

8.2 Program Branch Instruction

Pointer branch

CJ(P)

FX5S FX5UJ FX5U FX5UC

These instructions execute the program specified by the pointer number within the same program file when the jump command is on.

Ladder diagram	Structured text
	Not supported

FBD/LD
Not supported.

Setting data

■ Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(P)	Pointer number of the jump destination	—	Device name	POINTER

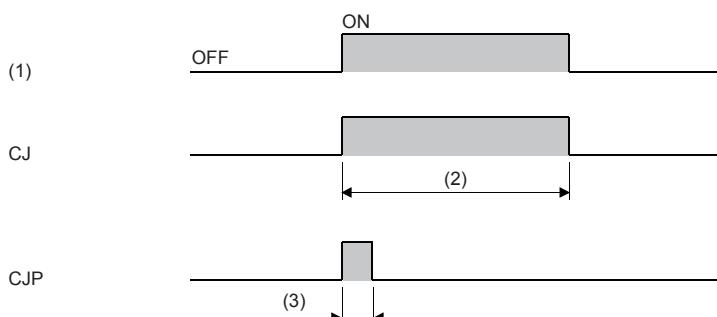
■ Applicable devices

Operand	Bit	Word			Double word		Indirect specification	Constant			Others
		X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC		K, H	E	\$	
(P)	—	—	—	—	—	—	—	—	—	—	○

Processing details

■ CJ(P)

- These instructions execute the program specified by the pointer number when the execution command is on.
- When the execution command is off, the program in the next step is executed.



(1): Execution command

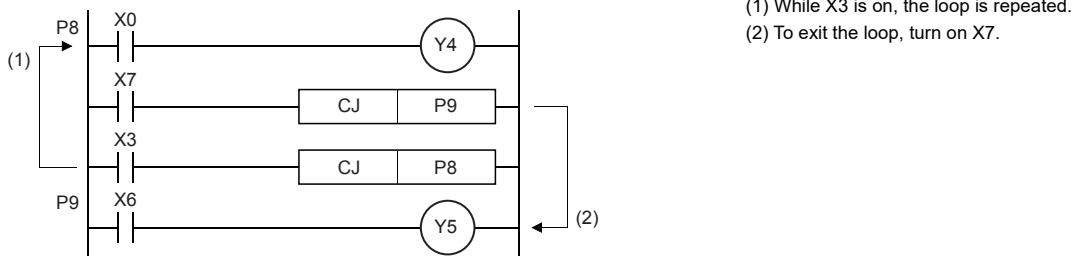
(2): Executed in each scan

(3): One Scan

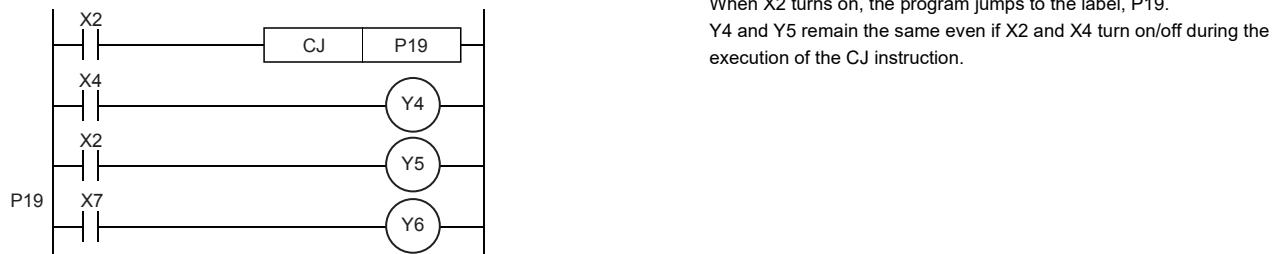
Precautions

- If the timer with its coil on is skipped by these instructions, time cannot be measured correctly.
- If the OUT instruction is skipped by these instructions, the scan time will be shortened.
- If these instructions specify and jump to a later step, the scan time will be shortened.

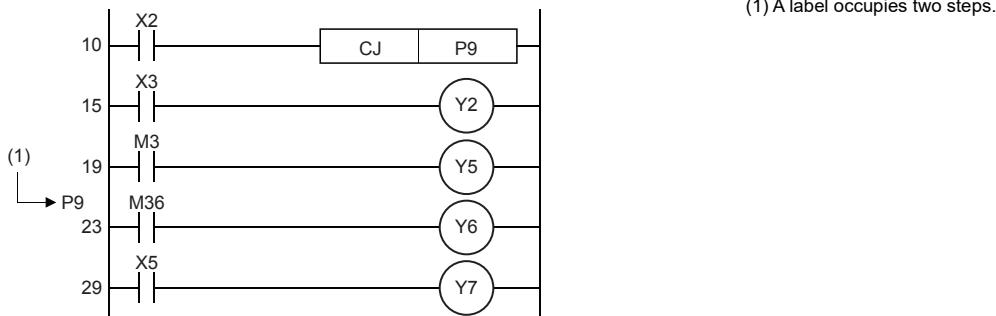
- These instructions can specify and jump from the current step to a smaller step number. In this case, consider a method to exit a loop so that the watchdog timer does not time out.



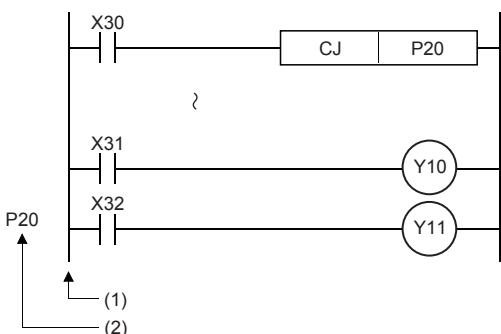
- The value in the device skipped with these instructions remains the same.



