USF Training

Basic S100 User Sequence

Contents

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A&D)Corporate Support Team

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Ⅰ. Basic Knowledge

Ⅰ. Basic knowledge

1. Introduction

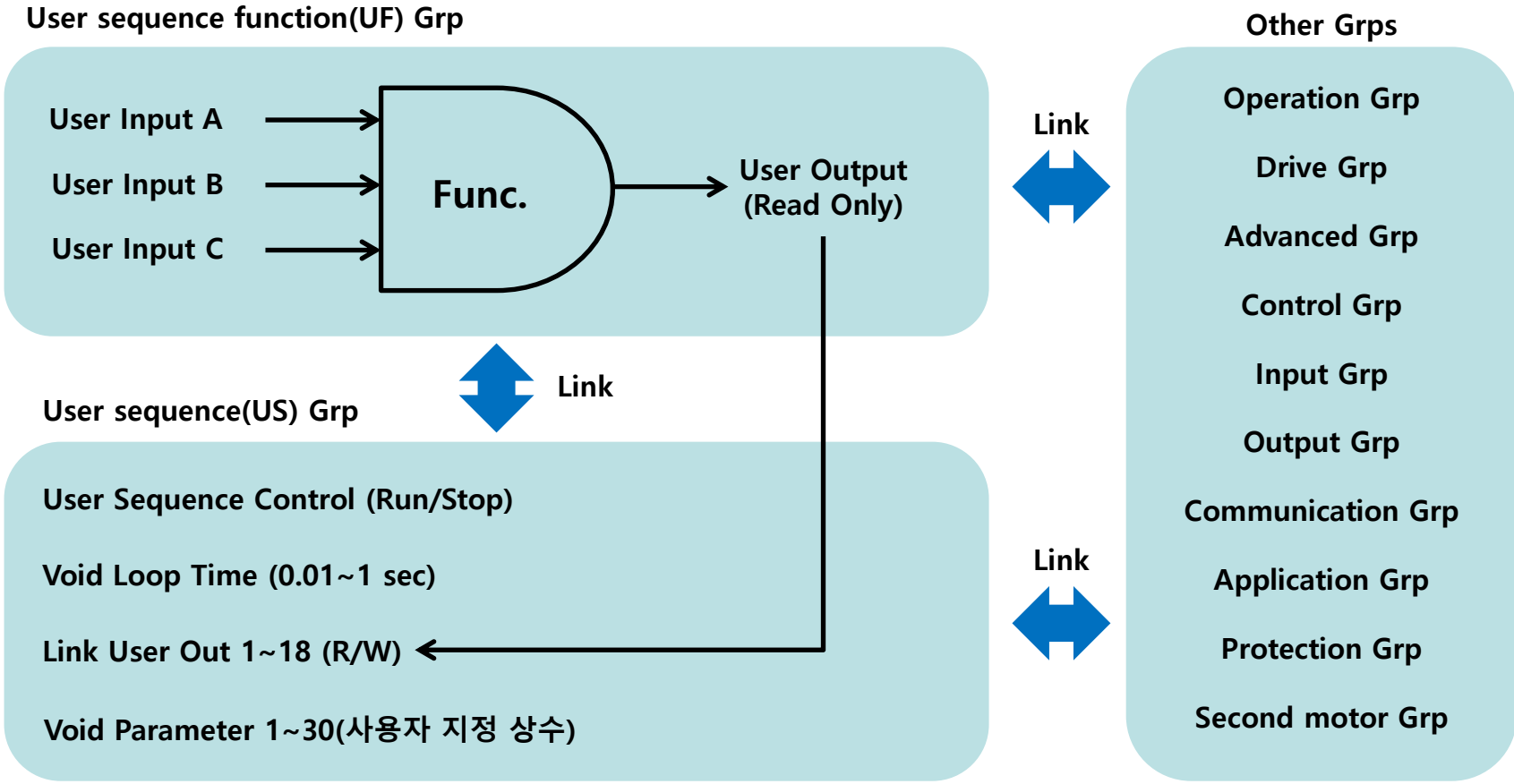
- Sequence is the things that come one after another in a particular order. When pressing the start button, Drive runs along the preset sequence.
- User sequence creates a simple sequence without PLC. Receiving external input signal, controller makes sequence operation.
- Can program user sequence setting to optimize operation for specialized machinery.
- Drive can run automatically by combining function blocks and setting constant values. Each parameters is connected thorough the communication address.

2. Programming

- User sequence is composed of function blocks and links.
- One or more of value are inputted to a function block, function block does the preset operation and outputs value.
- Inputs of function block can be linked by inputting communication addresses of parameters or constant values.
- Can set output link to determine where to output the result of the operation. And output can be used as input of other function block.
- Function block can be used many times in one loop.

3. Activation

- In order to activate user sequence function, PAR mode → AP Grp → Set 02 Code as Yes.
- After user sequence activated, US Grp and UF Grp would be appeared.



4. Starting & Parameter

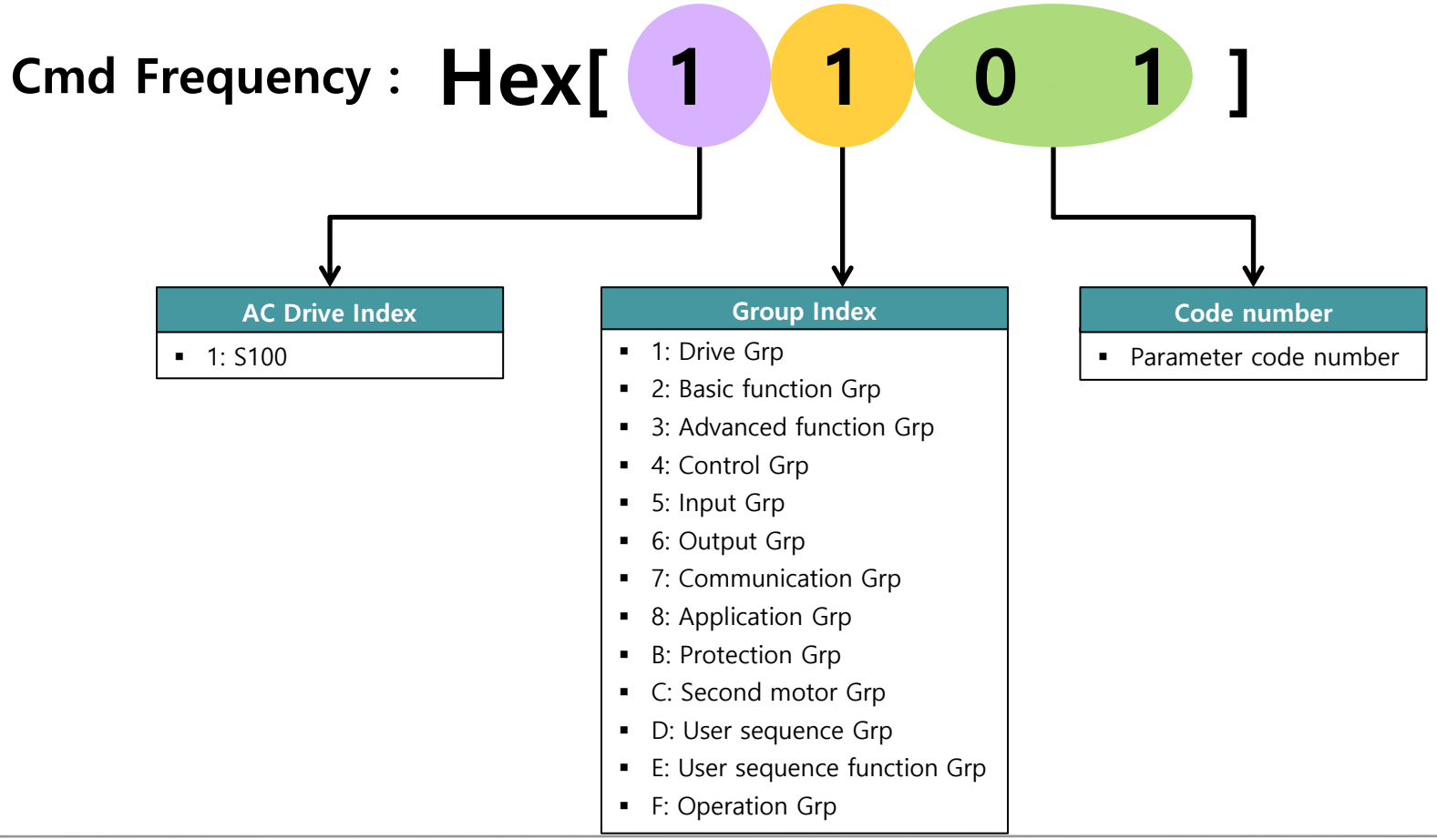
Code	Description
AP-02. User Seq. En	Display the parameter groups related to a user sequence.
IN-65~71. P1~P7 Define	You can start or stop the user sequence by using multi functional input which is set to 50: User Seq.
US-01. User Seq. Con	Set Sequence Run and Sequence Stop with the keypad. Parameter cannot be adjusted during an operation. To adjust parameters, the operation must be stopped.
US-02. User Loop Time	Set the user sequence Loop time. User sequence loop time can be set to 0.01s/0.02s/0.05s/0.1s/0.5s/1s.
US-11~28. Link User Out 1~18	Set parameters to connect 18 function blocks. If the input value is 0x0000, an output value cannot be used. To use the output value in step 1 for the frequency reference (Cmd Frequency), input the communication address (0x1101) of the Cmd frequency as the Link UserOut1 parameter.
US-31~60 Void Para 1~30	Set 30 void parameters. Use when constant (Const) parameter input is needed in the user function block.
UF-01~90	Set user defined functions for the 18 function block. If the function block setting is invalid, the output of the User Output@ is -1. All the outputs from the User Output@ are read only, and can be used with the user output link@ (Link UserOut@) of the USS group.

