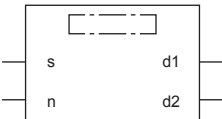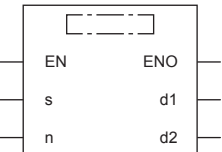# 32.3 Off-delay Timer

TOF(_E), TOF_10(_E)

| FX5S | FX5UJ | FX5U | FX5UC |

These function blocks turn off a signal after a specified time.

Ladder diagram, FBD/LD		Structured text
[Without EN/ENO] ─ s d1 ─ ─ n d2 ─	[With EN/ENO] ── EN ENO ── ─ s d1 ─ ─ n d2 ─	[Without EN/ENO] TOF_1(IN:=s,PT:=n,Q:=d1,ET:=d2); TOF_10_1(IN:=s,PT:=n,Q:=d1,ET:=d2); [With EN/ENO] TOF_E_1(EN:=EN,ENO:=ENO,IN:=s,PT:=n,Q:=d1,ET:=d2); TOF_10_E_1(EN:=EN,ENO:=ENO,IN:=s,PT:=n,Q:=d1,ET:=d2);

Setting data

■Descriptions, types, and data types

Argument	Description	Type	Data type
EN	Execution condition (TRUE: Execution, FALSE: Stop)	Input variable	BOOL
s(IN)	Time measurement	Input variable	BOOL
n(PT)	Delay time setting value	Input variable	TIME
ENO	Output status (TRUE: Normal, FALSE: Abnormal)	Output variable	BOOL
d1(Q)	Output	Output variable	BOOL
d2(ET)	Elapsed time	Output variable	TIME

Processing details

■Operation processing

1. Output

- When (s) turns on, (d1) is turned on.
- When (s) turns off from on, (d1) is turned off after the time specified by (n). The elapsed time until (d1) is turned off is set for (d2).
- The timer device is used for counting the elapsed time.

2. Setting of delay time

The effective setting range of (n) is from 0 ms to 32767 ms. For TOF(_E), the output time value of (n) is set in units of 100 ms or more. For TOF_10(_E), it is set in units of 10 ms or more.

The value of when (s) is turned off from on (falling edge) is used for the setting value of (n). If the value of (n) is changed while (s) is off, the changed value becomes valid at the next falling edge of (s).
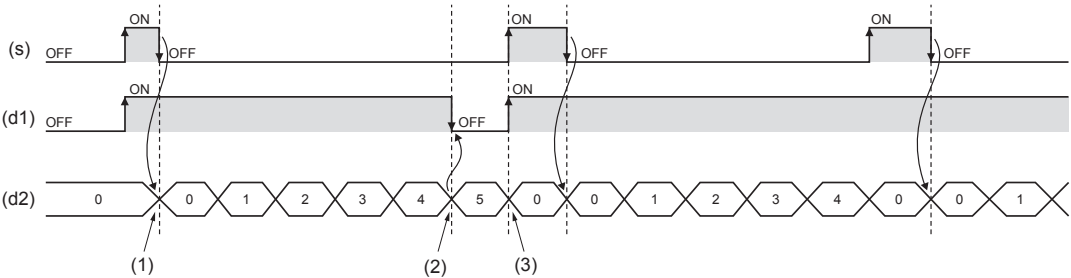
■Operation result

1. Function block without EN/ENO

The following table lists the operation results.

Operation result	(d1), (d2)
No operation error occurred	Operation output value
An operation error occurred	Indefinite value

- Timing chart

  When T#5s (5 seconds) is specified in n

(1): When (s) is off, the time measurement of (d2) starts.

(2): When (d2) reaches the time specified by n, (d1) turns off.
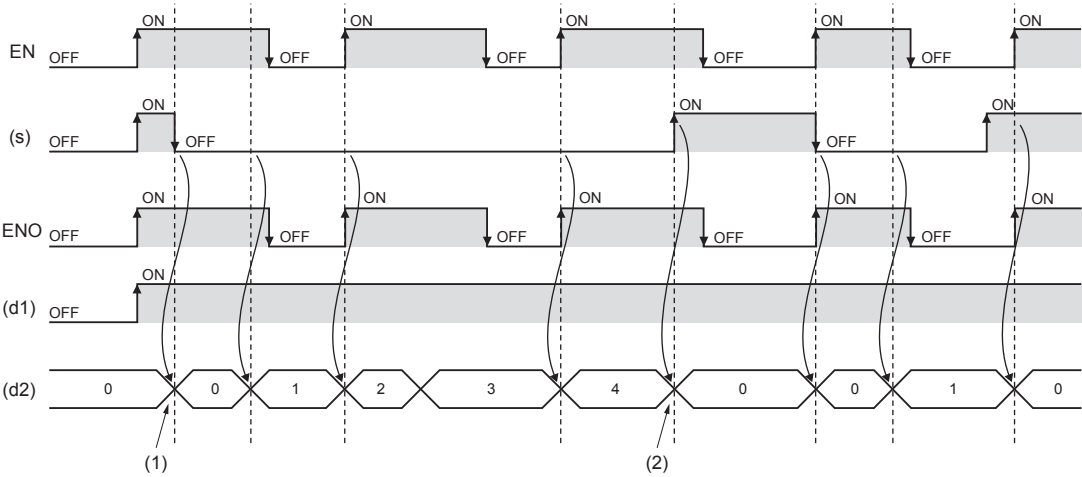
(3): When (s) is on, (d2) is reset.

2. Function block with EN/ENO

The following table lists the execution conditions and operation results.

Execution condition	Operation result	
EN	ENO	(d)
TRUE (Executes operation)	TRUE (Operation error did not occur)	Operation output value
	FALSE (Operation error occurred)	Previous output value
FALSE (Stops operation)	FALSE	Previous output value

- Timing chart

  When T#5s (5 seconds) is specified in n

(1): When EN is on and (s) is off, the time measurement of (d2) starts.

(2): When EN and (s) are on, (d2) is reset.

Precautions

If the set value of the output time exceeds the effective range, the program will not operate correctly.

Operation error

There is no operation error.