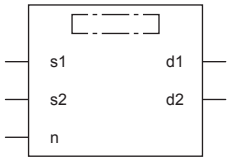
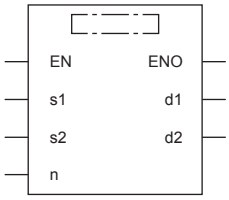
31 COUNTER FUNCTION BLOCKS

31.1 Up Counter

CTU(_E)

FX5S FX5UJ FX5U FX5UC

These function blocks count up the number of times of rising of a signal.

Ladder diagram, FBD/LD		Structured text
[Without EN/ENO] 	[With EN/ENO] 	[Without EN/ENO] CTU_1(CU:=s1,R:=s2,PV:=n,Q:=d1,CV:=d2); [With EN/ENO] CTU_E_1(EN:=EN, ENO:=ENO CU:=s1,R:=s2,PV:=n,Q:=d1,CV:=d2);

Setting data

■Descriptions, types, and data types

Argument	Description	Type	Data type
EN	Execution condition (TRUE: Execution, FALSE: Stop)	Input variable	BOOL
s1(CU)	Count signal input	Input variable	BOOL
s2(R)	Count value reset	Input variable	BOOL
n(PV)	Count maximum value	Input variable	INT
ENO	Output status (TRUE: Normal, FALSE: Abnormal)	Output variable	BOOL
d1(Q)	Count end	Output variable	BOOL
d2(CV)	Count value	Output variable	INT

Processing details

■Operation processing

1. Count up

- These function blocks count up (add "1" to) the value of (d2) when (s1) turns ON from OFF.
- When the value of (d2) reaches the value of (n) of the counter, (d1) turns ON and the function blocks stop counting up.
- Set the maximum value of the counter for (n). When (s2) is turned ON, (d1) turns OFF and (d2) is set to 0.

2. Count maximum value

The effective setting range of (n) is from 0 to 32767.

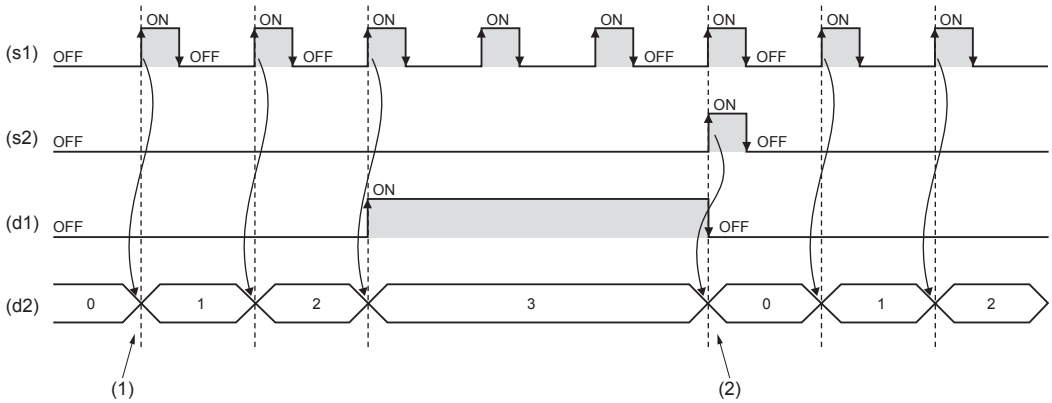
■Operation result

1. Function block without EN/ENO

The operation processing is executed. The operation output value is output from (d1) and (d2).

- Timing chart

When 3 is specified in n



(1): When (s1) is on, (d2) counts up.
(2): When (s2) is on, (d2) is cleared to 0.

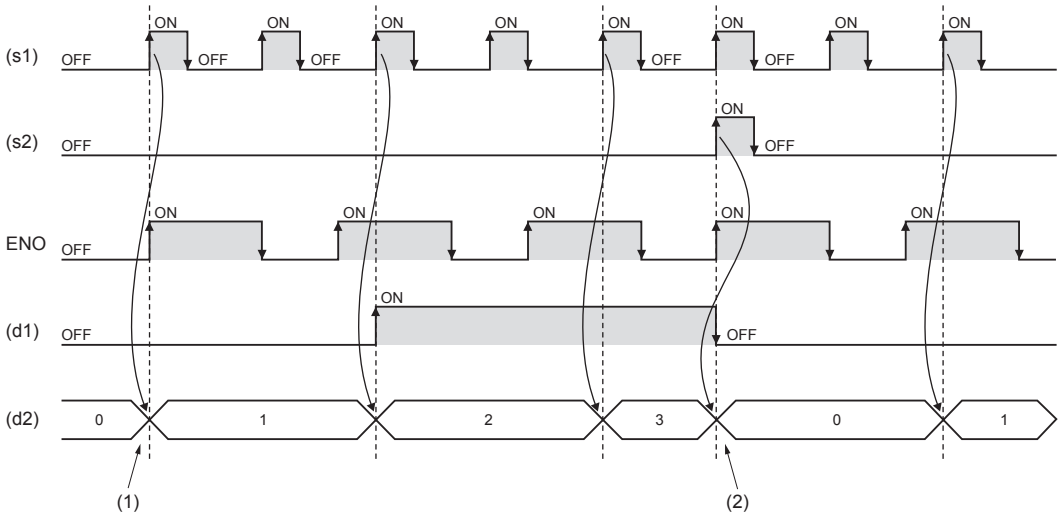
2. Function block with EN/ENO

The following table lists the execution conditions and operation results.

Execution condition	Operation result	
EN	**ENO**	**(d1), (d2)**
TRUE (Executes operation)	TRUE	Operation output value
FALSE (Stops operation)	FALSE	Previous output value

- Timing chart

When 3 is specified in n



(1): When EN and (s1) are on, (d2) turns on.
(2): When (s2) is on, (d2) is cleared to 0.

Operation error

There is no operation error.