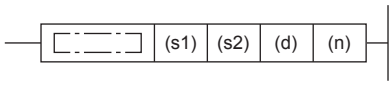
Searching 32-bit data

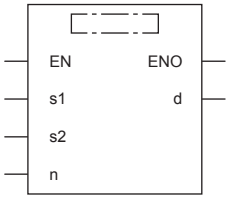
DSERMM(P)

FX5S FX5UJ FX5U FX5UC

These instructions search for the same data, maximum value and minimum value in a data table.

Ladder diagram	Structured text
	ENO:=DSERMM(EN,s1,s2,n,d); ENO:=DSERMMP(EN,s1,s2,n,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s1)	Head device number in which same data, maximum value and minimum value are searched	—	32-bit signed binary	ANY32
(s2)	Data to be searched for or device number storing data	—	32-bit signed binary	ANY32
(d)	Head device number storing number of same data, maximum value and minimum value detected by search	—	Bit/32-bit unsigned binary	ANY32_ARRAY (Number of elements: 5)
(n)	Number of data in which same data, maximum value and minimum value are searched	1 to 65535	16-bit unsigned binary	ANY16_U
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)	○	○	○	○	○	○	○	○	—	—	—
(d)	○	○	○	○	○	○	○	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

Processing details

- These instructions search the same data as the 32-bit binary data of (s2)+1 and (s2) in (n) data starting from (s1)+1 and (s1), and store the search result in (d)+1, (d) to (d)+9, and (d)+8.
- When the same data exists, five 32-bit binary data devices starting from (d)+1 and (d) store the number of same data, first position, last position, maximum value position and minimum value position.
- When the same data does not exist, five 32-bit binary data devices starting from (d)+1 and (d) store the number of same data, first position, last position, maximum value position and minimum value position. In this case, however, 0 is stored in three 32-bit devices starting from (d)+1 and (d) (which store the number of same data, first position and last position).

• The following table shows example of search result table configuration and data. (n=10)

Searched device (s1)	Searched data (s1) value (example)	Comparison data (s2) value (example)	Data position	Search result		
				Maximum value (d)+9, (d)+8	Same (d)	Minimum value (d)+7, (d)+6
(s1)+1, (s)	K100000	K100000	0		○ (First time)	
(s1)+3, (s1)+2	K110100		1			
(s1)+5, (s1)+4	K100000		2		○	
(s1)+7, (s1)+6	K98000		3			
(s1)+9, (s1)+8	K123000		4			
(s1)+11, (s1)+10	K66000		5			○
(s1)+13, (s1)+12	K100000		6		○ (Last)	
(s1)+15, (s1)+14	K95000		7			
(s1)+17, (s1)+16	K910000		8	○		
(s1)+19, (s1)+18	K910000		9	○		

• The following table shows example of search result table.

Device number	Description	Search result item
(d)+1, (d)	3	Number of same data
(d)+3, (d)+2	0	Same data position (first position)
(d)+5, (d)+4	6	Same data position (last position)
(d)+7, (d)+6	5	Minimum value position (last position)
(d)+9, (d)+8	9	Maximum value position (last position)

Precautions

- Comparison is executed algebraically. (-10<2)
- When there are two or more maximum or minimum values in the searched data, the last position of the max/min is stored respectively.
- When these instructions are driven, five devices ([(d)+1,(d)], [(d)+3, (d)+2], [(d)+5, (d)+4], [(d)+7, (d)+6], and [(d)+9, (d)+8]) are occupied for storing the these result (d). Make sure that these devices are not used in other controls for the machine.

Operation error

Error code (SD0/SD8067)	Description
2820H	The device range specified by (s1) or (d) exceeds the corresponding device range.
3405H	The value stored in a device specified by (n) is 0.