How to start/stop the user sequence operation

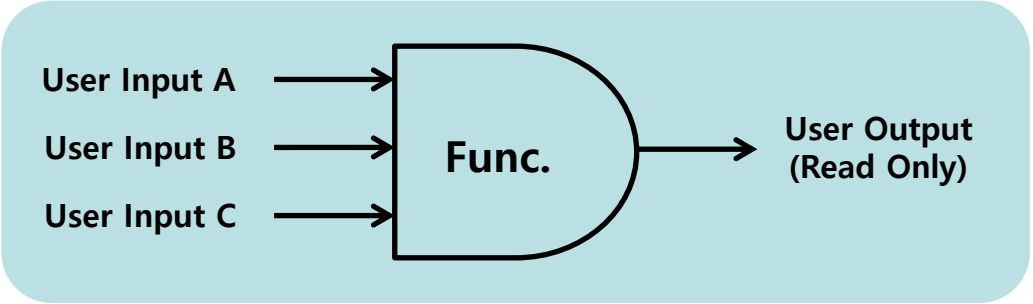
- Set US-01 to Run or Stop in order to run or stop the user sequence.
- After setting US-01 to Digital In Run, set multi function to User sequence, then you can use it as a run/stop command.

5. Communication address

- Input/Output links are connected each other through communication address.
- Communication address is hexadecimal. The constituting principle is as follows.



6. Understanding of FB(Function Block)



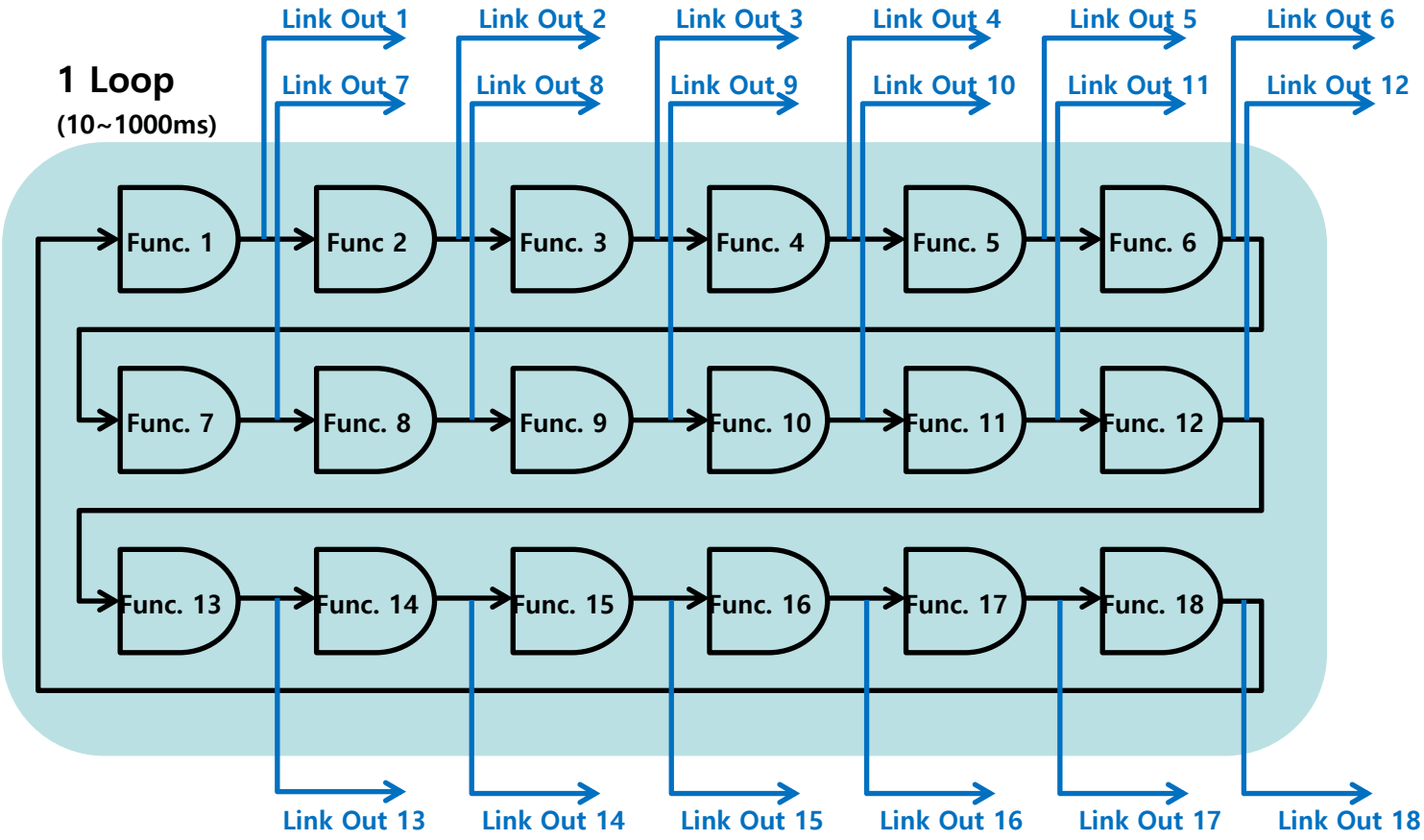
- Each function block is consisted of 1~3 inputs and 1 output.

Type	Description
User Func @*	Choose the function to perform in the function block.
User Input @-A	Communication address of the function's first input parameter.
User Input @-B	Communication address of the function's second input parameter.
User Input @-C	Communication address of the function's third input parameter.
User Output @	Output value (Read Only) after performing the function block.

※ @is the step number(1~18).

7. 1 Loop Sequence

- The sequence can comprise of a maximum of 18 steps using 29 function blocks and 30 void parameters.
- 1 Loop refers to a single execution of a user configured sequence that contains a maximum of 18 steps. Users can select a loop time of between 10~1000ms.



