

Comparing 16-bit binary block data

BKCMPO(P)(_U)

FX5S FX5UJ FX5U FX5UC

These instructions perform a comparison operation between (n) point(s) of 16-bit binary data in the device starting from the one specified by (s1) and (n) point(s) of 16-bit binary data in the device starting from the one specified by (s2), and store the operation result in the device specified by (d).

Ladder diagram	Structured text ^{*1}
	ENO:=BKCMPO(P)(EN,s1,s2,n,d); ENO:=BKCMPO_U(EN,s1,s2,n,d); ENO:=BKCMPO_P(EN,s1,s2,n,d); ENO:=BKCMPO_P_U(EN,s1,s2,n,d); ("EQ", "NE", "GT", "LE", "LT", "GE" enters □.) ^{*2}

("BKCMPO=(P)(_U)", "BKCMPO<>(P)(_U)", "BKCMPO>(P)(_U)", "BKCMPO<=(P)(_U)", "BKCMPO<(P)(_U)", "BKCMPO>=(P)(_U)" enters □.)

FBD/LD

("BKCMPO_EQ(P)(_U)", "BKCMPO_NE(P)(_U)", "BKCMPO_GT(P)(_U)", "BKCMPO_LT(P)(_U)", "BKCMPO_LT(P)(_U)", "BKCMPO_GE(P)(_U)" enters □.)^{*2}

*1 Supported by engineering tool version "1.035M" and later.

*2 EQ is =, NE is <>, GT is >, LE is <=, LT is <, and GE is >=.

Setting data

■Descriptions, ranges, and data types

Operand		Description		Range		Data type		Data type (label)	
(s1)	BKCMPO(P)	Comparison data or the device where the comparison data is stored		-32768 to +32767		16-bit signed binary		ANY16_S	
	BKCMPO(P)_U			0 to 65535		16-bit unsigned binary		ANY16_U	
(s2)	BKCMPO(P)	Device where the comparison source data is stored		—		16-bit signed binary		ANY16_S	
	BKCMPO(P)_U			—		16-bit unsigned binary		ANY16_U	
(d)		Head device storing comparison result		—		Bit		ANY_BOOL	
(n)		Number of data to be compared		0 to 65535		16-bit unsigned binary		ANY16	
EN		Execution condition		—		Bit		BOOL	
ENO		Execution result		—		Bit		BOOL	

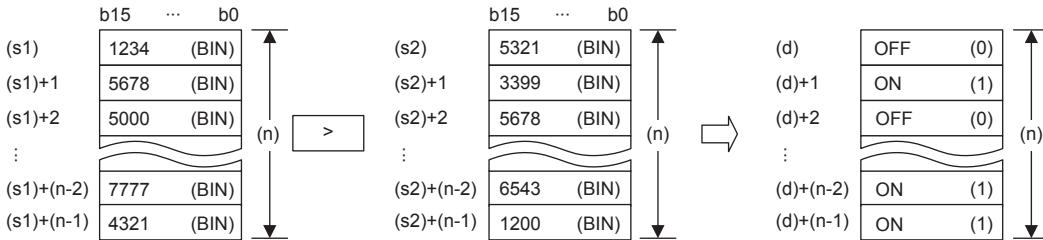
■Applicable devices

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		K, H	E	\$	
(s1)	—	○	—	—	—	—	○	○	—	—	—
(s2)	—	○	—	—	—	—	○	—	—	—	—
(d)	○	○ ^{*1}	—	—	—	—	—	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

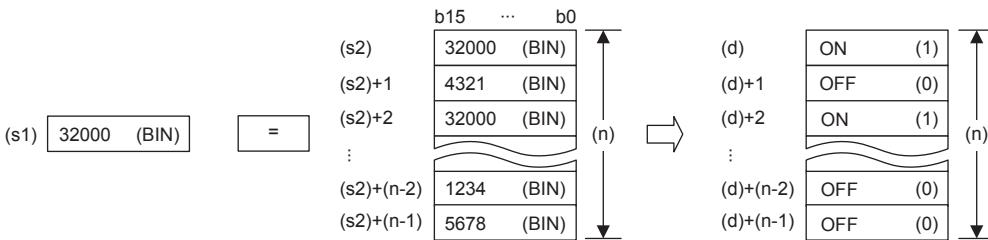
*1 T, ST, and C cannot be used.

Processing details

- These instructions perform a comparison operation between (n) point(s) of 16-bit binary data in the device starting from the one specified by (s1) and (n) point(s) of 16-bit binary data in the device starting from the one specified by (s2), and store the comparison result in (n) point(s) of data starting from the device specified by (d).
- The relevant devices of (n) point(s) of data starting from the device specified by (d) are turned ON when the comparison conditions are met and turned OFF when the comparison conditions are not met.



