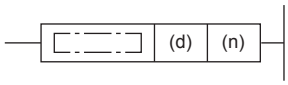
Rotating 16-bit data to the left

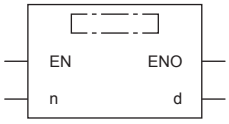
ROL(P), RCL(P)

FX5S FX5UJ FX5U FX5UC

- ROL(P): These instructions rotate the 16-bit binary data in the device specified by (d) to the left by (n) bit(s) (not including the carry flag).
- RCL(P): These instructions rotate the 16-bit binary data in the device specified by (d) to the left by (n) bit(s) (including the carry flag).

Ladder diagram	Structured text*1
	ENO:=ROLP(EN,n,d); ENO:=RCL(EN,n,d); ENO:=RCLP(EN,n,d);

FBD/LD*1



*1 The ROL instruction is not supported by the ST language and the FBD/LD language. Use ROL of the standard function.
☞ Page 1318 ROL(_E)

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(d)	Head device number where the rotation target data is stored	—	16-bit signed binary	ANY16
(n)	Number of rotations	0 to 15	16-bit unsigned binary	ANY16
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

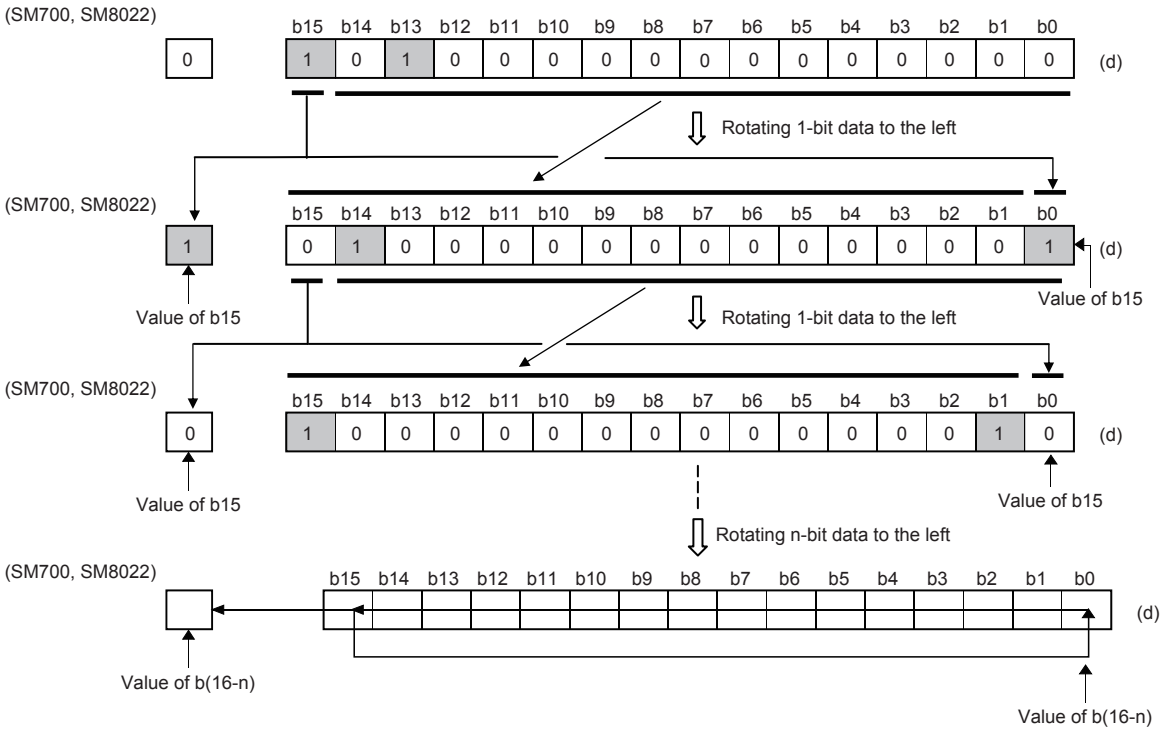
■Applicable devices

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)	○	○	○	○	—	—	○	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

