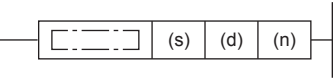# 8.5 Data Table Operation Instruction
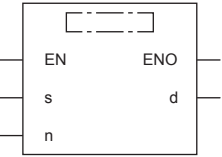
Reading the oldest data from the data table

SFRD(P)

`FX5S` `FX5UJ` `FX5U` `FX5UC`

These instructions read data for first-in first-out control.

Ladder diagram	Structured text
⌐·:⌐·⌐ (s) (d) (n)	ENO:=SFRD(EN,s,n,d); ENO:=SFRDP(EN,s,n,d);

FBD/LD

```
      ⌐·:⌐·⌐
    EN      ENO
    s        d
    n
```

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s)	Start number of the word device storing the data (The start is a pointer. The data is stored starting from (s)+1.)	—	16-bit signed binary	ANY16
(d)	Word device number storing data taken out first	—	16-bit signed binary	ANY16
(n)	Number of stored points plus "1". "+1" is required for the pointer.	2 to 32768	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)	○	○	○	○		—	—	○	—	—	—	—
(d)	○	○	○	○		—	—	○	—	—	—	—
(n)	○	○	○	○		—	—	○	○	—	—	—

Processing details

- These instructions transfer (read) (s)+1, which was sequentially written by the SFWR instruction, to (d), and shift the word data of (n)-1 points starting from (s)+1 upward by 1 word. Then, these instructions decrease the number of data points stored in (s) by 1.
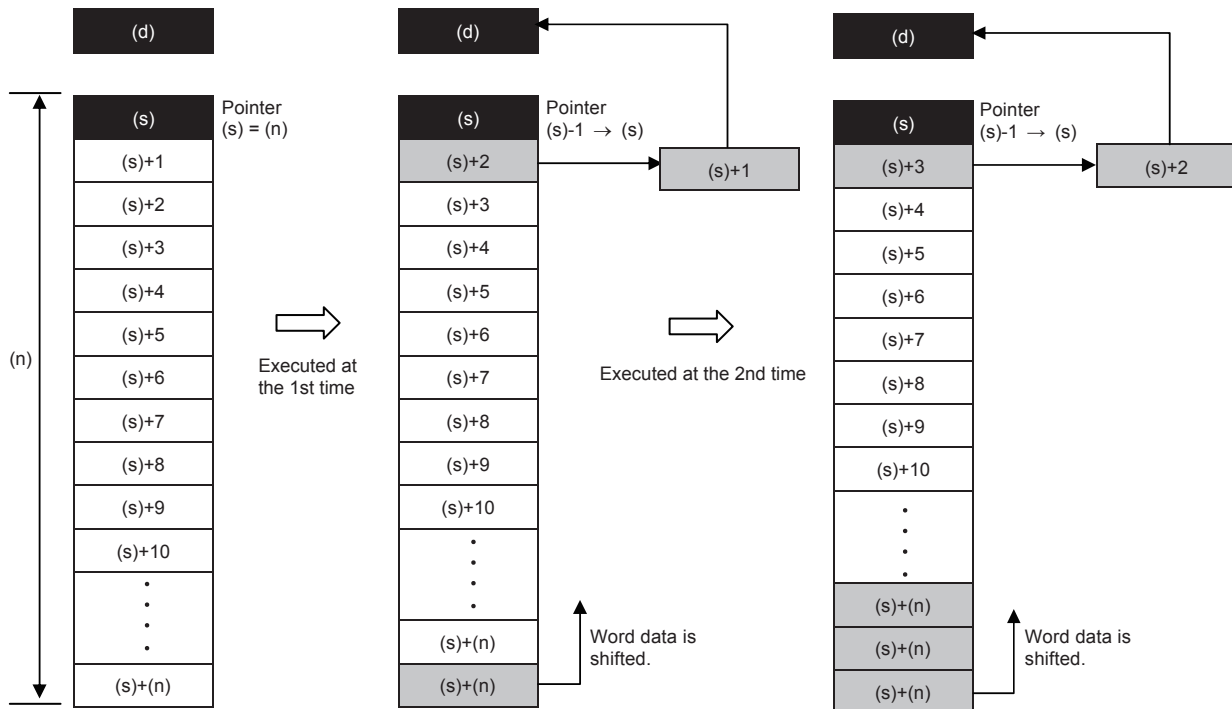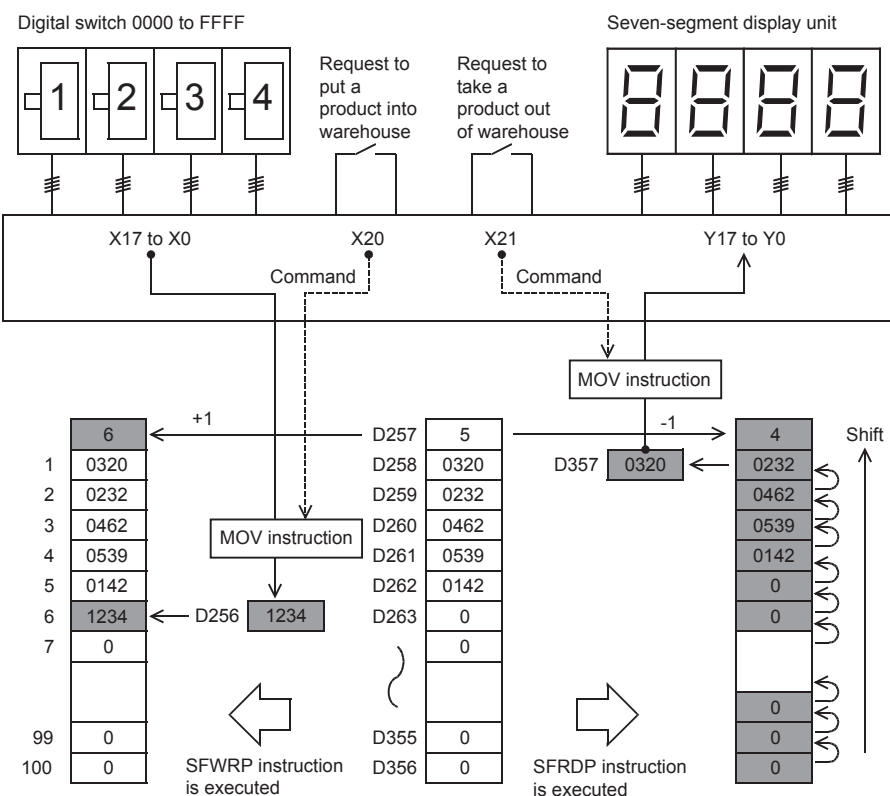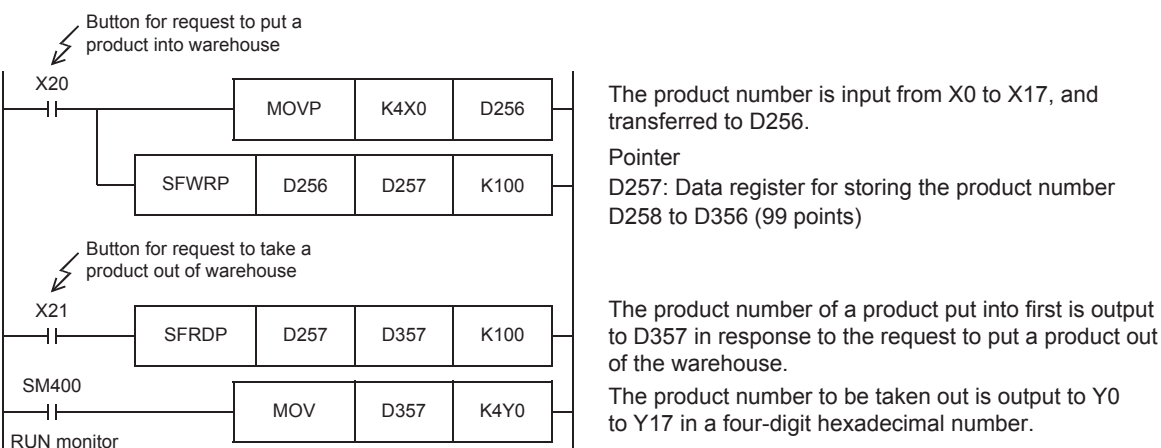

- The data of (s)+1 is transferred (read) to (d). Accompanied by this transfer, the contents of the pointer (s) decrease, and the data is shifted upward by 1 word. (When the continuous operation type SFRD instruction is used, the contents are stored in turn in each operation cycle. Use the pulse operation type SFRDP instruction in programming.)

Precautions

- The contents of (s)+(n) do not change by reading.
- When the continuous operation type (SFRD) instruction is used, data is read in turn in each scan time (operation cycle), but the contents of (s)+(n) do not change.
- When 0 is set in the pointer (s), no processing is executed and the contents of (d) do not change.

Program example

Button for request to put a
product into warehouse

The product number is input from X0 to X17, and
transferred to D256.

Pointer
D257: Data register for storing the product number
D258 to D356 (99 points)

The product number of a product put into first is output
to D357 in response to the request to put a product out
of the warehouse.

The product number to be taken out is output to Y0
to Y17 in a four-digit hexadecimal number.

Operation error

Error code (SD0/SD8067)	Description
2820H	The number of device points (n) from (s) exceed the device range.
3405H	The value set in (n) is other than the following. 2≤(n)≤32768
	In (s), a negative value is specified.