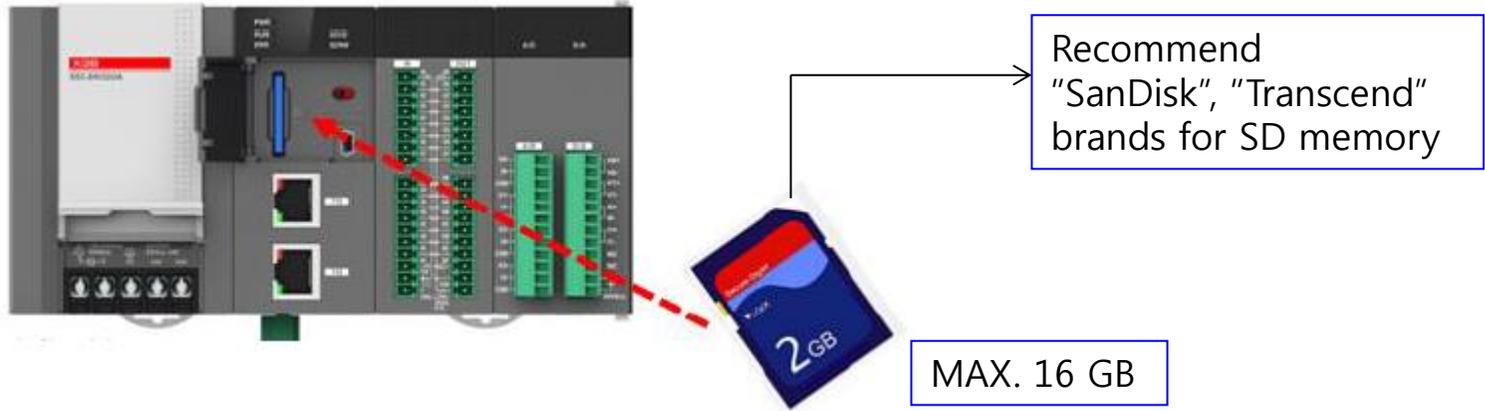


# XGB-U DATA LOGGING

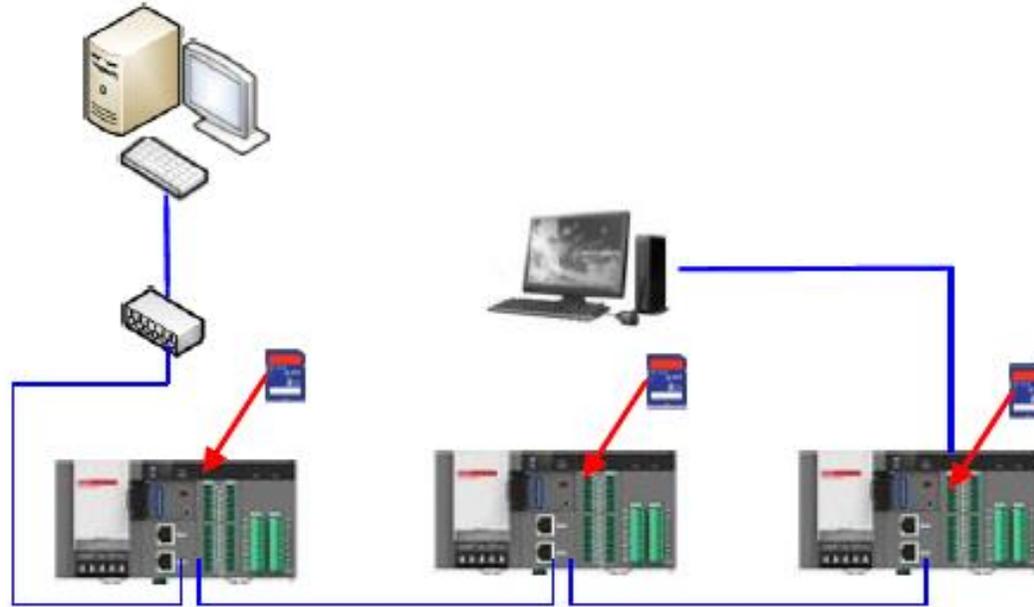
## 1) Specification

Collect PLC's running data with simple parameter setting and save it as CSV file in SD memory card.