- A label ($P\square$) occupies two steps.

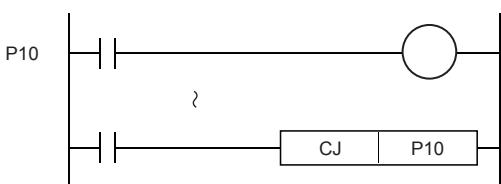


- Only the pointer numbers within the same program file can be specified.
- During skip operation, if the program jumps to the pointer number within the skip range, the programs of the jump destination pointer number and later are executed.
- The figure below shows programming of a label. When creating a circuit program, move the cursor to the left side of the bus line in the ladder diagram, and input a label (P) at the head of the circuit block.

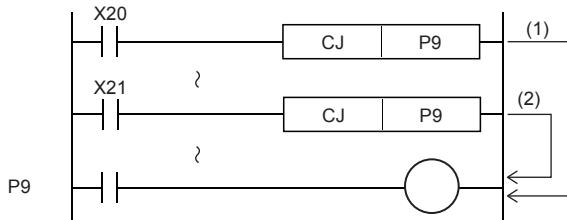


(1): Bus line
(2): Label

- A label can be programmed in a smaller number step than CJ instruction. However, note that a watchdog timer error occurs when the scan time exceeds 200 ms (default setting).

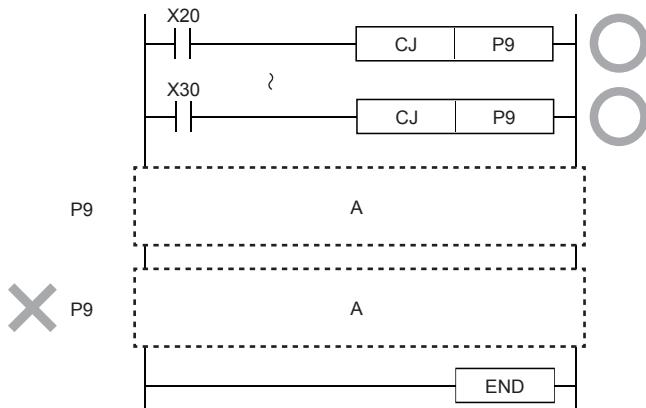


- When the pointer number in operands is same and there is one label, the following operation is caused:

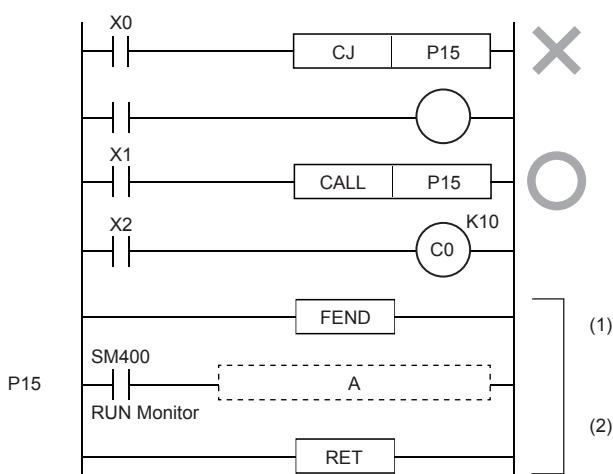


- (1) When X20 turns ON, the program execution jumps from CJ instruction corresponding to X20 to the label P9.
(2) When X20 turns OFF and X21 turns ON, the program execution jumps from CJ instruction corresponding to X21 to the label P9.

- When a label number (including labels for CALL instructions described later) is used two or more times, an error is caused.

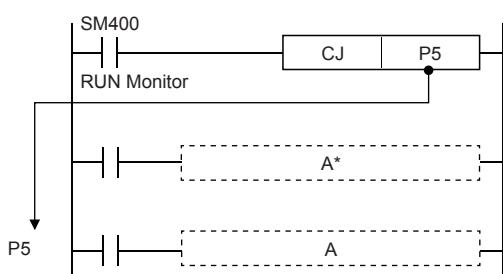


- No label can be shared by CALL instruction and CJ instruction.



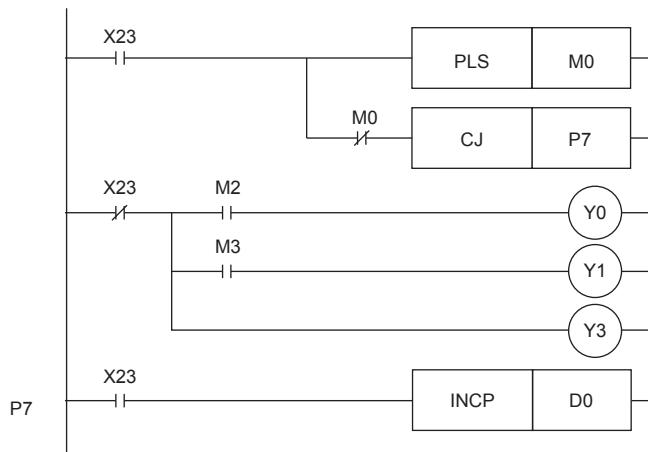
- A: User program
(1): Subroutine program dedicated to CALL instruction
(2): Program a label (P) after FEND instruction.

- Because SM400/SM8000 is normally ON while the CPU module is operating, unconditional jump is applied when SM400 is used as shown in the following example:



- A*: User program (It is skipped, and is not executed.)
A: User program

- In one operation cycle after X23 changes from OFF to ON, the CJ instruction becomes valid. By using this method, jump can be executed after all outputs between the CJ instruction and the label P7 turn OFF.



Operation error

Error code (SD0/SD8067)	Description
3380H	A pointer number which is not used as a label in the same program file is specified.