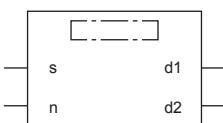
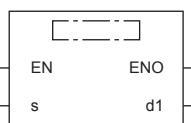


32.2 On-delay Timer

TON(_E), TON_10(_E)

FX5S FX5UJ FX5U FX5UC

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

Ladder diagram, FBD/LD	Structured text
[Without EN/ENO]  [With EN/ENO] 	[Without EN/ENO] TON_1(IN:=s,PT:=n,Q:=d1,ET:=d2); TON_10_1(IN:=s,PT:=n,Q:=d1,ET:=d2); [With EN/ENO] TON_E_1(EN:=EN,ENO:=ENO,IN:=s,PT:=n,Q:=d1,ET:=d2); TON_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 after the time specified by (n). The delay elapsed time from when (s) is turned on is set for (d2).
- When (s) is turned off, (d1) is turned off and the delay elapsed time is reset.
- 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 TON(_E), the output time value of (n) is set in units of 100 ms or more. For TON_10(_E), it is set in units of 10 ms or more.

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

■Operation result

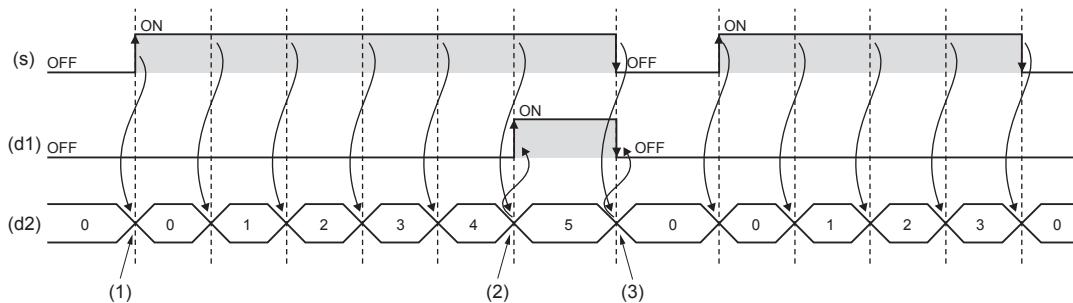
1. Function block without EN/ENO

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 on, the time measurement of (d2) starts.

(2): When (d2) reaches the time specified by n, (d1) turns on.

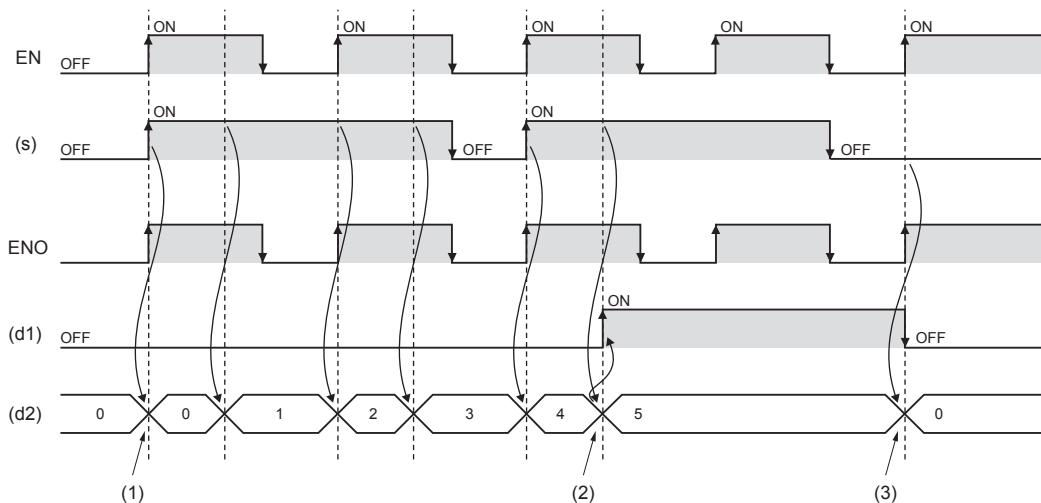
(3): On the falling edge of (s), (d2) is reset.

2. Function block with EN/ENO

The following table lists the execution conditions and operation results.

Execution condition	Operation result	
EN	ENO	(d1), (d2)
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



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

(2): When (d2) reaches the time specified by n, (d1) turns on.

(3): When EN is on and (s) is off, (d1) turns off and (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.