- ① Simple to save PLC device data : Save PLC's device data with simple parameter setting
- ② Precise data collection
  - Collect precise data every scan, 1ms or various running condition
  - Saves data value before and after trigger occurs using trigger function
  - Saves change in data from the event occurs using event function
- ③ FTP/Web Server Linkage : Remote reading saved file of data log with FTP/Web Server

## 2) System Configuration



- ① Set parameter with XG5000 and perform data log function
- ② Data saved in PLC is saved in SD memory as CSV file
- ③ Saved file can be read in distance with FTP/WEB Server
- ④ SD memory format can be done by itself without PC if remotely connected to XG5000  
(Only supports in PLC STOP condition)

## 3) LED Status



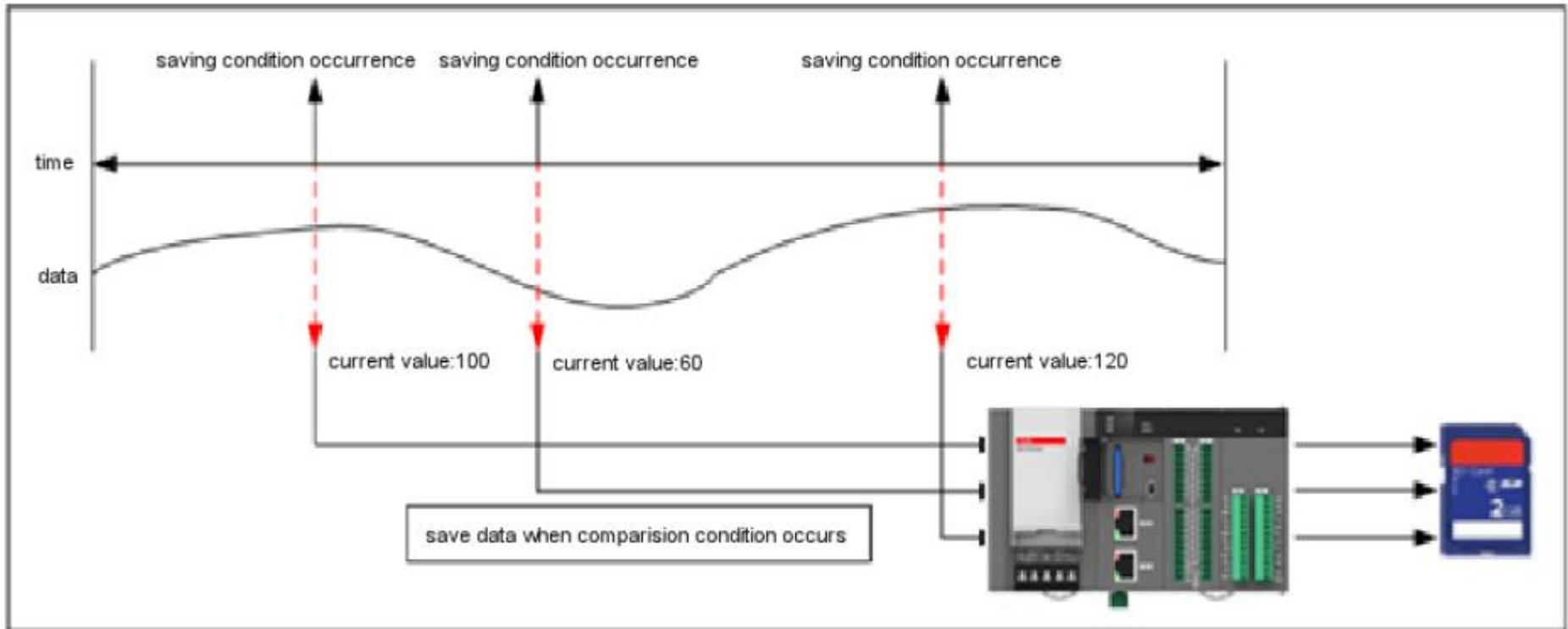
Name	Description	Action Standard
RUN	High performance XGB PLC's running status	Lighting : RUN Lights-out : STOP, ERR
ERR	High performance XGB PLC's error status	Flickers when error occurs
STATE	Status of equipped SD memory card	Lighting : SD card equipped and running Flicker : SD card equipped, but error (500ms cycle) Lights-out : SD card separated
RD/WR	SD card control status	Flicker: Reading or writing SD card (50ms cycle) Lights-out: SD card abort access

