Relative method

INCD

FX5S FX5UJ FX5U FX5UC

This instruction creates many output patterns using a pair of counters.

Ladder diagram	Structured text
	ENO:=INCD(EN,s1,s2,n,d);

FBD/LD

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s1)	Head word device number storing the set value	—	16-bit signed binary	ANY16
(s2)	Head counter number for monitoring current value is monitored	—	16-bit signed binary	ANY16
(d)	Head bit device number to be output	—	Bit	ANY_BOOL
(n)	Number of output bit devices	1 to 64	16-bit unsigned binary	ANY16_U
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

■Applicable devices

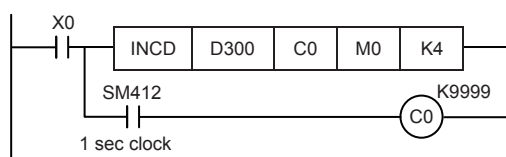| Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC	LZ		K, H	E	$	
(s1)	○	○	○	○	—	—	○	—	—	—	—
(s2)	—	○*1	—	—	—	—	○	—	—	—	—
(d)	○	○*2	—	—	—	—	—	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

*1   Only C can be used.
*2   T, ST, and C cannot be used.

Processing details

• The current value of a counter is compared with the data table having "n" lines starting from (s1) (which occupies "n" lines × 1 device). When the value is equivalent to the table data, the current output is reset, and the next output is controlled. In this way, the ON/OFF status of specified outputs is controlled in turn.

■Operation example

- The following ladder example shows the operation. (s2) occupies two points. In the following timing chart, C0 and C1 correspond to the two points.

```
   X0
───┤├─────┬──[ INCD │ D300 │ C0 │ M0 │ K4 ]──┤
          │
   SM412  │                          K9999
──────────┤├─────────────────────────(C0)────┤
1 sec clock
```

- Suppose that the following data is written in advance by a transfer instruction:

Device storing data		Output	
—	Data value (example)	—	Example
(s1)	D300=20	(d)	M0
(s1)+1	D301=30	(d)+1	M1
(s1)+2	D302=10	(d)+2	M2
(s1)+3	D303=40	(d)+3	M3
⋮	⋮	⋮	⋮
(s1)+(n)-1	—	(d)+(n)-1	—

- Timing chart
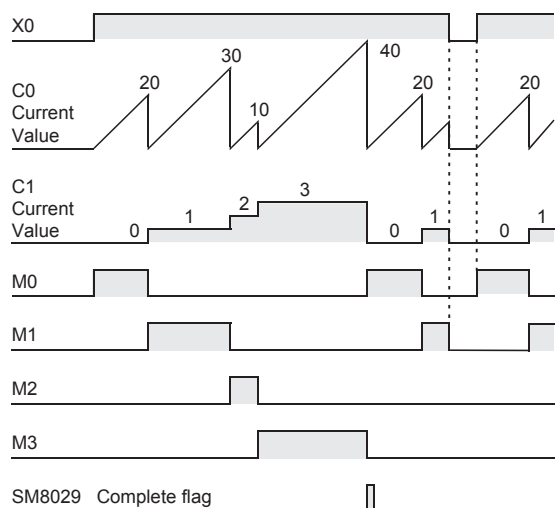
- When the command contact turns on, the output M0 turns on.
- When the current value of C0 reaches the comparison value D300, the output M0 is reset, "1" is added to the count value of the process counter C1, and the current value of the counter C0 is reset.
- The next output M1 turns ON.
- When the current value of C0 reaches the comparison value D301, the output M1 is reset, "1" is added to the count value of the process counter C1, and the current value of the counter C0 is reset.
- The current value is compared for up to "n (K4)" outputs in the same way ($1 \leq (n) \leq 64$).
- When the final process specified by (n) is finished, the execution complete flag SM8029 turns on and remains on for one operation cycle. SM8029 is used for many instructions as the instruction execution complete flag. Use SM8029 as a contact just after a corresponding instruction.
- The program execution returns to the beginning, and outputs are repeated.

Precautions

When specifying the nibble of a bit device to (s1), specify a multiple of 16 (0, 16, 32, 64 ...) as a device number.

Operation error

Error code (SD0/SD8067)	Description
2820H	The number of device points specified by (s1), (s2), or (d) is insufficient.
3405H	The value specified by (n) is outside the following range. 1 to 64