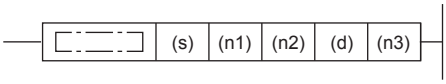
Digit move

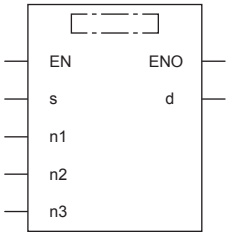
SMOV(P)

FX5S FX5UJ FX5U FX5UC

These instructions distribute and compose data in units of nibble (4 bits).

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

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s)	Word device number storing data whose nibbles will be moved	—	16-bit signed binary	ANY16
(n1)*1	Head nibble position to be moved	1 to 4	16-bit unsigned binary	ANY16_U
(n2)*1	Number of nibbles to be moved	1 to 4	16-bit unsigned binary	ANY16_U
(d)	Word device number storing data whose nibbles are moved	—	16-bit signed binary	ANY16
(n3)*1	Head digit position of movement destination	1 to 4	16-bit unsigned binary	ANY16_U
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

*1 Set so that n2≤n1, n2≤n3.

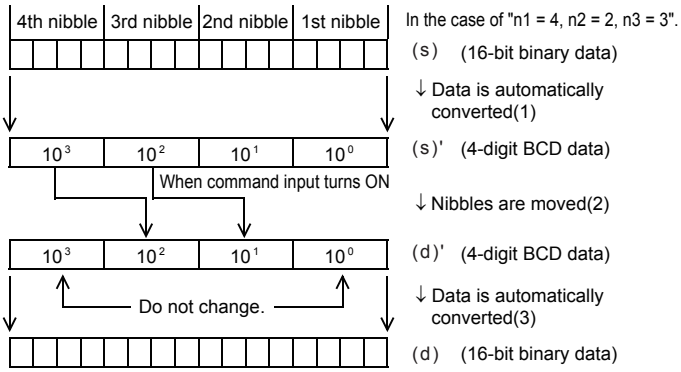
■Applicable devices

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 distribute and compose data in units of nibble (4 bits). The contents of the transfer source (s) and transfer destination (d) are converted into 4-digit BCD (0000 to 9999). (n2) nibbles starting from the (n1)th nibble are transferred to the transfer destination (d) starting from the (n3)th nibble, converted into binary, and then stored to the transfer destination (d).

- While the command input is OFF, the transfer destination (d) does not change.
- When the command input turns ON, only the specified digits in the transfer destination (d) are changed. The transfer source (s) and unspecified digits in the transfer destination (d) do not change.



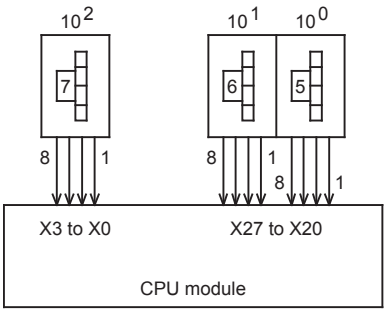
(1)(s) is converted from binary to → BCD data.
(2) (n2) digits starting from the (n1)th digit are transferred (combined) to (d)' starting from the (n3)th digit. The first and fourth digits of (d)' are not affected even if data is transferred from (s)'.
(3)The combined data (BCD) is converted into binary, and stored to (d).

■Extension function

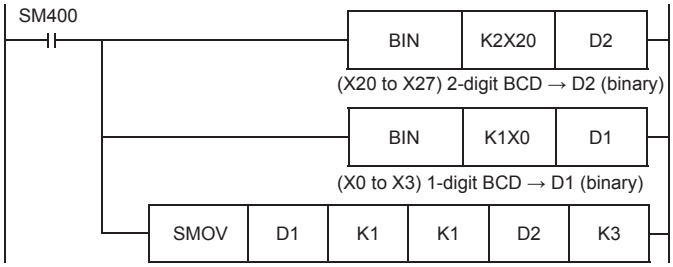
When SM8168 is set to ON first and then SMOV instruction is executed, conversion from binary to BCD is not executed. Data is moved in units of 4 bits.

Program example

The data on three-digit digital switches are composed, and stored as binary data to D2.



Data on three digital switches connected to non-consecutive input terminals are composed.



1-digit BCD data of D1 is transferred to the 3rd digit (BCD data) of D2, and automatically converted into binary data.

Operation error

Error code (SD0/SD8067)	Description
3405H	Any one of (n1), (n2), (n3) is 0.
	Either (s) or (d) is other than 0 to 9999 when SM8168 is OFF.
	Either (n1) or (n3) is larger than 4.
	(n2) is larger than (n1) or (n3).