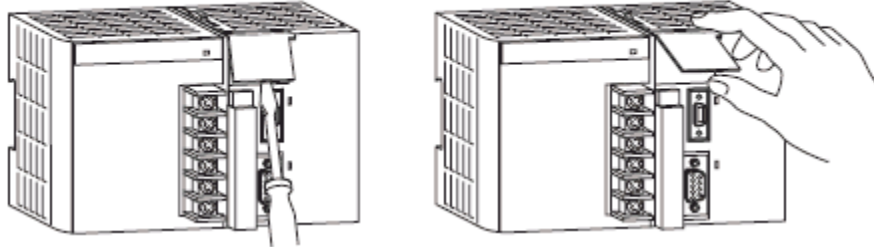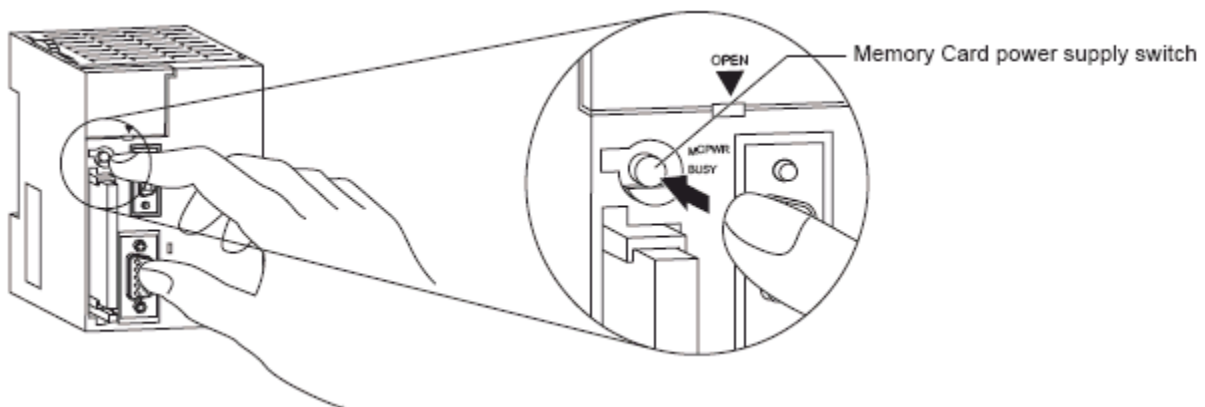
1. Set dipswitch no. 7 to ON position (flip to the left)
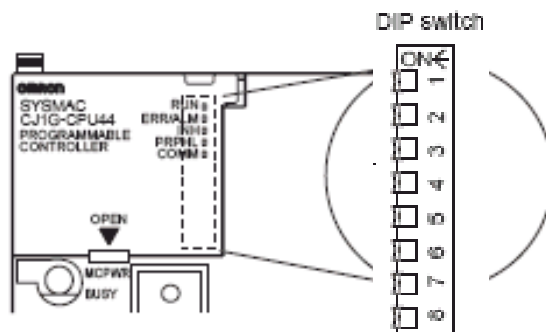
2. Verify the BUSY indicator is OFF. If not, wait.

1-3: Transfer data to the CF-card

1. Press and hold MCPWR switch for 3 seconds. (Release as soon as BUSY indicator goes ON).
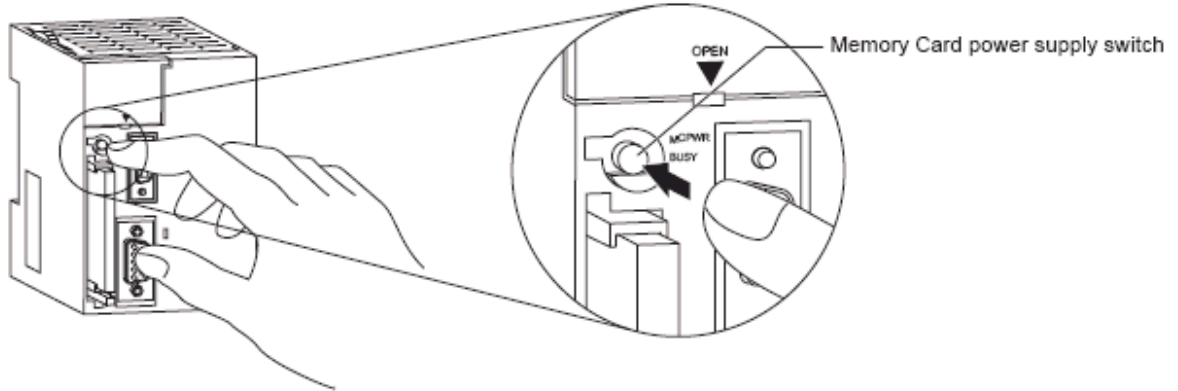
The PLC is now transferring user program and memory areas to the CF card. Depending on the program size this can take seconds up to a few minutes!

