

WECON

Programming



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CJ Instructions

1. Instruction Description

Name	Function	Bits(bits)	Pulse type	Instruction format	Step
CJ	Conditional jump	16	No	CJ P0-P127	3
CJP		16	Yes		3

This instruction disables the sequence control program from CJ, CJP instruction to point (p).

It can help to decrease circle time (scan period) and implement the program applying double coil.

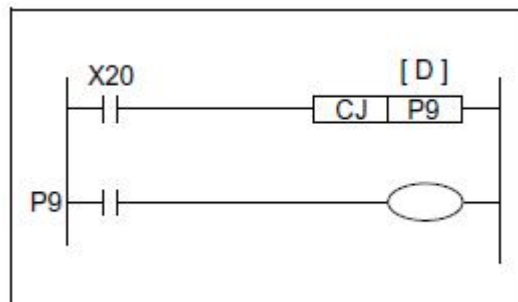
(1).When power flow is effective, the program will automatically jump from the CJ (or CJP) instruction address to the address specified by p*** and go on running, and the skipped instructions will not be implemented.

(2).When power flow is ineffective, the program will go on, and the CJ (or CJP) instruction will not be implemented.

If there is a TMR timer or counter in skipped instructions which has been activated, the operation should be:

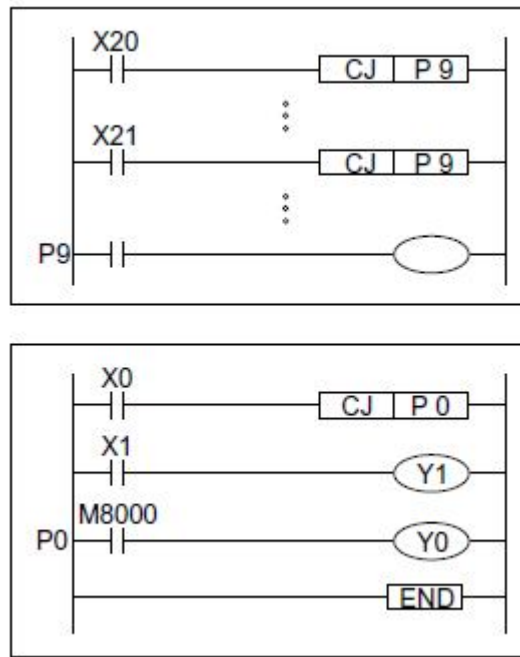
Operation condition	CJ with jump	CJ without jump
T192~T199	Operating normally	Operating normally
Other timer	Stop timing	
C235~C255	Operating normally	
Other timer	Stop counting	

2.Operation:

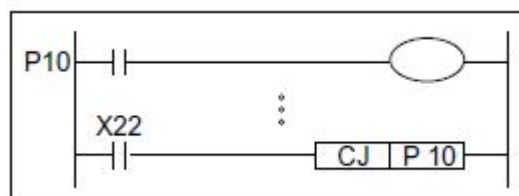


When the CJ instruction is active it forces the program to jump to an identified program marker. While the jump takes place the intervening pro-gram steps are skipped. This means they are not processed in any way. The resulting effect is to speed up the programs operational scan time.

Points to note:



- a) Many CJ statements can reference a single pointer.
- b) Each pointer must have a unique number. Using pointer P63 is equivalent to jumping to the END instruction.
- c) Any program area which is skipped, will not update output statuses even if the input devices change. For example, the program opposite shows a situation which loads X1 to drive Y1. Assuming X1 is ON and the CJ instruction is activated the load X1, out Y1 is skipped. Now even if X1 is turned OFF Y1 will remain ON while the CJ instruction forces the program to skip to the pointer P0. The reverse situation will also apply, i.e. if X1 is OFF to begin with and the CJ instruction is driven, Y1 will not be turned ON if X1 is turned ON. Once the CJ instruction is deactivated X1 will drive Y1 in the normal manner. This situation applies to all types of outputs, e.g. SET, RST, OUT, Y, M and S devices
- d) The CJ instruction can jump to any point within the main program body or after an FEND instruction
- e) A CJ instruction can be used to Jump forwards through a program, i.e. towards the END instruction OR it can jump backwards towards step 0. If a backwards jump is used care must be taken not to overrun the watchdog timer setting otherwise the PLC will enter an error situation. For more information on the watchdog timer.