Processing details

■ROL(P)

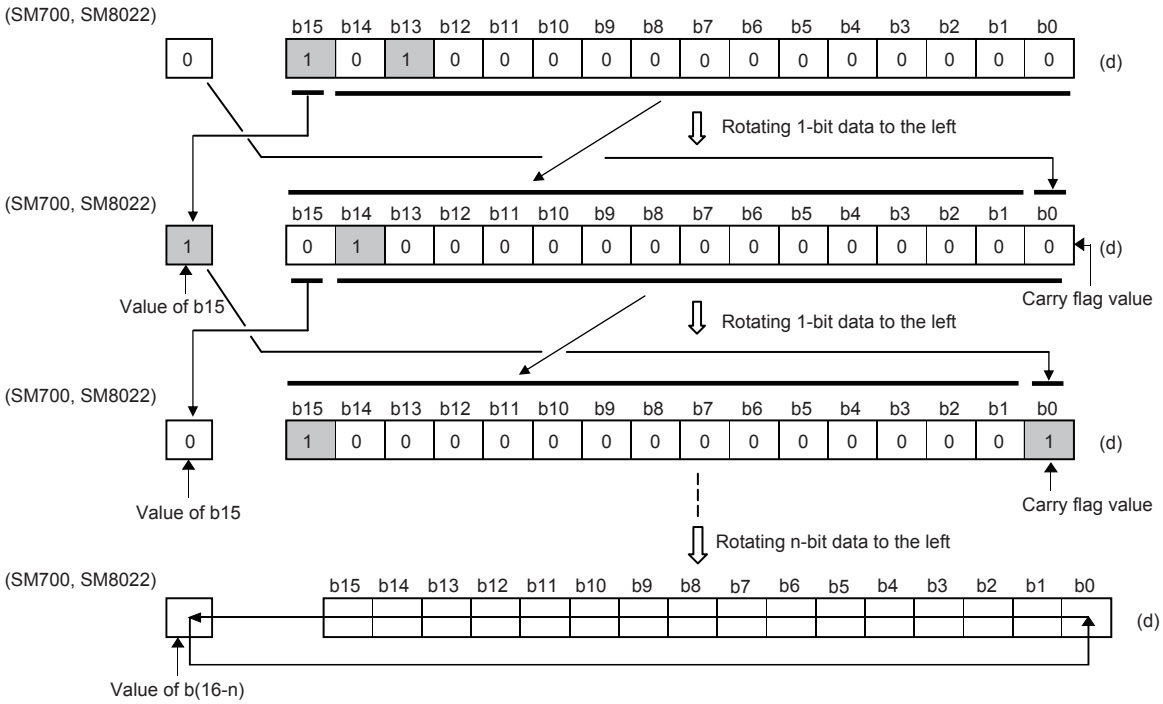
- These instructions rotate the 16-bit binary data in the device specified by (d) to the left by (n) bit(s) (not including the carry flag). The carry flag is on or off depending on the status prior to the execution of the instruction.



- When (d) is a bit device, bits are rotated to the left within the device range specified by digit specification. The number of bits actually to be rotated is the remainder of (n)÷(specified number of bits). For example, when (n) is 15 and the specified number of bits is 12, 3 bits are rotated because 15 divided by 12 equals 1 with a remainder of 3.
- Specify any value between 0 and 15 for (n). If a value 16 or bigger is specified, bits are rotated by the remainder value of n÷16. For example, when (n) is 18, 2 bits are rotated because 18 divided by 16 equals 1 with a remainder of 2.

■RCL(P)

- These instructions rotate the 16-bit binary data in the device specified by (d) to the left by (n) bit(s) (including the carry flag). The carry flag is on or off depending on the status prior to the execution of the instruction.



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Precautions

- Do not set a negative value to the number of bits to be rotated (n).
- In the case of continuous operation type instructions (ROL and RCL), note that shift and rotation are executed in every scan time (operation cycle).

Operation error

There is no operation error.