## 4) Method for Saving Data

Three ways to save data are General saving, Trigger saving, Event saving.

### ① General Saving

- Save data every scan or every appointed cycle. That is, save the data when the saving condition occurs without considering status of before or after. It is useful when collecting specific data periodically.

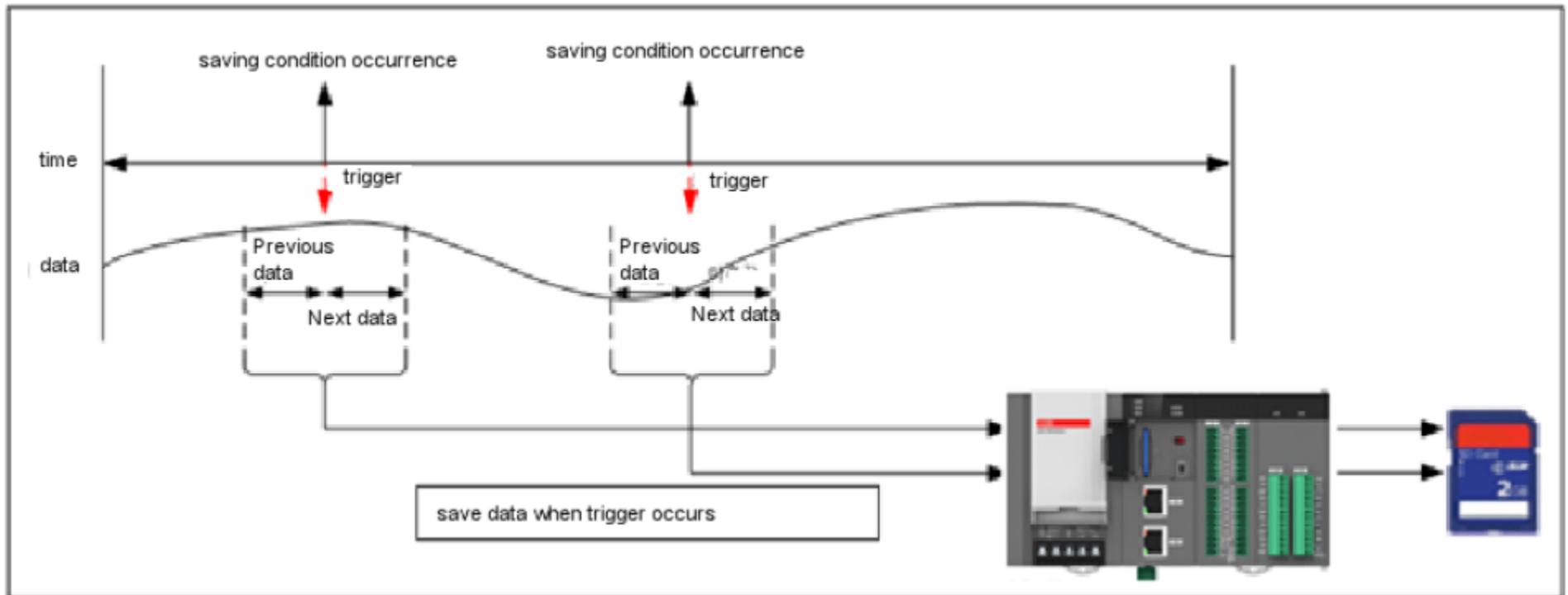


## 4) Method for Saving Data

Three ways to save data are General saving, Trigger saving, Event saving.