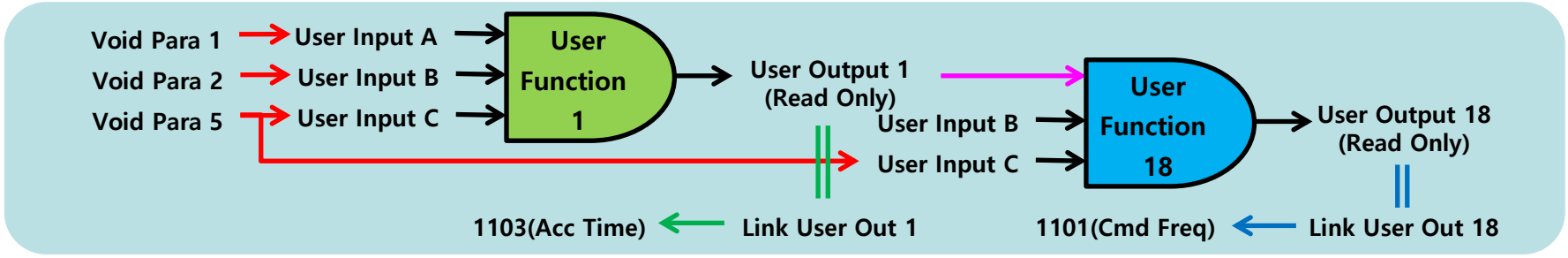
8. Example of Parameter setting

Code	Parameter	Setting (Hex)
US-31	Void Para 1	1D1F
US-32	Void Para 2	1D20
US-33	Void Para 3	1D21
US-34	Void Para 4	1D22
US-35	Void Para 5	1D23
Skip	Skip	Skip
US-60	Void Para 30	1D3C

Code	Parameter	Setting (Hex)
UF-01	User Func 1	?
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D23
UF-05	User Output 1	Read only

Code	Parameter	Setting (Hex)
UF-85	User Func 18	?
UF-86	User Input 18-A	1E05
UF-87	User Input 18-B	Random No.
UF-89	User Input 18-C	1D23
UF-90	User Output 18	Read only

Code	Parameter	Setting (Hex)
US-11	Link UserOut 1	1103
US-12	Link UserOut 2	-
US-13	Link UserOut 3	-
Skip	Skip	Skip
US-28	Link UserOut 18	1101



9. Programming Rules

- Parameters cannot be adjusted during an operation. To adjust parameters, the operation must be stopped.
- All the outputs from the User Output@ are read only, and can be used with the user output link@(Link UserOut@) of the USS group.
- Function blocks can be used many times in one loop.
- Set parameter's address at Link UserOut@ to connect 18 function blocks. If the input value is 0x0000, an output value cannot be used.
- Void parameter can be set between -9999~9999.
- It the function block setting is invalid, the output of the User Output@ is -1.

10. Execution Rules

- 1 Loop refers to a single execution of a user configured sequence that contains a maximum of 18 steps.
- Users can select a loop time of between 10~1000ms at US-02.
- Output value of function block is between maximum and minimum value and can limit the output using limit function.
- If the scale of linked two parameter is different each other, scale is not changed automatically.

11. Types of Function Block (1)

Num.	Type	Description
0	NOP	No Operation.
1	ADD	Addition operation, (A+B)+C
2	SUB	Subtraction operation, (A-B)-C
3	ADDSUB	Addition and subtraction compound operation, (A+B)-C
4	MIN	Output the smallest value of the input values, MIN(A,B,C)
5	MAX	Output the largest value of the input values, MAX(A,B,C)
6	ABS	Output the absolute value of the A parameter, |A|
7	NEGATE	Output the negative value of the A parameter, -(A)
8	REMAINDER	Remainder operation of A and B, A % B
9	MPYDIV	Multiplication, division compound operation, (A x B)/C
10	COMPARE-GT	Comparison operation, if(A>B)the output is 0, If the condition is met, the output parameter is C. If the condition is not met, the output is 0(False).
11	COMPARE-GTEQ	Comparison operation, if(A>=B) the output is 0, If the condition is met, the output parameter is C. If the condition is not met, the output is 0(False).
12	COMPARE-EQUAL	Comparison operation, if (A==B) then C else 0. If the condition is met, the output parameter is C. If the condition is not met, the output is 0(False).
13	COMPARE-NEQUAL	Comparison operation, if (A!=B) then C else 0. If the condition is met, the output parameter is C. If the condition is not met, the output is 0(False).

11. Types of Function Block (2)

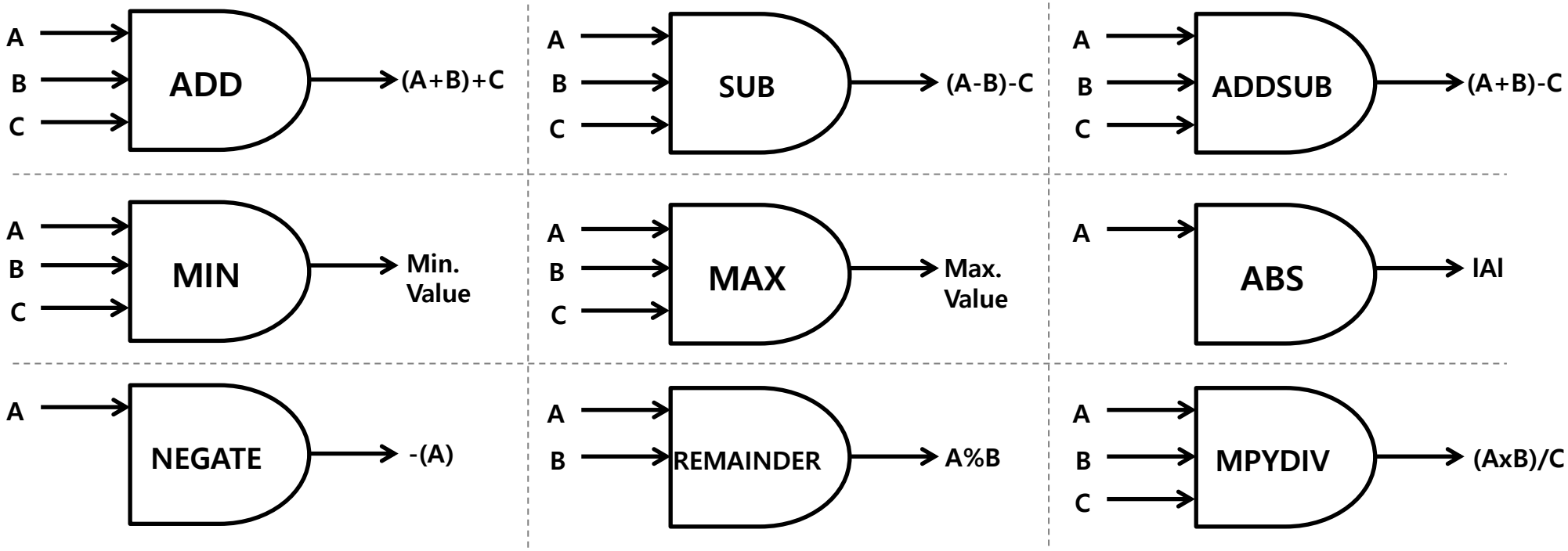
Num.	Type	Description
14	TIMER	Adds 1 each time a user sequence completes a loop. A: Max Loop, B: Timer Run/Stop, C: Choose output mode. If input of B is 1, timer stops (output is 0). If input is 0, timer runs. If input of C is 1, output the current timer value. If input of C is 0, output 1 when timer value exceeds A(Max) value.
15	LIMIT	Sets a limit for the A parameter. If input to A is between B and C, output the input to A. If input to A is larger than B, output B. If input of A is smaller than C, output C. B parameter must be greater than or equal to the C parameter.
16	AND	Output the AND operation, (A & B) & C
17	OR	Output the OR operation, (A l B) l C
18	XOR	Output the XOR operation, (A^B)^C
19	AND/OR	Output the AND/OR operation, (A and B) l C
20	SWITCH	Output a value after selecting one of two inputs, if (A) then B otherwise C. If the input at A is 1, the output will be B. If the input at A is 0, the output parameter will be C, if (A) then B else C
21	BITTEST	Test the B bit of the A parameter, BITTEST(A, B). If the B bit of the A input is 1, the output is 1. If it is 0, then the output is 0. The input value of B must be between 0–16. If the value is higher than 16, it will be recognized as 16. If input at B is 0, the output is always 0.

