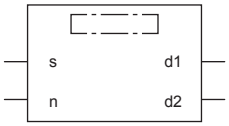
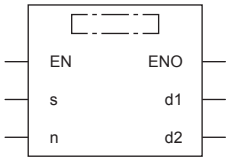
32 TIMER FUNCTION BLOCKS

32.1 Pulse Timer

TP(_E), TP_10(_E)

FX5S FX5UJ FX5U FX5UC

These function blocks keep on a signal for specified duration.

Ladder diagram, FBD/LD		Structured text
[Without EN/ENO] 	[With EN/ENO] 	[Without EN/ENO] TP_1(IN:=s,PT:=n,Q:=d1,ET:=d2); TP_10_1(IN:=s,PT:=n,Q:=d1,ET:=d2); [With EN/ENO] TP_E_1(EN:=EN,ENO:=ENO,IN:=s,PT:=n,Q:=d1,ET:=d2); TP_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)	Output start	Input variable	BOOL
n(PT)	Output 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) turns on for the time specified by (n). The elapsed time from when (d1) is turned on is set for (d2).
- The timer device is used for counting the elapsed time.

2. End of output

- (d1) turns off when the elapsed time reaches the set value.
- If (s) is off after (d1) is turned off, the elapsed time is reset.
- Even if (s) is turned off when (d1) is on, (d1) is not turned off.

3. Setting of output time

The effective setting range of (n) is from 0 ms to 32767 ms. For TP(_E), the output time value of (n) is set in units of 100 ms or more. For TP_10(_E), it is set in units of 10 ms or more.

The value of when (d1) is turned on from off (rising edge) is used for the setting value of (n). If the value of (n) is changed while (d1) is on, the changed value becomes valid at the next output start.

■Operation result

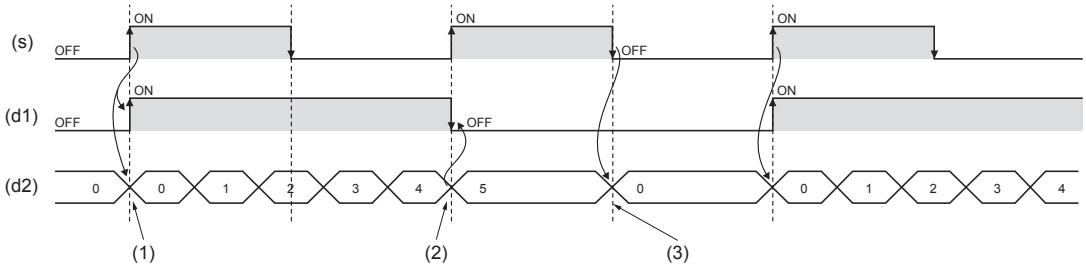
1. Function block without EN/ENO

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, (d1) turns on. When (s) is on, the time measurement of (d2) starts.
(2): When (d2) reaches the time specified by n, (d1) turns off.
(3): When (s) and (d1) are off, (d2) is initialized.

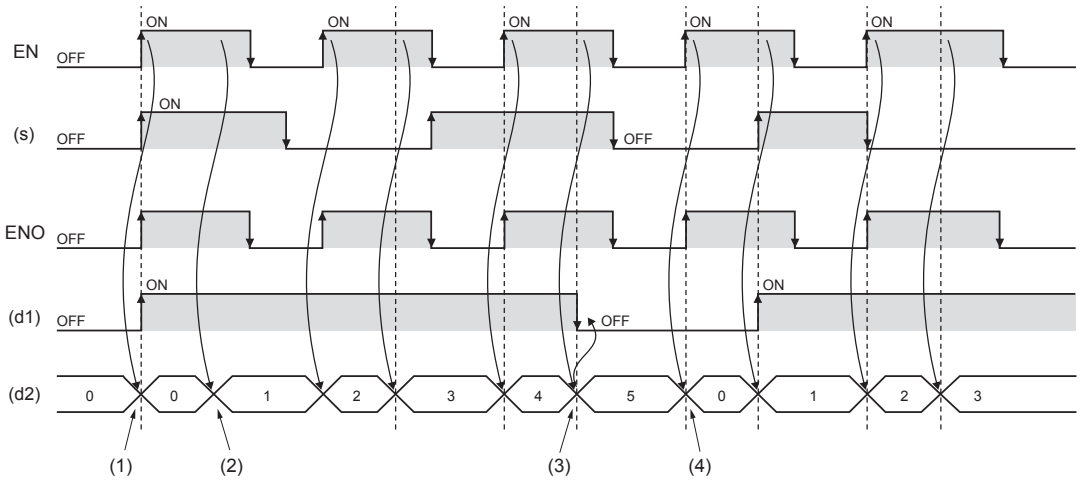
2. Function block with EN/ENO

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)	Indefinite value
FALSE (Stops operation)	FALSE	Previous output value

- Timing chart

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



(1): When EN and (s) are on, (d1) turns on. When EN and (s) are on, the time measurement of (d2) starts.
(2): After the time measurement starts, the measurement time counts up when EN is on.
(3): When EN is on and (s) and (d1) are off, (d2) is initialized.
(4): When (d2) reaches the time specified by n, (d1) turns off.

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.