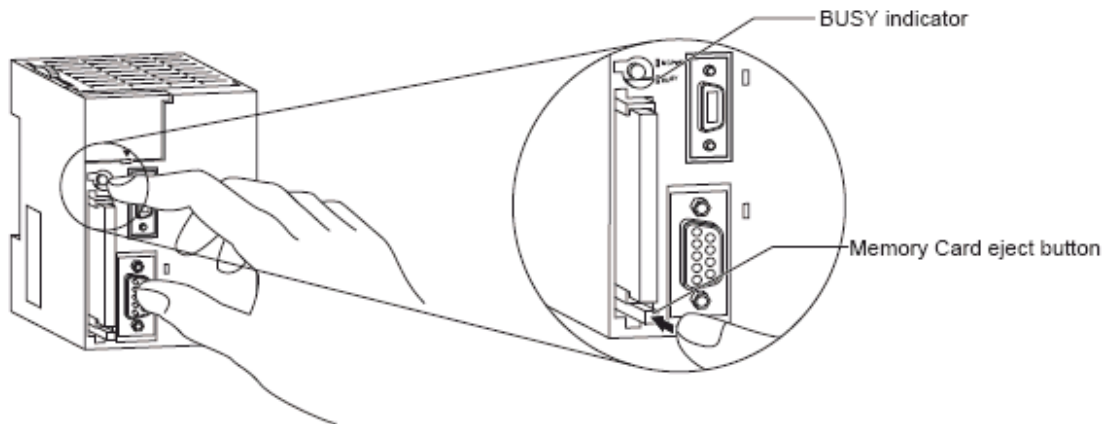*When finished both MCPWR and BUSY indicators are OFF.*

1-4:   Remove CF-card from the running PLC

PROCEED WITH STEP 2 IF THE MCPWR INDICATOR IS ALREADY OFF!
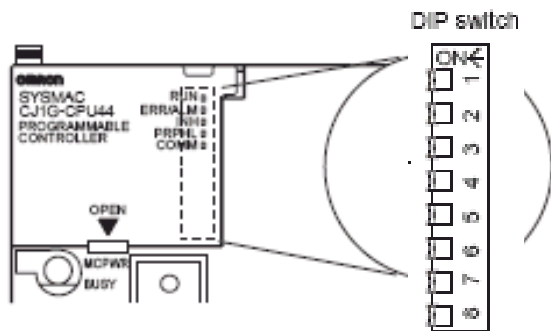
1. Press the Memory Card power supply switch.

2. Press the Memory Card eject button after the BUSY indicator is no longer lit.

3. The Memory Card will eject from the compartment.
4. Install the Memory Card cover when a Memory Card is not being used.

5.   Set dipswitch no. 7 to OFF position (flip to the right)

The CF-card now contains a full backup of the running program as well as the memory areas (setpoints, parameters etc). Write the date of backup on the card. Store it at a safe location.

2:   Guide to restore a backup copy to a replacement PLC

The replacement CPU does not necessarily have to be "empty", it can also be a used model which already has a user program loaded. The following procedure will overwrite all existing memory of the replacement CPU with the latest backup copy of the original CPU which was created in section 1.

Requirements before commencing this section:

- Replacement CPU unit is installed and not powered.
- Dipswitch positions except switch 7 are set to match the defect/original CPU.
- CF card contains a previously created backup of the defect/original CPU.

2-1:   Install CF-card in the stopped and unpowered PLC

Ensure CPU power is off!

1. Pull the top end of the Memory Card cover forward and remove from the Unit.
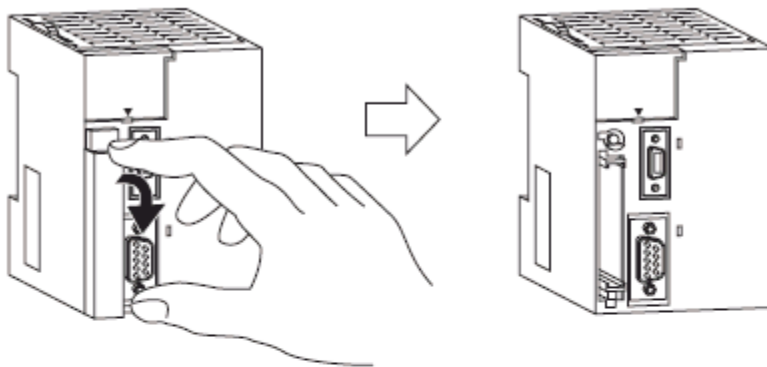
2. Insert the Memory Card with the label facing to the left. (Insert with the Δ on the Memory Card label and the Δ on the CPU Unit facing each other.)
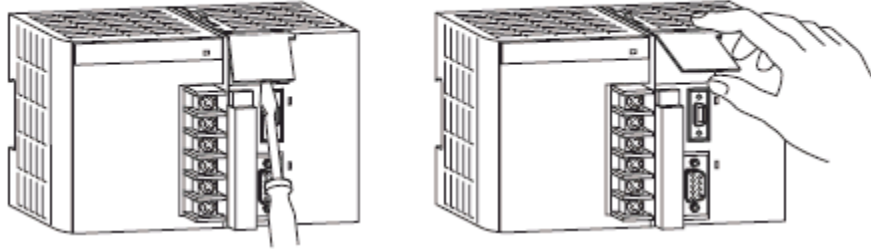