### ② Trigger Saving

- If the saving condition occurs, save previously set number of before and after's data
- When specific event occurs, it is useful to check data for certain period of time before and after.

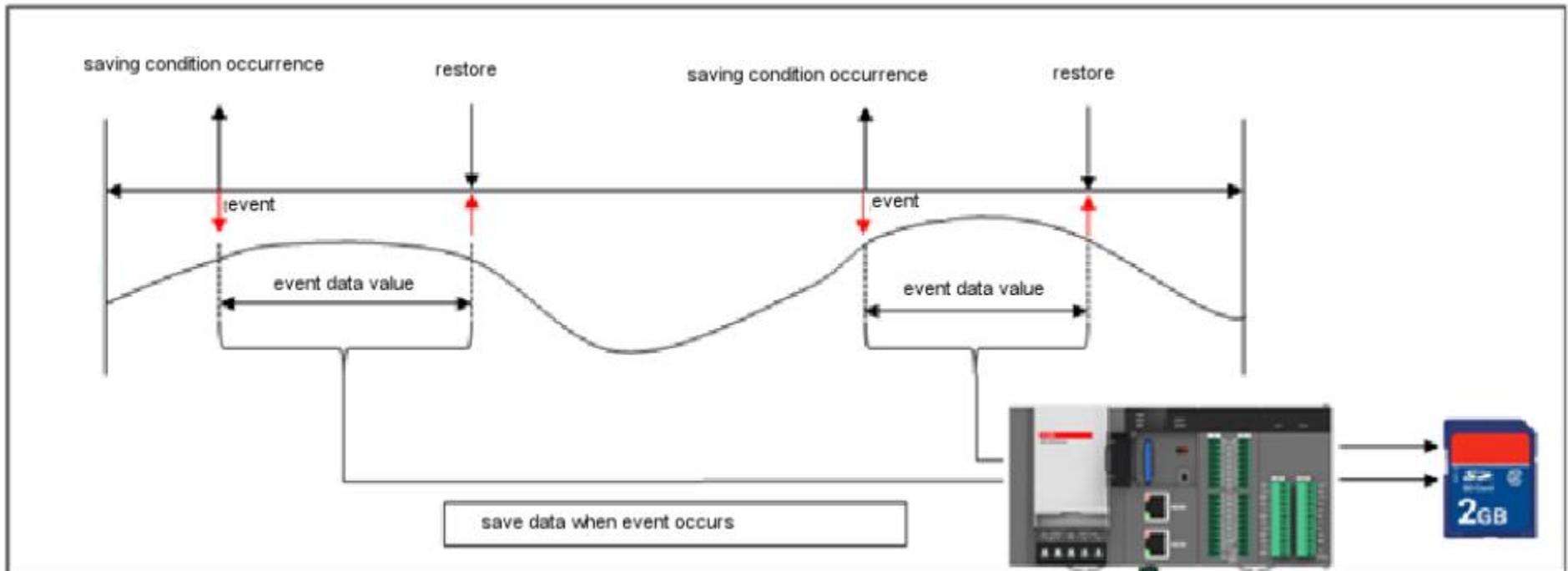


## 4) Method for Saving Data

Three ways to save data are General saving, Trigger saving, Event saving.

