

# Comparing clock data zones

## TZCP(P)

FX5S

FX5UJ

FX5U

FX5UC

This instruction compares two comparison time (comparison time zone) specified by (s1) and (s2) with the time data specified by (s3), and turns on or off the specified bit devices (d) according to the comparison results.

Ladder diagram	Structured text
	<pre>ENO:=TZCP(EN,s1,s2,s3,d); ENO:=TZCPP(EN,s1,s2,s3,d);</pre>

FBD/LD

## Setting data

### ■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s1)	Specify the lower limit of time comparison (hour, minute, and second).	—	16-bit signed binary	ANY16_ARRAY (Number of elements: 3)
(s2)	Specify the upper limit of time comparison (hour, minute, and second).	—	16-bit signed binary	ANY16_ARRAY (Number of elements: 3)
(s3)	Specify the time data (hour, minute, and second).	—	16-bit signed binary	ANY16_ARRAY (Number of elements: 3)
(d)	Specify the Bit device that turns on/off depending on the comparison result	—	Bit	ANYBIT_ARRAY (Number of elements: 3)
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

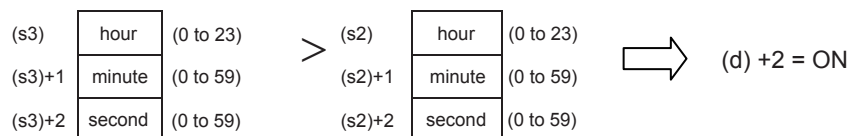
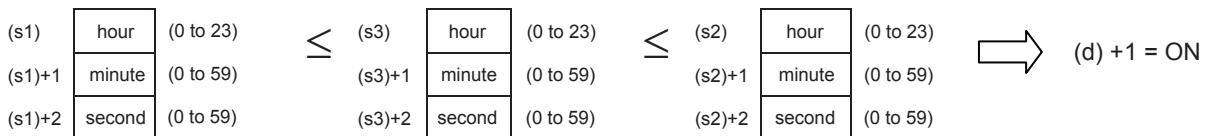
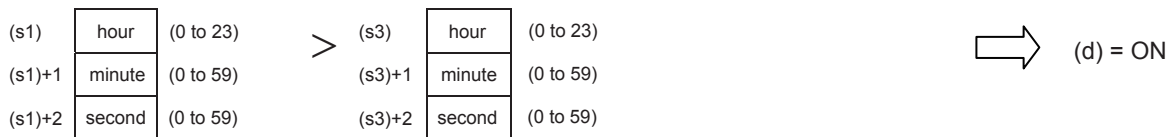
### ■Applicable devices

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	LZ		K, H	E	\$	
(s1)	—	○	○	—	—	—	○	—	—	—	—
(s2)	—	○	○	—	—	—	○	—	—	—	—
(s3)	—	○	○	—	—	—	○	—	—	—	—
(d)	○	○*1	—	—	—	—	—	—	—	—	—

\*1 T, ST, and C cannot be used.

## Processing details

- This instruction compares two comparison time (comparison time zone) specified by (s1) and (s2) with the time data specified by (s3), and turns on or off the specified bit devices (d) according to the comparison results.



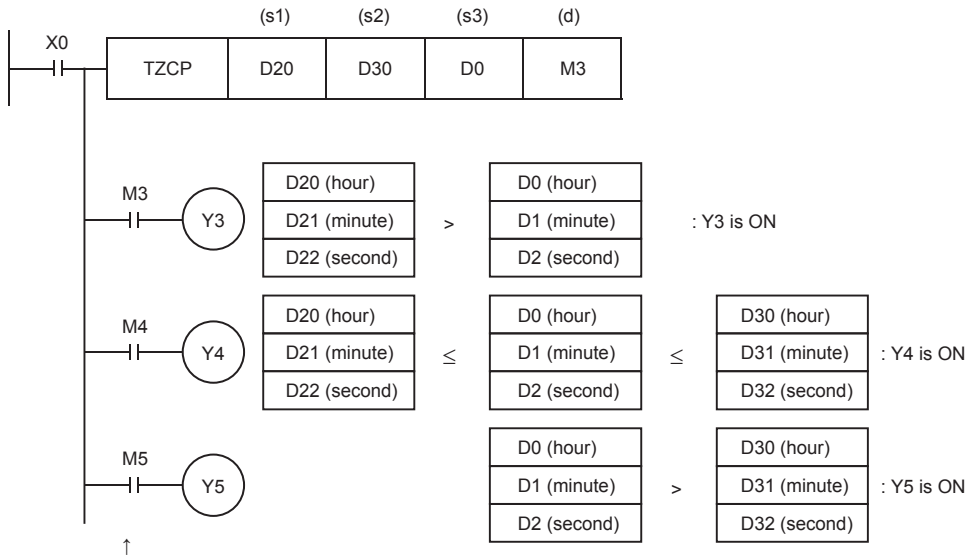
- Even if the command contact turns off from on and the TZCP instruction is not executed, (d), (d)+1, and (d)+2 hold the status before the command contact turned off.

## Precautions

- Three devices are occupied by (s1), (s2), (s3), and (d). Make sure that these devices are not used by other machine controls.
- When the time (hour, minute, second) of the clock data of the real time clock built in the CPU module is used, read the values of special registers by the TRD instruction, and then specify those word devices as the operands.
- Make (s1)  $\leq$  (s2).

## Program example

In the program shown below, when X0 is set to ON, the range of the D20 to D22 and D30 to D32 clock data is compared with the D0 to D2 clock data, and the results are stored in M3 to M5.



Even if X0 is OFF and TZCP instruction is not executed,  
M3 to M5 hold the status before X0 turned OFF.

(s1), (s1)+1, (s1)+2: Specify the lower limit of the comparison time zone in "hour", "minute" and "second."

(s2), (s2)+1, (s2)+2: Specify the upper limit of the comparison time zone in "hour", "minute" and "second."

(s3), (s3)+1, (s3)+2: Specify the time data in "hour", "minute" and "second."

(d), (d)+1, (d)+2: Turn ON or OFF according to the comparison result.

The setting range of "hour" is from 0 to 23.

The setting range of "minute" is from 0 to 59.

The setting range of "second" is from 0 to 59.

## Operation error

Error code (SD0/SD8067)	Description
2820H	The device range specified exceeds the corresponding device range.
3405H	The value specified by (s1), (s2), and (s3) is outside the following range. 0 to 23
	The value specified by (s1)+1, (s2)+1, (s3)+1, (s1)+2, (s2)+2, and (s3)+2 is outside the following range. 0 to 59