- f) Unconditional jumps can be entered by using special auxiliary coils such as M8000. In this situation while the PLC is in RUN the program will ALWAYS execute the CJ instruction in an unconditional manner.

IMPORTANT:

- Timers and counters will freeze their current values if they are skipped by a CJ instruction. For example if Y1 in the previous program (see point c) was replaced by T0 K100 and the CJ instruction was driven, the contents of T0 would not change/increase until the CJ instruction is no longer driven, i.e. the current

timer value would freeze.

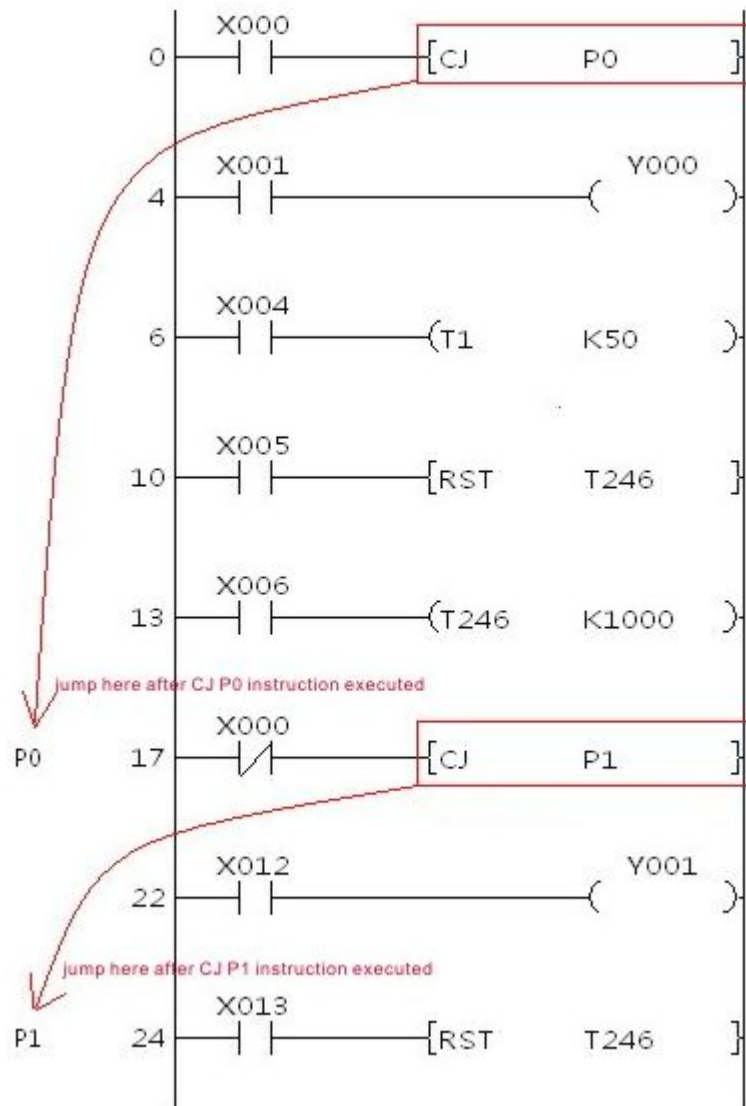
High speed counters are the only exception to this situation as they are processed independently of the main program.

Using applied instructions:

- Applied instructions are also skipped if they are programmed between the CJ instruction and the destination pointer. However, The PLSY and PWM instructions will operate continuously if they were active before the CJ instruction was driven, otherwise they will be processed, i.e. skipped, as standard applied instructions.

3.Programming example

Example 1 for instruction:



In the above example: If X0=ON and jump instruction is implemented, the coil operations in skipped instructions are listed as follows:

- ① Y,M,S hold the previous operation..
- ② If T is not activated before jumping, the timer will not operate even it is activated after jumping. If T is activated, it will keep running but contact will not operate. When X0 is OFF, contact operates immediately.
- ③ If C is not activated before jumping, the counter will not operate even if it is activated after jumping. If it is activated, the

timer interrupts. When X0 is OFF, the timer goes on counting..

- ④ After jumping, the function instruction will not operate.
- ⑤ If the reset instruction of the timer and counter is out of the jump, the timer coil and jump counter coil reset is effective.

4. PLC monitor

