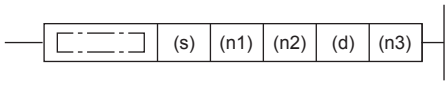
Sorting 32-bit data 2

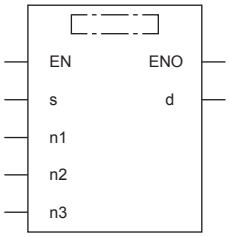
DSORTTBL2(_U)

FX5S FX5UJ FX5U FX5UC

These instructions sort data lines in the data table (sorting source) of 32-bit binary data having (n1×n2) points specified by (s) in the ascending order or descending order based on the group data in the column number (n3), and store the result in the data table (sorting result) of 32-bit binary data having ((n1)×(n2)) points specified by (d).

Ladder diagram	Structured text
	ENO:=DSORTTBL2(EN,s,n1,n2,n3,d); ENO:=DSORTTBL2_U(EN,s,n1,n2,n3,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand		Description	Range	Data type	Data type (label)
(s)	DSORTTBL2	Head device number storing the data table	—	32-bit signed binary	ANY32
	DSORTTBL2_U			32-bit unsigned binary	ANY32_U
(n1)		Number of data (lines)	1 to 32	16-bit unsigned binary	ANY16_U
(n2)		Number of group data (columns)	1 to 6	16-bit unsigned binary	ANY16_U
(d)	DSORTTBL2	Head device number for storing the operation result	—	32-bit signed binary	ANY32
	DSORTTBL2_U			32-bit unsigned binary	ANY32_U
(n3)		Column number of group data (column) used as the basis of sorting	—	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	$	
(s)	—	○	—	—	○	—	○	—	—	—	—
(n1)	○	○	○	○	—	—	○	○	—	—	—
(n2)	○	○	○	○	—	—	○	○	—	—	—
(d)	—	○	—	—	○	—	○	—	—	—	—
(n3)	○	○	○	○	—	—	○	○	—	—	—

Processing details

- These instructions sort data lines in the data table (sorting source) of 32-bit binary data having (n1×n2) points specified by (s) in the ascending order or descending order based on the group data in the column number (n3), and store the result in the data table (sorting result) of 32-bit binary data having ((n1)×(n2)) points specified by (d).
- The data table configuration is explained in an example in which the sorting source data table has 3 lines and 4 columns (n1 = K3, n2 = K4). For the sorting result data table, understand (s) as (d).

		Number of groups (n2 = K4)			
		Column No. 1	Column No. 2	Column No. 3	Column No. 4
		Control number	Height	Weight	Age
Number of data (n1) = 3	Line No. 1	(s)+1, (s)	(s)+3, (s)+2	(s)+5, (s)+4	(s)+7, (s)+6
	Line No. 2	(s)+9, (s)+8	(s)+11, (s)+10	(s)+13, (s)+12	(s)+15, (s)+14
	Line No. 3	(s)+17, (s)+16	(s)+19, (s)+18	(s)+21, (s)+20	(s)+23, (s)+22

- Set the sorting order by setting SM703 to on or off.

	Sorting order
SM703 = ON	Descending order
SM703 = OFF	Ascending order

- When the command input turns on, data sorting is started. Data sorting is completed after (n1) scans, and the instruction execution complete flag SM8029 is set to on.
- The following table shows an operation example based on the sorting source data below. It is recommended to put a serial number such as a control number in the first column so that the original line number can be estimated based on the contents.

		Number of groups (n2 = K4)			
		Column No. 1	Column No. 2	Column No. 3	Column No. 4
		Control number	Height	Weight	Age
Number of data (n1) = 5	Line No. 1	(s)+1, (s)	(s)+3, (s)+2	(s)+5, (s)+4	(s)+7, (s)+6
		1	150	45	20
	Line No. 2	(s)+9, (s)+8	(s)+11, (s)+10	(s)+13, (s)+12	(s)+15, (s)+14
		2	180	50	40
	Line No. 3	(s)+17, (s)+16	(s)+19, (s)+18	(s)+21, (s)+20	(s)+23, (s)+22
		3	160	70	30
	Line No. 4	(s)+25, (s)+24	(s)+27, (s)+26	(s)+29, (s)+28	(s)+31, (s)+30
		4	100	20	8
	Line No. 5	(s)+33, (s)+32	(s)+35, (s)+34	(s)+37, (s)+36	(s)+39, (s)+38
		5	150	50	45