### ③ Event Saving

- If the event condition is satisfied while monitoring collected device value, it saves the data. That is, it saves data from the point where event occurs and until the event disappears.
- It is useful when analyzing event value's change and time



## 5) Method of saving CSV file

As sampling condition occurs, it collects data and save in SD memory's temporary buffer. Then, when data log condition occurs, it saves as CSV file.

### ① File Switch point

- A point when switching temporary file to CSV file

Saving Point	Setting Scope
When saving specific number of temporary files is completed	1000 ~ 32768
When temporary file has reached to specific size	10 KB ~ 16,384 KB
When file size becomes larger than 16,384 KB	Automatically switch to CSV file

## 5) Method of saving CSV file

As sampling condition occurs, it collects data and save in SD memory's temporary buffer. Then, when data log condition occurs, it saves as CSV file.

② Acts when number of saving file exceeds

- When the maximum number of saving file exceeds the parameter setting

Actions	Description
Overwriting of recent history	Overwrite the new data on the oldest file
Keep first history	Does not save file anymore

## 6) File backup cycle

Data collected from data log is not saved to SD memory right away. It is saved to designated buffer and when certain amount(4Kbyte) is collected, it is being saved to SD memory. If the collected data is only saved in buffer and suddenly power goes OFF or Reset, the data will be lost.

→ Saved collected data in SD memory periodically regardless of size.

Save Settings

Set save path  
/DATALOG/ GROUP00 /FILExxxx.CSV

History Settings  
 Overwriting of recent history  
 Keep first history

File conversion settings  
 The number of storage lines 1000 Line (1000 ~ 21,767)  
 File Size 16384 [KB](10 ~ 16,384)

File backup cycle setting  
Backup cycle: 5 Second(1 ~ 5)

OK  
Cancel

Backup time can be set between 1~5 seconds. If it is set for frequent backup, it may affect data log performance.

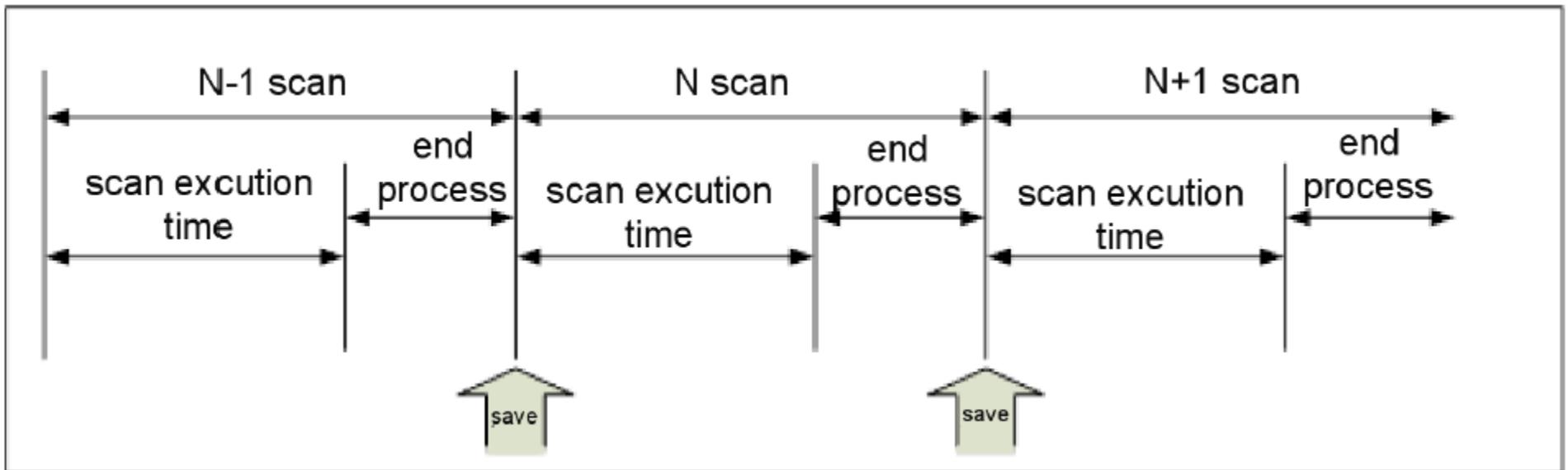
## 7) Setting

### (1) General Saving

- General saving is [Save every scan], [Save specific cycle]

#### ① Save every scan

- Save data user has set in SD memory every scan
- Save data after every scan's END processed
- Collected data is collected in PLC internal buffer and when certain amount of data is gathered, it is saved in SD memory.