11. Types of Function Block (3)

Num.	Type	Description
22	BITSET	Set the B bit of the A parameter, BITSET(A, B). Output the changed value after setting the B bit to input at A. The input value of B must be between 0–16. If the value is higher than 16, it will be recognized as 16. If the input at B is 0, the output is always 0. This operation does not use the C parameter.
23	BITCLEAR	Clear the B bit of the A parameter, BITCLEAR(A, B). Output the changed value after resetting the B bit to input at A. The input value of B must be between 0–16. If the value is higher than 16, it will be recognized as 16. If the input at B is 0, the output is always 0. This operation does not use the C parameter.
24	LOWPASSFILTER	Output the input at A as the B filter gain time constant, B x US-02 (US Loop Time). In the above formula, set the time when the output of A reaches 63.3% of the B parameter = an input greater than 0. C stands for the filter operation. If it is 0, the operation is started.
25	PI_CONTROL	P, I gain = A, B parameter input, then output as C. Conditions for PI_PROCESS output: C=0: Const PI C=1: PI_PROCESS_B>=PI_PROCESS-OUT>=0 C=2: PI_PROCESS-B>=PI_PROCESS-OUT>=-(PI-PROCESS-B). P Gain = A/100, I Gain= 1/(Bx Loop Time)
26	PI_PROCESS	A is an input error, B is an output limit, C is the value of Const PI output. Range of C is 0–32,767.
27	UPCOUNT	Upcounts the pulses and then output the value- UPCOUNT(A, B, C). After receiving a trigger input (A), outputs are upcounted by C conditions. If the B inputs is 1, do not operate and display 0. If the B inputs is 0, operate. If the C parameter is 0, upcount when the input at A changes from 0 to 1. If the C parameter is 1, upcount when the input at A is changed from 1 to 0. If the C parameter is 2, upcount whenever the input at A changes. Output range is: 0–32767
28	DOWNCOUNT	Downcounts the pulses and then output the value- DOWNCOUNT(A, B, C). After receiving a trigger input (A), outputs are downcounted by C conditions. If the B input is 1, do not operate and display the initial value of C. If the B input is 0, operate. Downcounts when the A parameter changes from 0 to 1.

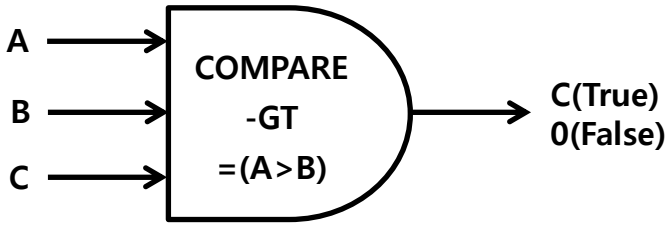
12. How to use FB(1)

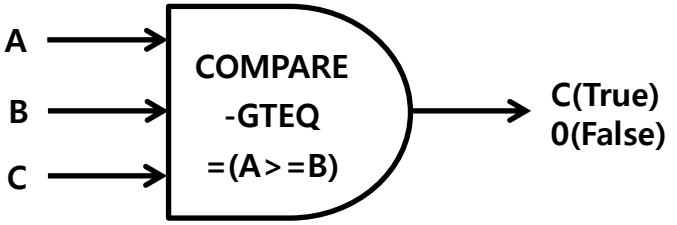
- ADD/SUB/ADDSUB: Addition/Subtraction operation. If the C parameter is 0x0000, it will be recognized as 0.
  (But, Input-A and B should not 0x0000.)
- MIN/MAX: Maximum/Minimum value operation. If the C parameter is 0x0000, operate only with A,B.
- ABS/NEGATE: Absolute /Negative value operation. This operation does not use the B,or C parameter
- REMAINDER: Remainder operation. This operation does not use the C parameter.
- MPYDIV: Multiplication/Division compound operation. If the C parameter is 0x0000, operate only with A,B.

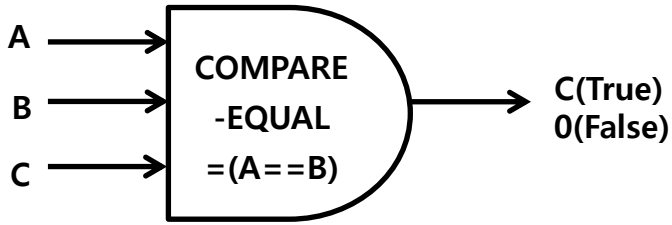


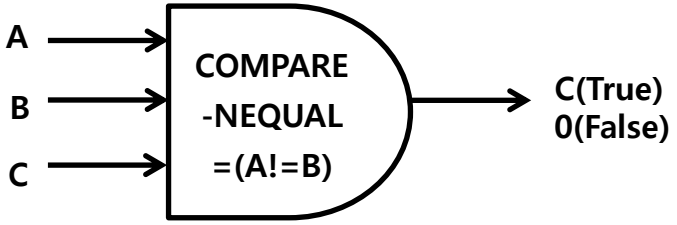
12. How to use FB(2)

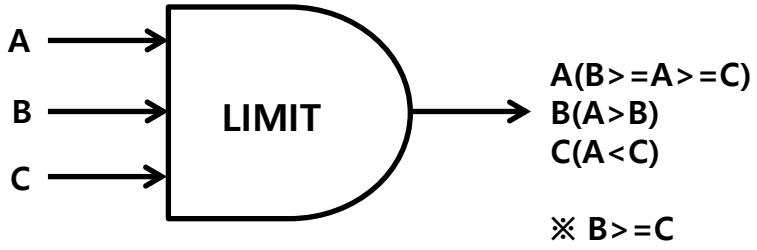
- COMPARE is comparison function block. If the C parameter is 0x0000 and if the condition is met, the output parameter is C.
- COMPARE-GT/GTEQ: If the A is greater than B/If the A is greater or equal to B, output C, unless output 0.
- COMPARE-EQUAL/NEQUAL: If A is equal/not equal to B, output C, unless output 0.
- LIMIT: Sets a limit for the A parameter/ SWITCH: If the input at A is 1, the output will be B. If the input is 0, the output will be C.