Product label
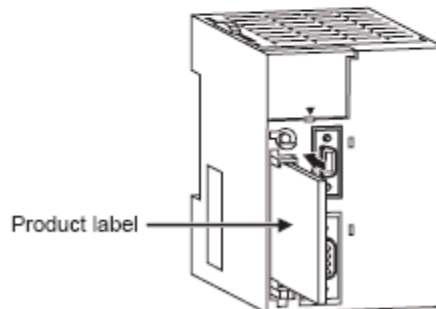
3. Push the Memory Card securely into the compartment. If the Memory Card is inserted correctly, the Memory Card eject button will be pushed out.
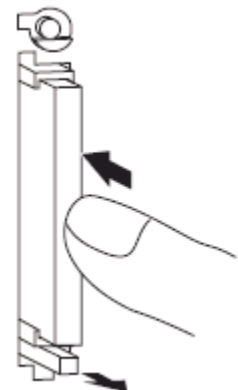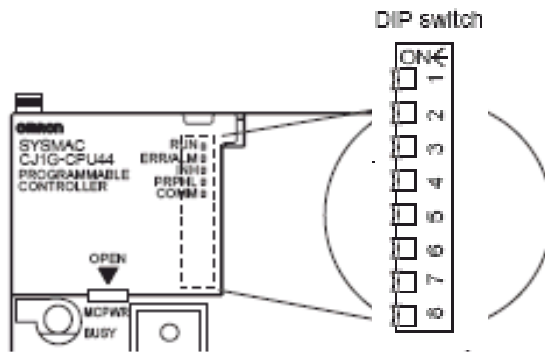
2-2:   Transfer backup data from CF card to CPU unit

Insert a small flat-blade screwdriver into the opening at the bottom of the battery compartment cover and lift open the cover.
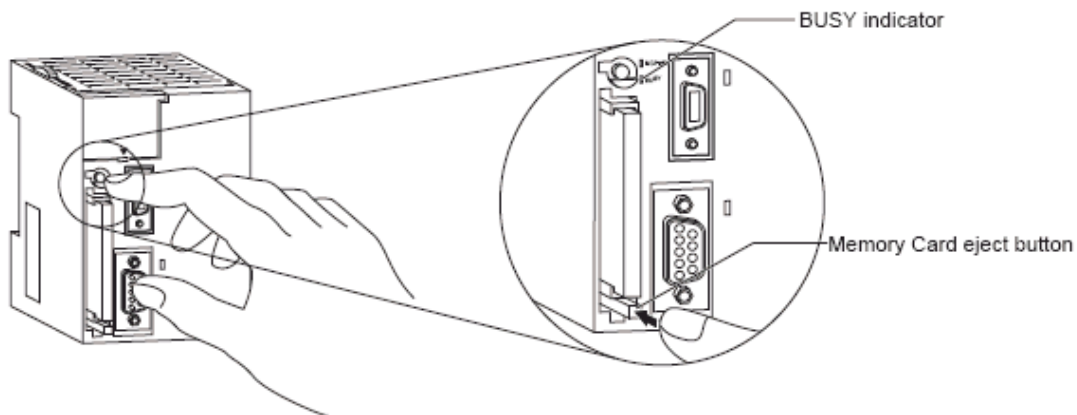

1. Set dipswitch no. 7 to ON position (flip to the left) and following turn ON power to the PLC.

MCPWR indicator will go ON and BUSY indicator will flash. BKUP indicator on the CPU unit will flash a few times as well. Wait until all 3 mentioned indicators are OFF.

2. Press the Memory Card eject button after the BUSY indicator is no longer lit.

3. The Memory Card will eject from the compartment.
4. Install the Memory Card cover when a Memory Card is not being used.

The backup program is now successfully transferred to the CPU unit's built in flash memory

2-3 Power cycle CPU for operation

5. Set dipswitch no. 7 to OFF position (flip to the right)
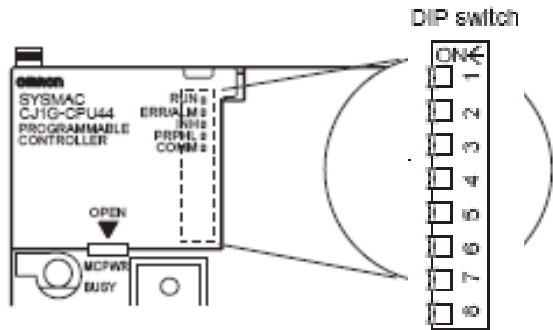
6. Power cycle the CPU and it automatically starts in RUN mode.