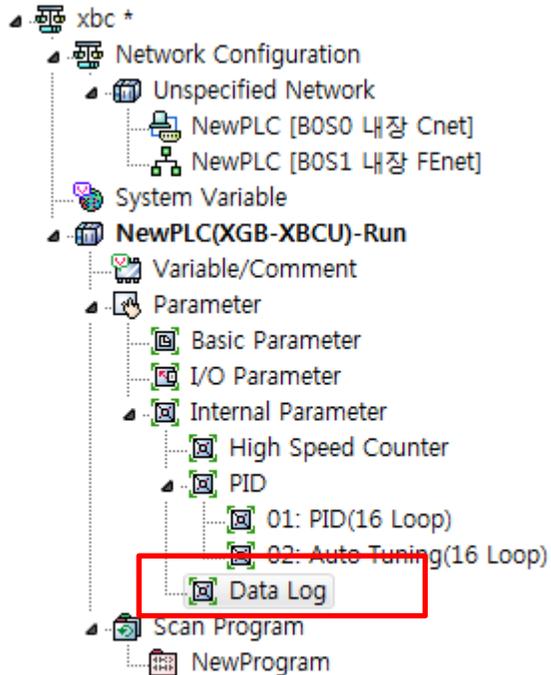
## 7) Setting

### (1) General Saving

- General saving is [Save every scan], [Save specific cycle]