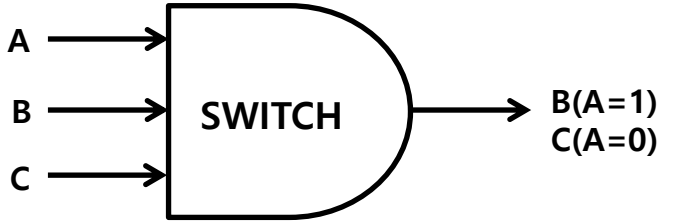




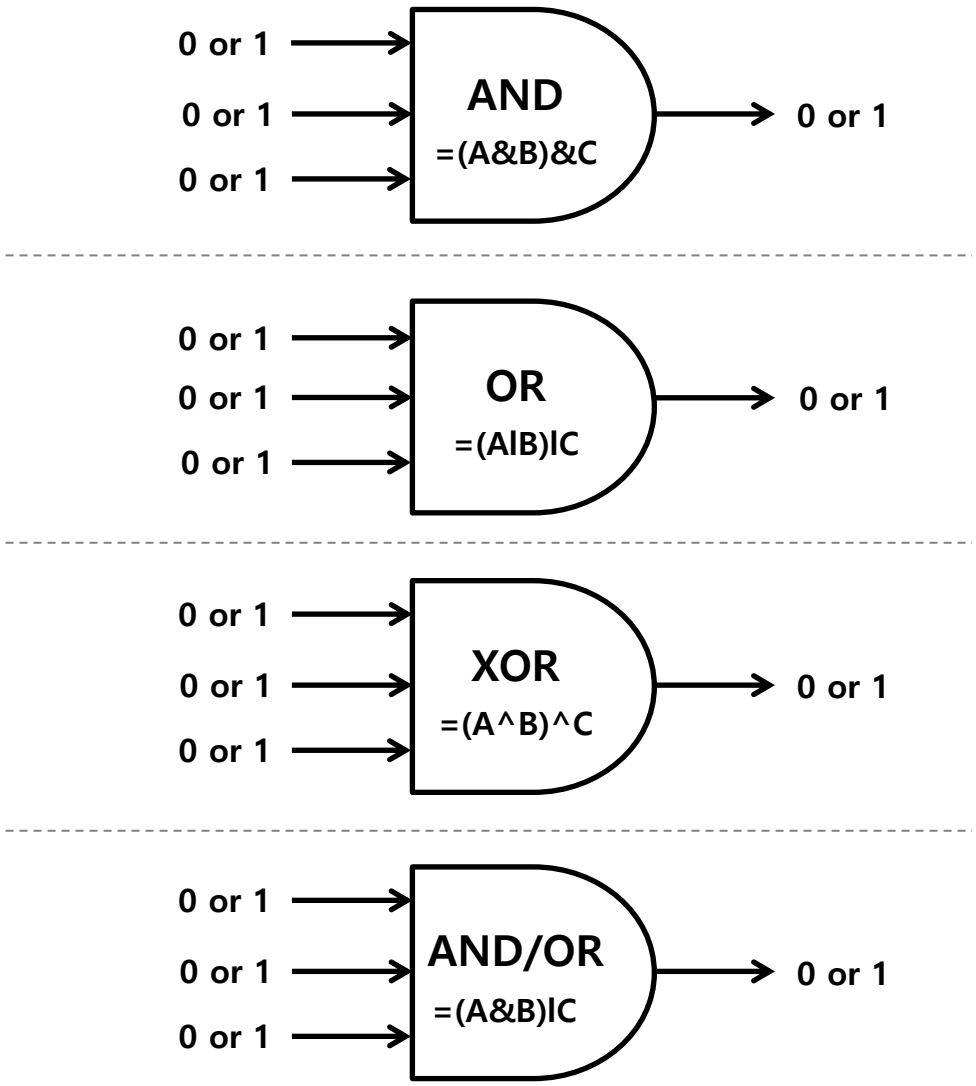








12. How to use FB(3)



Truth Table

AND		Result
0	0	0
0	1	0
1	0	0
1	1	1

OR		Result
0	0	0
0	1	1
1	0	1
1	1	1

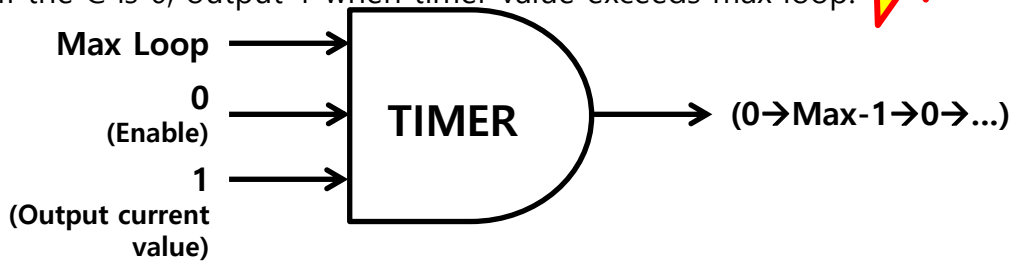
XOR		Result
0	0	0
0	1	1
1	0	1
1	1	0

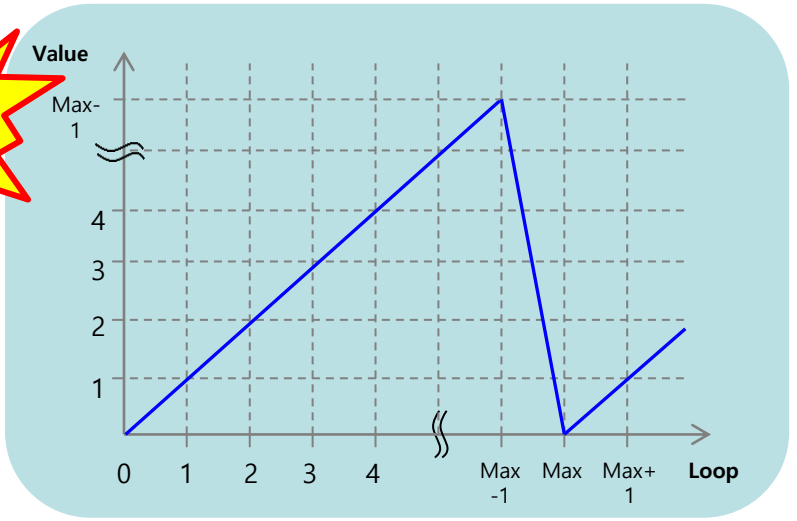
AND/OR			Result
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

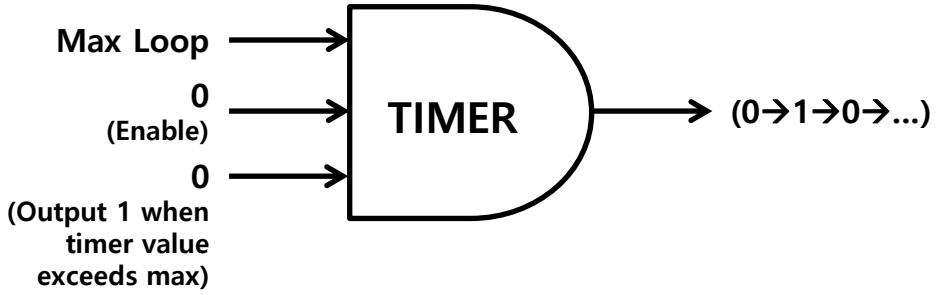
12. How to use FB(4)

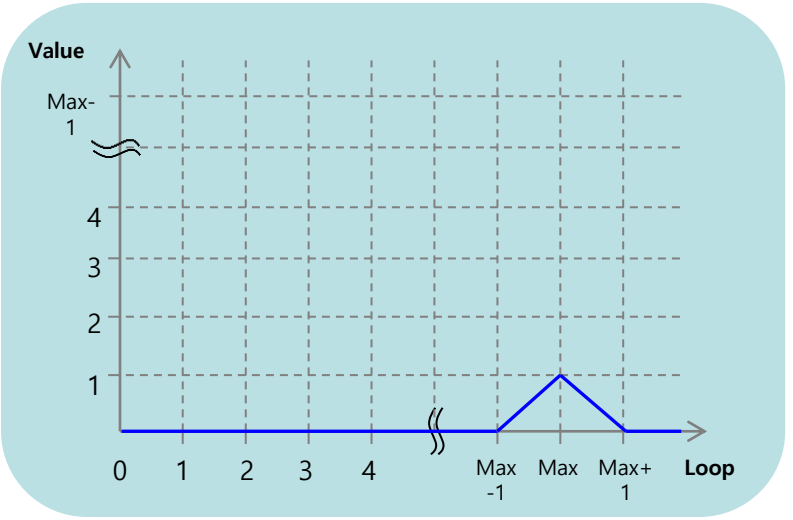
- TIMER works when B = 0
- TIMER increases 1 per every loop when C = 1

- If the C is 1, adds 1 each time a user sequence completes.
- If the C is 0, output 1 when timer value exceeds max loop.



