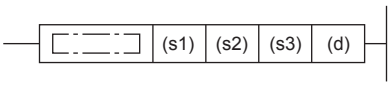
Comparing 16-bit binary data band

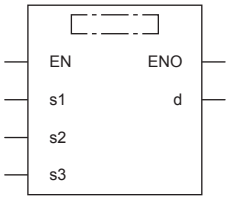
ZCP(P)(_U)

FX5S FX5UJ FX5U FX5UC

These instructions perform a comparison operation on the 16-bit binary data in the device specified by (s1) and the 16-bit binary data in the device specified by (s2) with the 16-bit binary data in the device specified by comparison source (s3), and output the comparison result (below, within zone, above) to the device specified by (d) onwards.

Ladder diagram	Structured text	
	ENO:=ZCP(EN,s1,s2,s3,d); ENO:=ZCPP(EN,s1,s2,s3,d);	ENO:=ZCP_U(EN,s1,s2,s3,d); ENO:=ZCPP_U(EN,s1,s2,s3,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand		Description	Range	Data type	Data type (label)
(s1)	ZCP(P)	Lower limit comparison data or the device where the comparison data is stored	-32768 to +32767	16-bit signed binary	ANY16_S
	ZCP(P)_U		0 to 65535	16-bit unsigned binary	ANY16_U
(s2)	ZCP(P)	Upper limit comparison data or the device where the comparison data is stored	-32768 to +32767	16-bit signed binary	ANY16_S
	ZCP(P)_U		0 to 65535	16-bit unsigned binary	ANY16_U
(s3)	ZCP(P)	Comparison source data or the device where the comparison source data is stored	-32768 to +32767	16-bit signed binary	ANY16_S
	ZCP(P)_U		0 to 65535	16-bit unsigned binary	ANY16_U
(d)		The starting bit device to which the comparison result is output	—	Bit	ANYBIT_ARRAY (Number of elements: 3)
EN		Execution condition	—	Bit	BOOL
ENO		Execution result	—	Bit	BOOL

■Applicable devices

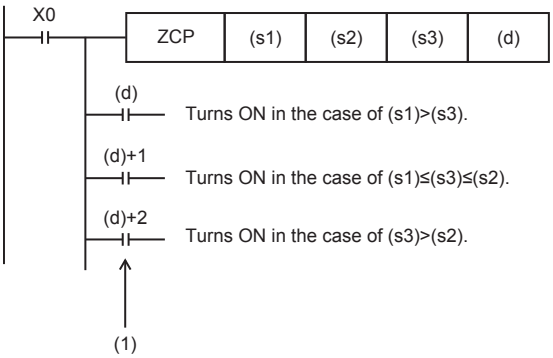
Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC	LZ		K, H	E	$	
(s1)	○	○	○	○	—	—	○	○	—	—	—
(s2)	○	○	○	○	—	—	○	○	—	—	—
(s3)	○	○	○	○	—	—	○	○	—	—	—
(d)	○	○*1	—	—	—	—	—	—	—	—	—

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

Processing details

- These instructions perform a comparison operation on the 16-bit binary data in the device specified by (s1) and the 16-bit binary data in the device specified by (s2) with the 16-bit binary data in the device specified by comparison source (s3), and according to the comparison result (below, within zone, above), (d), (d) + 1, or (d) + 2 is turned ON. (s1), (s2), and (s3) are handled as binary values within the range of above data setting. Large and small comparison is executed algebraically.

- Large and small comparison is executed algebraically.
  - With sign…-10 (FFF6H) < 2 (0002H) < 10 (000AH)
  - Without sign…0 (0000H) < 32767 (7FFFH) < 40000 (9C40H)

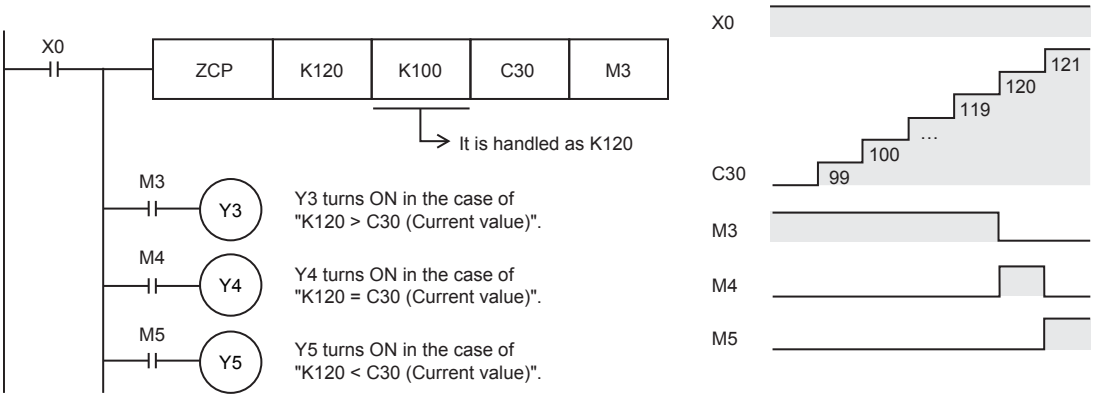


(1): Even if the command input turns OFF and the ZCP instruction is not executed, (d) to (d)+2 latches the status just before the command input turns from ON to OFF.

Precautions

- Set (s1) to a value less than (s2).

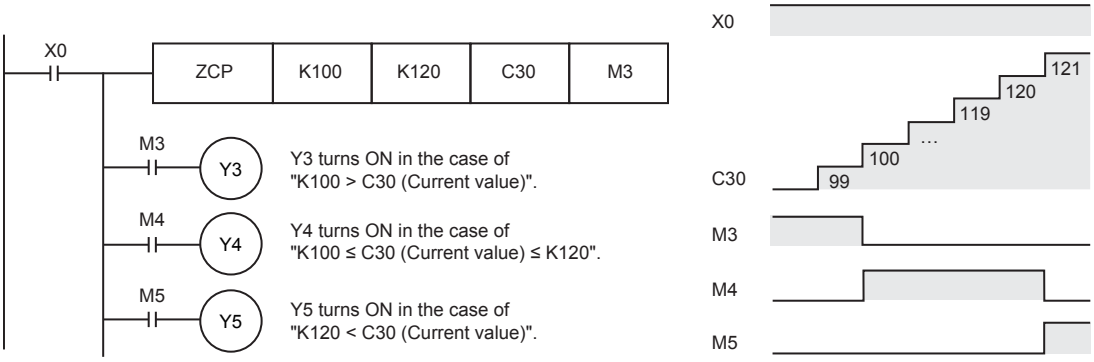
When the lower comparison value (s1) is larger than the upper comparison value (s2)



- Three devices are occupied from the device specified in (d). Make sure that these devices are not used in other controls.

Program example

When the lower comparison value (s1) is smaller than the upper comparison value (s2)



Operation error

Error code (SD0/SD8067)	Description
2820H	The range of 3 points of data starting from the device specified by (d) exceeds said device.