- Sorting result when the instructions are executed with (n3) = K2 (column No. 2) (in the case of ascending order SM703=OFF)

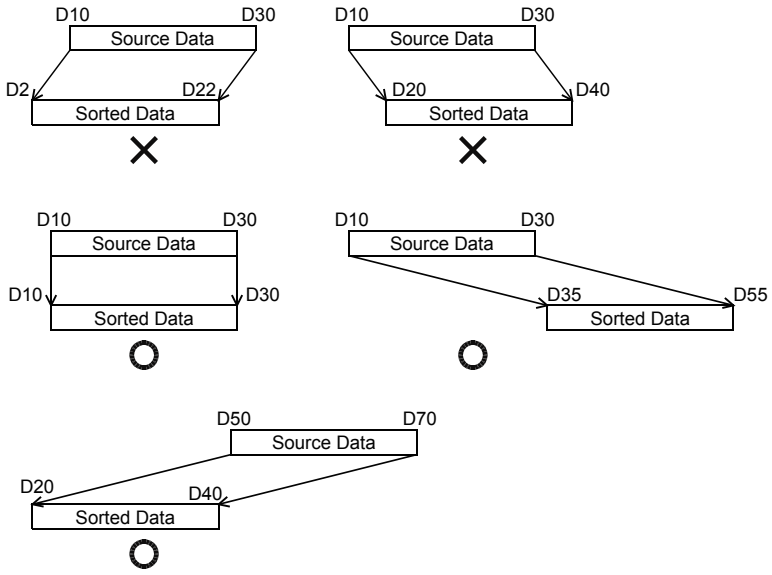
		Number of groups (n2 = K4)			
		Column No. 1	Column No. 2	Column No. 3	Column No. 4
		Control number	Height	Weight	Age
Number of data (n1) = 5	Line No. 1	(d)+1, (d)	(d)+3, (d)+2	(d)+5, (d)+4	(d)+7, (d)+6
		4	100	20	8
	Line No. 2	(d)+9, (d)+8	(d)+11, (d)+10	(d)+13, (d)+12	(d)+15, (d)+14
		1	150	45	20
	Line No. 3	(d)+17, (d)+16	(d)+19, (d)+18	(d)+21, (d)+20	(d)+23, (d)+22
		5	150	50	45
	Line No. 4	(d)+25, (d)+24	(d)+27, (d)+26	(d)+29, (d)+28	(d)+31, (d)+30
		3	160	70	30
	Line No. 5	(d)+33, (d)+32	(d)+35, (d)+34	(d)+37, (d)+36	(d)+39, (d)+38
		2	180	50	40

- Sorting result when the instructions are executed with (n3) = K3 (column No. 3) (in the case of descending order SM703=ON)

		Number of groups (n2 = K4)			
		Column No. 1	Column No. 2	Column No. 3	Column No. 4
		Control number	Height	Weight	Age
Number of data (n1) = 5	Line No. 1	(d)+1, (d)	(d)+3, (d)+2	(d)+5, (d)+4	(d)+7, (d)+6
		3	160	70	30
	Line No. 2	(d)+9, (d)+8	(d)+11, (d)+10	(d)+13, (d)+12	(d)+15, (d)+14
		2	180	50	40
	Line No. 3	(d)+17, (d)+16	(d)+19, (d)+18	(d)+21, (d)+20	(d)+23, (d)+22
		5	150	50	45
	Line No. 4	(d)+25, (d)+24	(d)+27, (d)+26	(d)+29, (d)+28	(d)+31, (d)+30
		1	150	45	20
	Line No. 5	(d)+33, (d)+32	(d)+35, (d)+34	(d)+37, (d)+36	(d)+39, (d)+38
		4	100	20	8

Precautions

- Do not change the contents of operands and data during operation.
- To execute these instructions again, set the command input to off once, then on again.
- These instructions can be used up to or twice in any program.
- When specifying the same device in (s) and (d), the source data is overwritten by the data acquired by sorting. Take special care so that the contents of (s) are not changed until execution is completed.
- Ensure that the sorted data does not overlap with the source data.



Operation error

Error code (SD0/SD8067)	Description
2820H	The device range specified by (s) exceeds the corresponding device range.
	The device range specified by (d) exceeds the corresponding device range.
3405H	The value specified by (n1) is outside the following range. 1 to 32
	The value specified by (n2) is outside the following range. 1 to 6
	The value specified by (n3) is outside the following range. 1 to (n2)