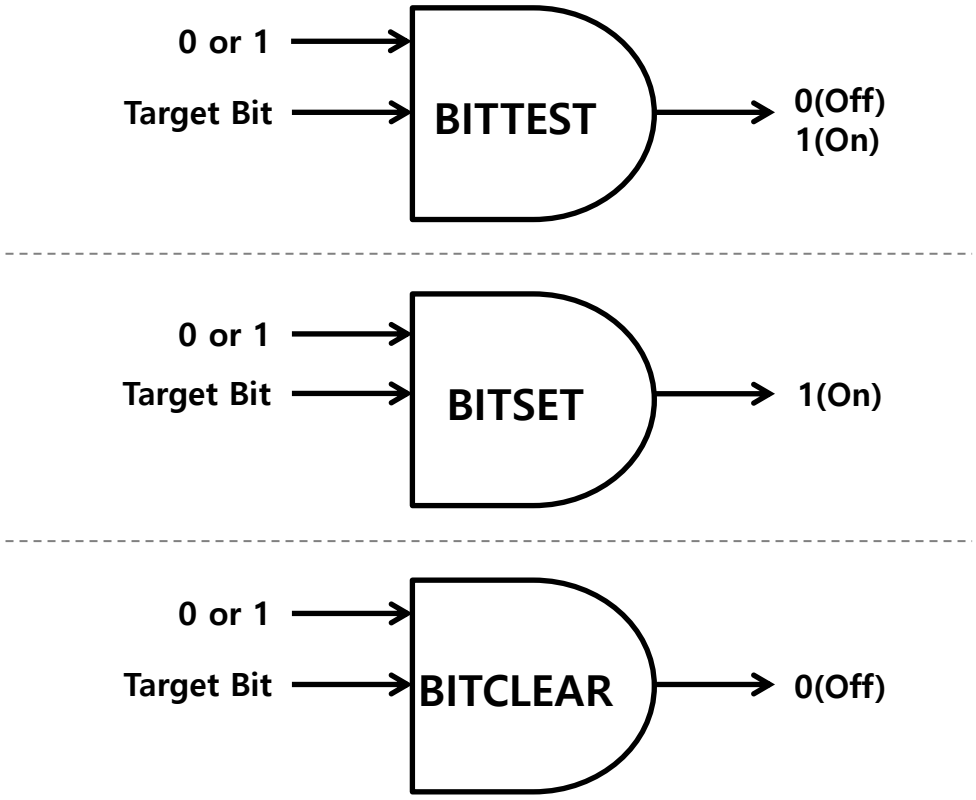


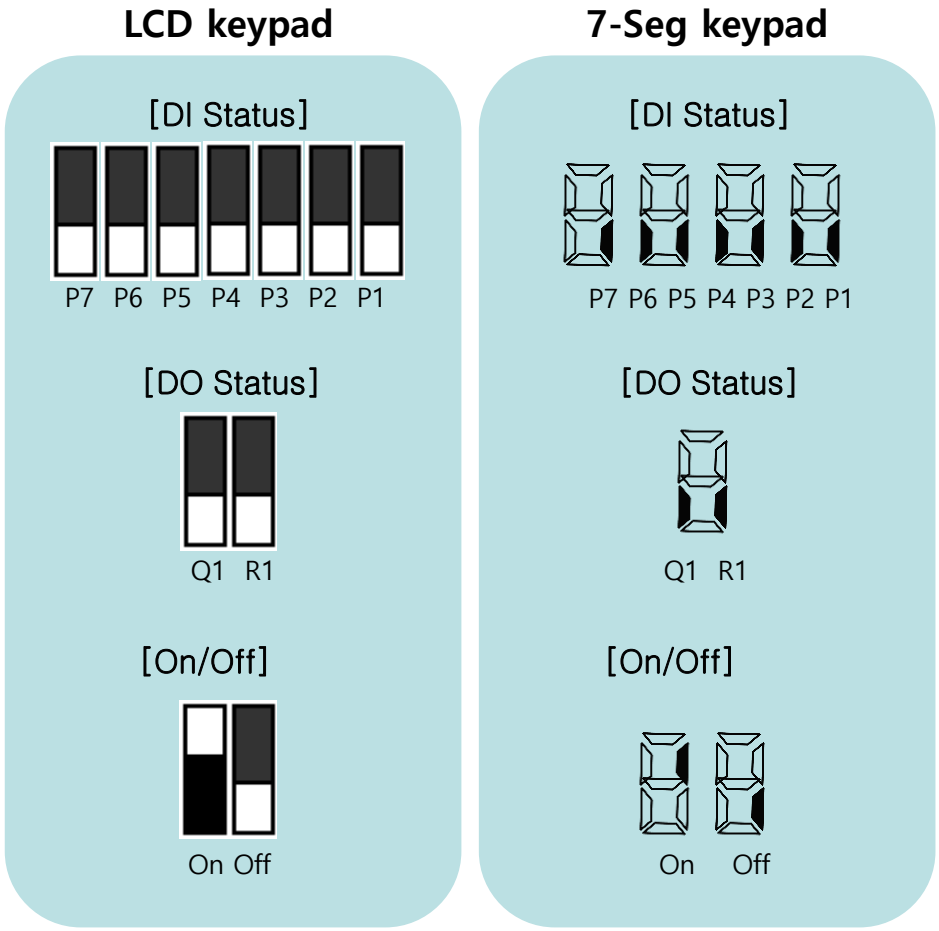




12. How to use FB(5)

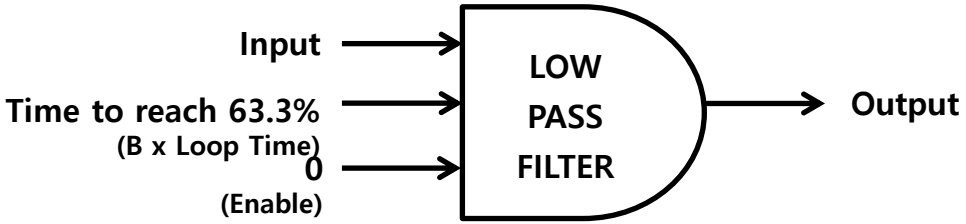
- BITTEST: If the B bit of the A is 1, the output is 1. if it is 0, the output is 0.
- BITSET: Set the B bit of the A parameter, BITCLEAR: Reset the B bit of the A parameter.

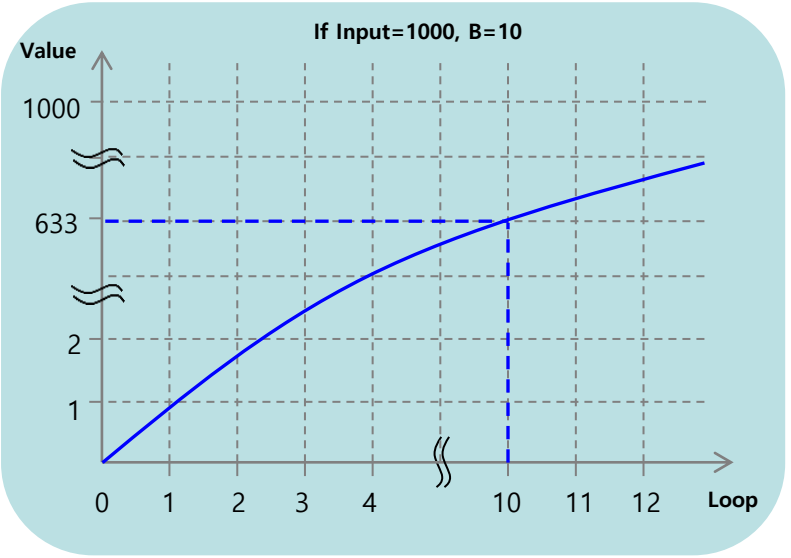


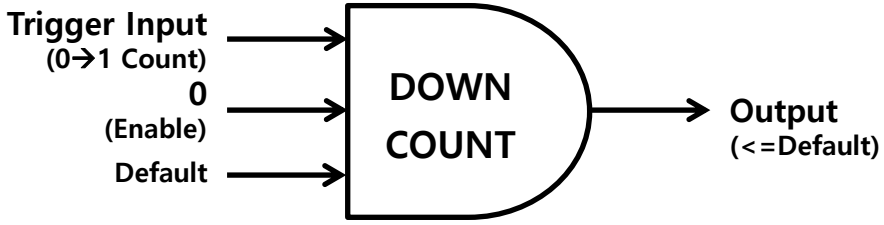


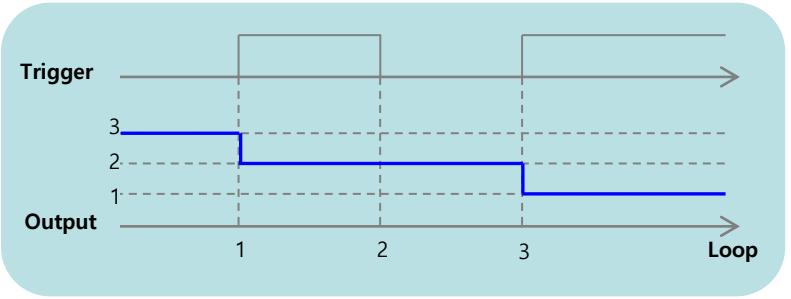
12. How to use FB(6)

- LOWPASSFILTER: Output the input at A as the B filter gains time constant.
- DOWNCOUNT: After receiving a trigger input (A), outputs are downcounted by C conditions. Downcounts when the A parameter changes from 0 to 1.



