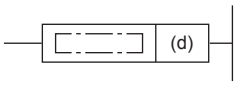
8.12 Index Register Operation Instruction

Saving all data of the index register

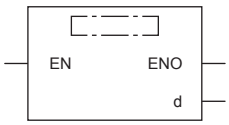
ZPUSH(P)

FX5S FX5UJ FX5U FX5UC

These instructions save the contents of index registers and long index registers in the devices specified by (d) and later.

Ladder diagram	Structured text
	ENO:=ZPUSH(EN,d); ENO:=ZPUSHP(EN,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(d)	Head device number for saving the data of index registers and long index registers	—	16-bit signed binary	ANY16
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

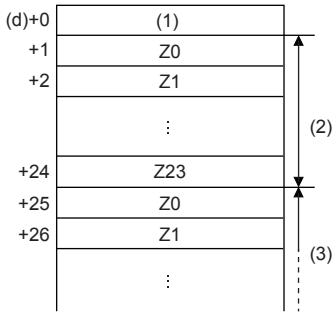
■Applicable devices

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	LZ		K, H	E	$	
(d)	—	○	—	—	—	—	○	—	—	—	—

Processing details

- These instructions save the contents of index registers and long index registers in the devices specified by (d) and later.
- When the contents of index registers are saved, "1" is added to (d).
- The contents of index registers and long index registers for 24 words are saved. The number of points differs for each CPU module as explained below.
  - FX5S/FX5U/FX5UC CPU module: The assigned range of index registers and long index register points is saved.
  - FX5UJ CPU module: The contents for 20 points of the index register and 2 points of the long index register are saved.
- The ZPOP(P) instructions are used to return the data. The ZPUSH(P) and ZPOP(P) instructions are used in pairs, and by using the same device in (d) a nesting structure can be adopted. (☞ Page 739 Returning all data of the index register)
- When a nesting structure is adopted, the areas to be used are added to (d) and later every time the ZPUSH(P) instructions are used. Check the number of index registers and long index registers by SD300 and SD302, and secure the areas for the number of instructions to be used in advance.

- The following shows the areas of (d) and later to be used.



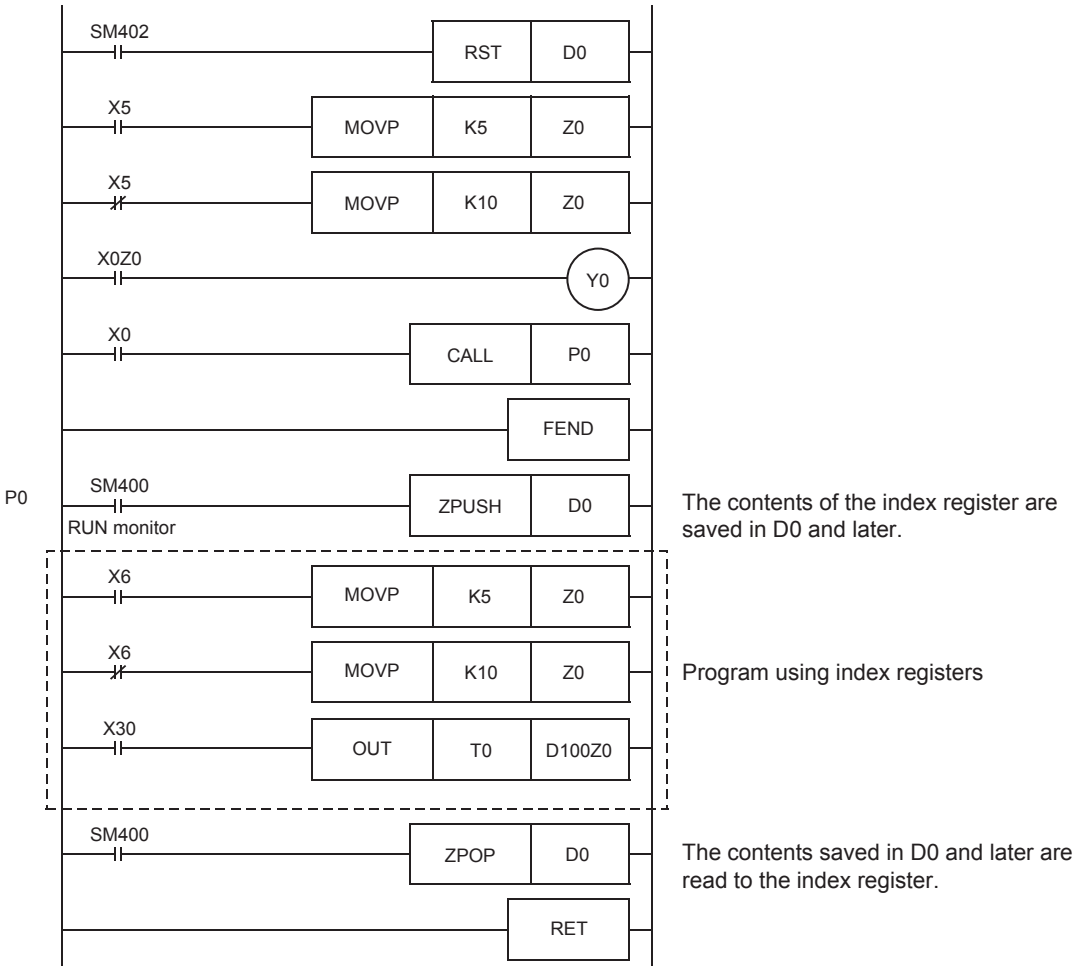
(1): Number of times of batch-storage
(2): 1st nesting (24 words for one nesting)
(3): 2nd nesting

Precautions

- When a nesting structure is not adopted, clear (d) before executing the ZPUSH(P) instructions.
- When a nesting structure is adopted, clear (d) before executing the first ZPUSH(P) instructions.
- When the ZPOP(P) instructions are used to return the data of index registers, use the ZPOP(P) instructions corresponding to the ZPUSH(P) instructions that were used for saving the data.
  ZPUSH(P) (One setting data) → ZPOP(P) (One setting data)
  ZPUSH(P) (Two setting data) → ZPOP(P) (Two setting data)
- Secure the areas so that the save destination specified by (d) do not exceed the device range.

Program example

In the program shown below, the contents of the index register (Z) before execution of the subroutine program are batch-stored in D0 and later when index registers are used in the subroutine program after the pointer P0.



Operation error

Error code (SD0/SD8067)	Description
2820H	The range of points used in (d) or later exceeds the range of the target device/label area.
3405H	(d) is negative.