- Comparison operation is performed in units of 16 bits.
- A constant can be directly specified in (s1).



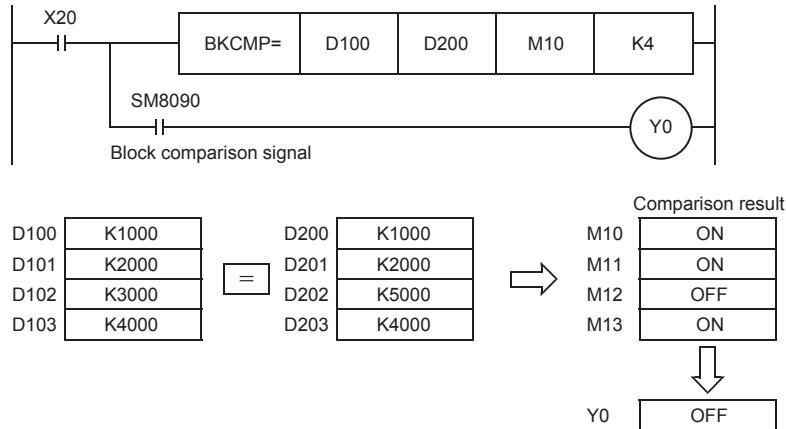
- The following table lists the comparison operation results of each instruction.

Instruction symbol	Condition	Result
BKCMP=(P)(U)	$(s1)=(s2)$	On(1)
BKCMP<>(P)(U)	$(s1) \neq (s2)$	
BKCMP>(P)(U)	$(s1) > (s2)$	
BKCMP<=(P)(U)	$(s1) \leq (s2)$	
BKCMP<(P)(U)	$(s1) < (s2)$	
BKCMP>=(P)(U)	$(s1) \geq (s2)$	
BKCMP=(P)(U)	$(s1) \neq (s2)$	Off(0)
BKCMP<>(P)(U)	$(s1) = (s2)$	
BKCMP>(P)(U)	$(s1) \leq (s2)$	
BKCMP<=(P)(U)	$(s1) > (s2)$	
BKCMP<(P)(U)	$(s1) \geq (s2)$	
BKCMP>=(P)(U)	$(s1) < (s2)$	

- When the comparison operation result is all ON (1) in all (n) point(s) starting from (d), SM704 and SM8090 (block comparison signal) turns ON.

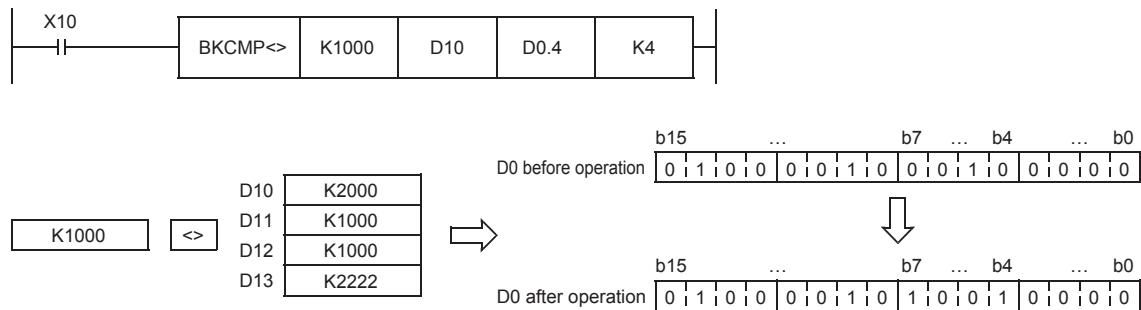
Program example

- In the program shown below, four 16-bit binary data starting from D100 are compared with four 16-bit binary data starting from D200 by BKCMP= instruction when X20 is set to ON, and the comparison result is stored in four points starting from M10. When the comparison result is "ON (1)" in all of the four points starting from M10, SM8090 turns ON and Y0 is set to ON.



(When all of M10 to M13 are ON, Y0 is set to ON.)

- In the program shown below, the constant K1000 is compared with four data starting from D10 when X10 is set to ON, and the comparison result is stored in b4 to b7 of D0.



Operation error

Error code (SD0/SD8067)	Description
2820H	The (n) point(s) starting from the device specified by (s1), (s2), and (d) exceeds said device.
2821H	When (d) specifies "D□.b", the data register of (d) and the (n) point(s) of data starting from the device specified by (s1) overlap. When (d) specifies "D□.b", the data register of (d) and the (n) point(s) of data starting from the device specified by (s2) overlap.