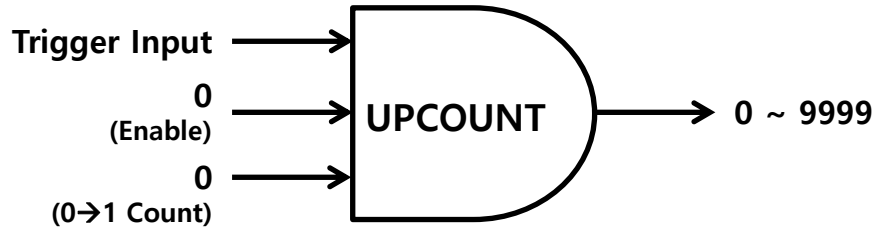


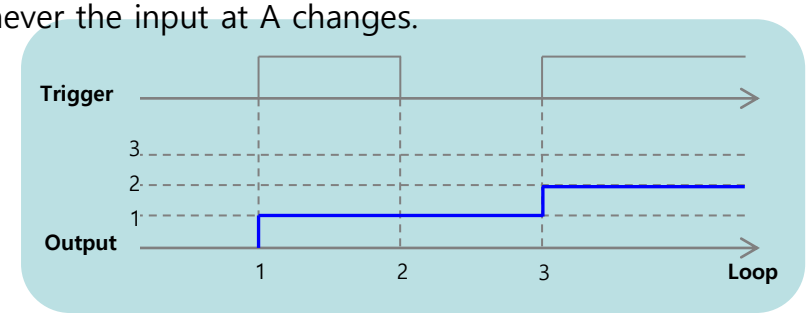


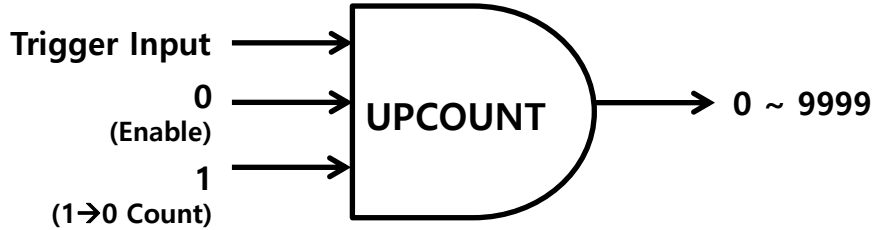


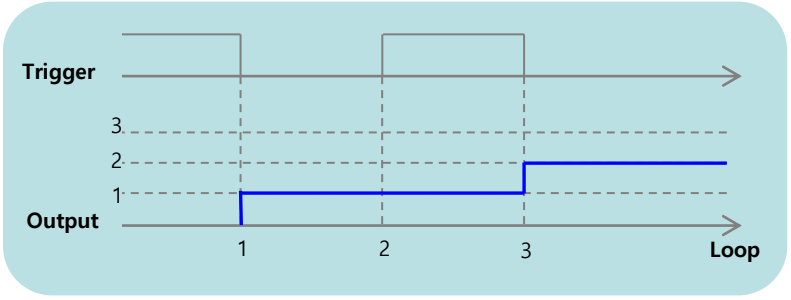
12. How to use FB(7)

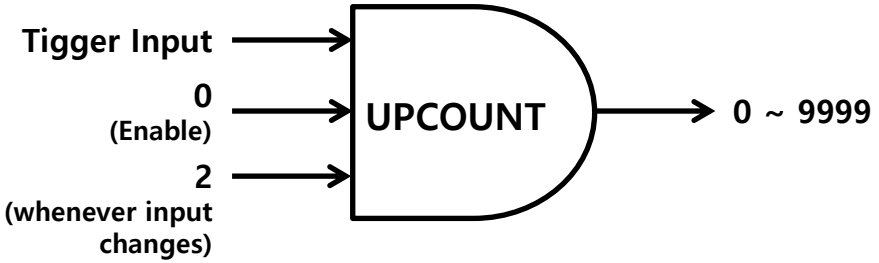
- UPCOUNT: After receiving a trigger input (A), outputs are upcounted by C conditions.
- If the C is 0, upcount when the input at A changes from 0 to 1(Rising Edge). If the C is 1, upcount when the input at A is changed from 1 to 0(falling edge). If the C is 2, upcount whenever the input at A changes.

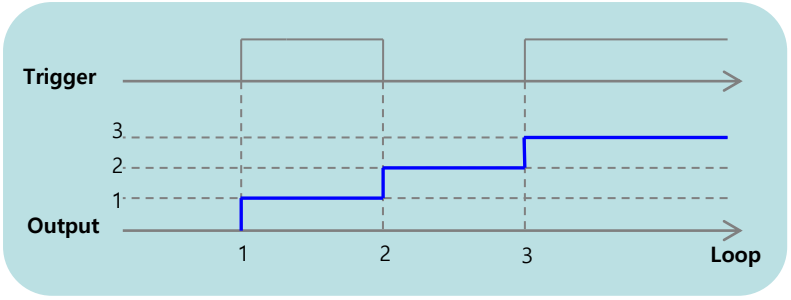






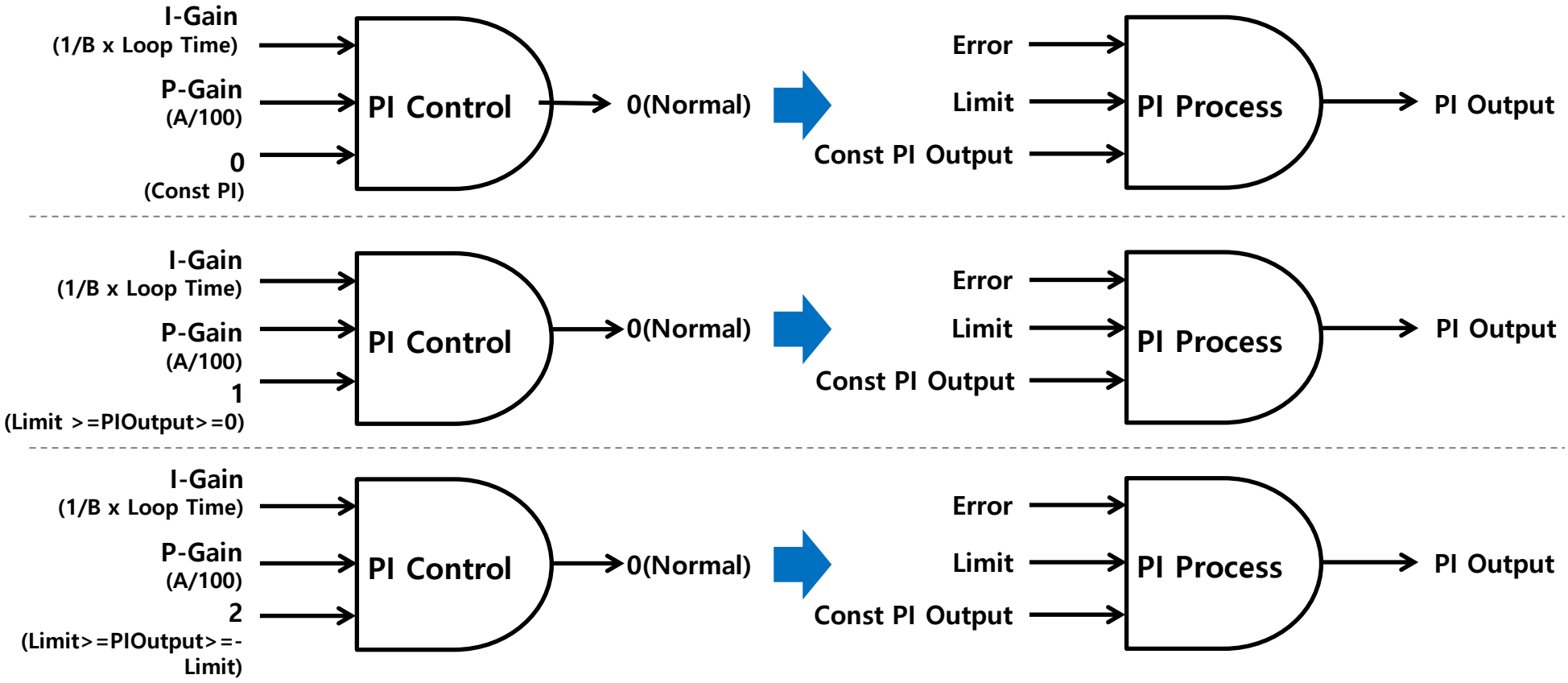






12. How to use FB(8)

- PI CONTROL+PI PROCESS: P,I gain=A,B parameter input, then output as C.
- PI Output = Error x P-Gain(A/100) + [Loop x {Error x I-Gain(1/B x Loop Time)}]
- The PI process block (PI_PROCESS Block) must be used after the PI control block (PI_CONTROL Block) for proper PI control operation.



Ⅱ. Basic example

Example 1. ADD (1)

● 1-1. Check list

- Output = ((A+B)+C).
- If the C parameter is 0x0000, It will be recognized as 0.
- It the function block setting is invalid, the output of the User Output@ is -1.

● 1-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	5: 1.0S
US-11	Link User Out 1	1101
US-01	User Seq. Con	0 : Stop

Code	Name	Setting
US-31	Void Para 1	3000
US-32	Void Para 2	2000
US-33	Void Para 3	0

Code	Name	Setting
UF-01	User Func 1	1:ADD
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21
UF-05	User Output 1	-

● 1-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is 5000.
- Check that Command Frequency is 50Hz.

Example 2. ADD (2)

● 2-1. Parameter setting

- US-31~33 Void Para1~2 → Input decimal value.
- User Input @-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	5: 1.0S
US-11	Link User Out 1	1D1F
US-12	Link User Out 2	1101
US-01	User Seq. Con	0 : Stop

Code	Name	Setting
US-31	Void Para 1	0
US-32	Void Para 2	200

Code	Name	Setting
UF-01	User Func 1	1:ADD
UF-02	User Input 1-A	1101
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	0000
UF-05	User Output 1	-

Code	Name	Setting
UF-06	User Func 2	1:ADD
UF-07	User Input 2-A	1D1F
UF-08	User Input 2-B	1D20
UF-09	User Input 2-C	0000
UF-10	User Output 2	-

● 2-2. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that command frequency increases 4Hz at every 1 sec.

Example 3. MPYDIV

● 3-1. Check list

- Output = (AxB)/C).
- If the C parameter is 0x0000, output the multiplication operation of (AXB).
- It the function block setting is invalid, the output of the User Output@ is -1.

● 3-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	110D
US-31	Void Para 1	100
US-32	Void Para 2	100
US-33	Void Para 3	200

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	8: MpyDiv
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 3-3. Test

- Set US-01 (User Seq Con) to 1(Run) for run
- Check that UF-05 is 50. (Acc. Time Scale is 0.1 sec)
- Check that Jog Dec time is 5sec.

Example 4. COMPARE-GT

● 4-1. Check list

- Output = if(A>B) then C else 0.
- If the C parameter is 0x0000 and if the condition is met, the output is 1(True).
- It the function block setting is invalid, the output of the User Output@ is -1.

● 4-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	1404
US-31	Void Para 1	1000
US-32	Void Para 2	500
US-33	Void Para 3	50

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	10: Compare-GT
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 4-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is 50.
- Check that Carrier Frequency is 5kHz.

Example 5. TIMER

● 5-1. Check list

- Output = Loop Time(US-02) x A(Max Loop)
- Input-A: Max loop. If the A is minus value, it will be recognized as 0.
- Input-B: Timer Run/Stop, if the B is 1, timer stops. If input is 0, timer runs.
- Input-C: Choose output mode. If the C parameter is 0x0000, C will be recognized as 0.

● 5-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	1101
US-31	Void Para 1	1000
US-32	Void Para 2	0
US-33	Void Para 3	1

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	14: Timer
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 5-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is changes between 0~1000.
- Check that command frequency changes between 0~10Hz.

Example 6. ANDOR

● 6-1. Check list

- Output = ((A&B)|C)
- If you want to set Input-A,B,C through Void Parameter, they should be set in 16Bit binary form
- If the C parameter is 0x0000, operate only with A, B.

● 6-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-31	Void Para 1	15
US-32	Void Para 2	12
US-33	Void Para 3	14

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	19: ANDOR
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 6-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is 000E (0000 0000 0000 1110).

Example 7. SWITCH

● 7-1. Check list

- Output = if(A) then B else C.
- User Input-A is 1(True) or 0(False).
- If the A parameter is 1, the output is B. Unless, the output is C.
- Input-B is always greater than or equal to C parameter.

● 7-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	1404
US-31	Void Para 1	1
US-32	Void Para 2	120
US-33	Void Para 3	30

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	20: Switch
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 7-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is 120.
- Check that Carrier Freq is changed to 12kHz.

Example 8. BITTEST

● 8-1. Check list

- Input-A is the target value of the test.
- Input-B the target bit to test
- This function block does not need C parameter.

● 8-2. Parameter setting

- US-31~32 Void Para1~2 → Input decimal value.
- UF-2~3 User Input 1-A~C → Input communication addresses of Void Para1~2.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-31	Void Para 1	15
US-32	Void Para 2	5

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	21: BITTEST
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20

● 8-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that UF-05 is 0. (15 is 0000 0000 0000 0011. 5th bit is 0)
- Try to change the number in US-32 from 1 to 4 and check the output value in UF-05.

Example 9. LIMIT

● 9-1. Check list

- Input-A is the target value of the test.
- Input-B is the upper limit of A.
- Input-C is the lower limit of A.
- B parameter must be higher than or at least equal to the C parameter.

● 9-2. Parameter setting

- US-31~32 Void Para1~2 → Input decimal value.
- UF 3~4 User Input 1-A~C → Input communication addresses of Void Para1~2.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	1101
US-31	Void Para 1	4000
US-32	Void Para 2	2000

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	15:LIMIT
UF-02	User Input 1-A	1101
UF-03	User Input 1-B	1D1F
UF-04	User Input 1-C	1D20

● 9-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Change command frequency randomly and check if US-05 is between upper limit and lower limit.

Example 10. LOWPASSFILTER

● 10-1. Check list

- Output the input at A as the B filter gains time constant
- Input-B is the filter gains time constant.
- Input-C stands for the filter operation. If it is 0, the operation is started.

● 10-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-11	Link User Out 1	1101
US-31	Void Para 1	6000
US-32	Void Para 2	100
US-33	Void Para 3	0

Code	Name	Setting
UF-01	User Func 1	24:LOWPASS-FILTER
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21
US-01	User Seq. Con	0 : Stop

● 10-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check if it takes US-02(0.02Sec) X US-03(100) seconds until output reaches 63.3% of the command frequency.
  If the command frequency is 60Hz, it takes 2 seconds until output reaches 38.2Hz.

Example 11. UPCOUNT

● 11-1. Check list

- After receiving a trigger input (A), outputs are upcounted by C conditions.
- Input-A is Trigger Input. The value is 0 or 1.
- Input-B stands for the filter operation. If it is 0, the operation is started.
- Input-C is the condition for counting, If the C is 0, upcount when the input at A changes from 0 to 1. If the C is 1, upcount when the input at A is changed from 1 to 0. If the C is 2, upcount whenever the input at A changes.

● 11-2. Parameter setting

- US-31~33 Void Para1~3 → Input decimal value.
- UF-2~4 User Input 1-A~C → Input communication addresses of Void Para1~3.

Code	Name	Setting
APP-02	User Seq. En	1 : Yes
US-02	User Seq. Loop Time	1 : 0.02s
US-31	Void Para 1	10
US-32	Void Para 2	0
US-33	Void Para 3	2

Code	Name	Setting
US-01	User Seq. Con	0 : Stop
UF-01	User Func 1	27:UPCOUNT
UF-02	User Input 1-A	1D1F
UF-03	User Input 1-B	1D20
UF-04	User Input 1-C	1D21

● 11-3. Test

- Set US-01 (User Seq Con) to 1(Run).
- Check that US-05 increases when US-31 (Void Para1) is changed.

The end

Attach. Major communication addresses

S100 Major parameter communication addresses

Address (Hex)	Parameter	Unit	Scale
1101	Target Freq.	Hz	0.01
1103	Acc Time	Sec	0.1
1104	Dec Time	Sec	0.1
1505	Analog Input 1	%	0.01
1606	Analog Output 1	%	0.1
155A	Multi-func. Input Status	Bit	-
0385	Virtual Multi-func. Input	Bit	-
1629	Multi-func. Output Status	Bit	-
1404	Carrier Freq.	kHz	0.1
0009	Output Current	A	0.1
000A	Output Freq.	Hz	0.01
000B	Output Volt.	V	1
000C	DC-link Volt.	V	1
000D	Output Power	kW	0.1
000E	Operation Status	-	-
000F	Fault Info.	-	-

Address (Hex)	Parameter
1D1F	Void Para 1
1D20	Void Para 2
1D21	Void Para 3
1D22	Void Para 4
1D23	Void Para 5
1D24	Void Para 6
1D25	Void Para 7
1D26	Void Para 8
1D27	Void Para 9
1D28	Void Para 10
1D29	Void Para 11
1D30	Void Para 12
1E05	User Output 1
1E0A	User Output 2
1E0F	User Output 3
1E14	User Output 4

Address (Hex)	Parameter
1E19	User Output 5
1E1E	User Output 6
1E23	User Output 7
1E28	User Output 8
1E2D	User Output 9
1E32	User Output 10
1E37	User Output 11
1E3C	User Output 12
1E41	User Output 13
1E46	User Output 14
1E4B	User Output 15
1E50	User Output 16
1E55	User Output 17
1E0A	User Output 18
1E55	User Output 17
1E0A	User Output 18