### ② Set method for saving scan

- ① XG5000 > [Project Window] > Internal Parameter > Data Log

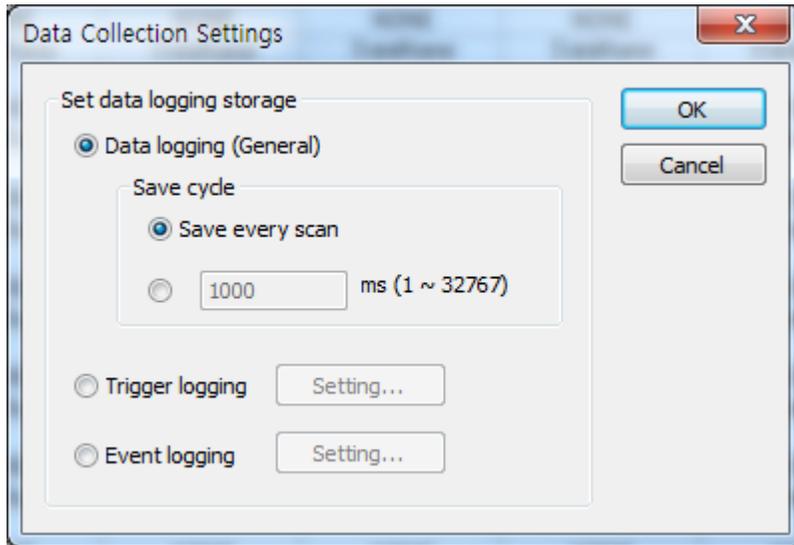


## 7) Setting

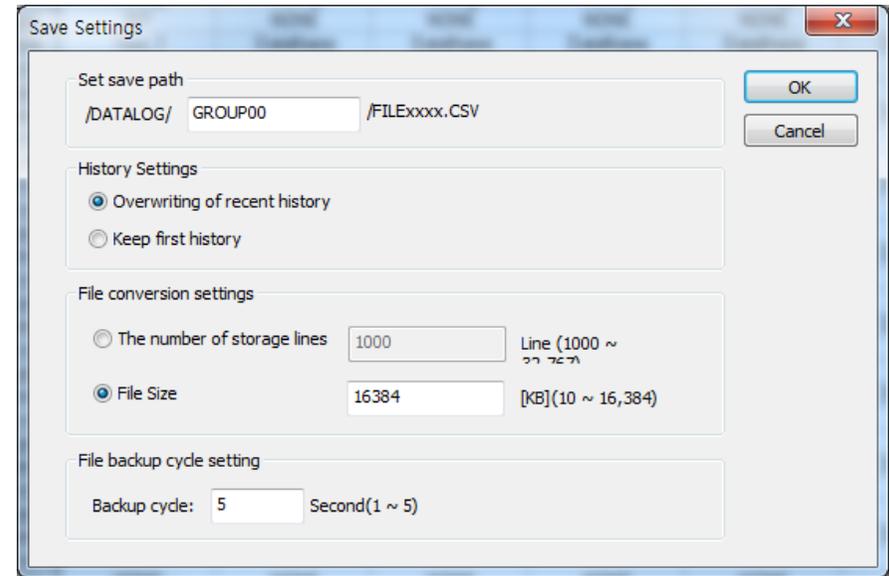
㉑ Choose group from data log parameter window

Parameter	Group 0	Group 1
<input type="checkbox"/> Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

㉒ Choose [Save every scan] from [Data collection mode]



㉓ Set [Set save path], [History Settings], [File conversion settings] from [Save Settings]

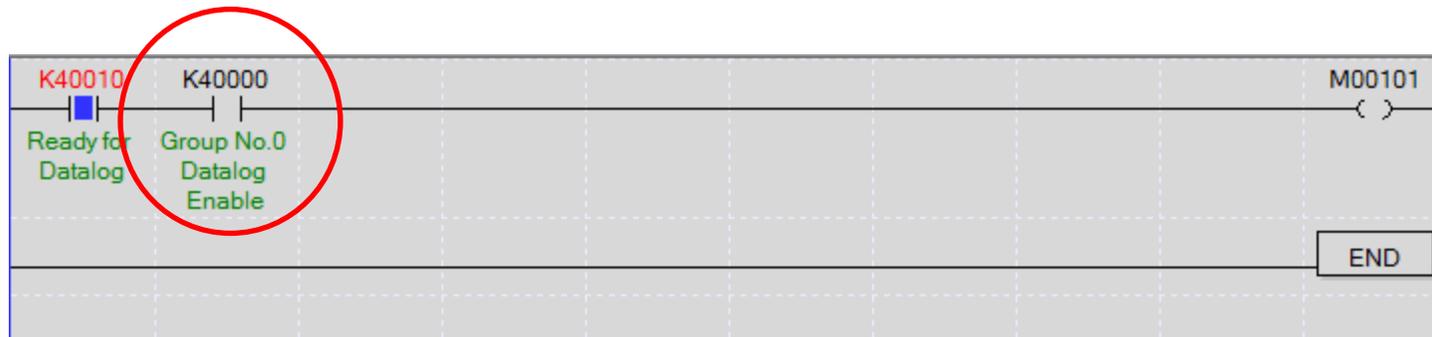


㉔ Set Data Type, Saving Device and Name

Data 0	<input type="checkbox"/> Type	INT	NONE
	<input type="checkbox"/> Name	Test_1	DataName
	Device	M0100	

## 7) Setting

- ③ Connect SD memory card, then when DL\_RDY(K40010) flag becomes ON, data log Enable flag (K40000) and function turns ON.
- In order to stop saving data, turn OFF the data log Enable flag (K40000)
- If there is a space left to save in SD memory card, Log\_Ending (K40201) flag turns ON and if all data is saved, it turns OFF.
- Data STOP process status can be checked with LOG\_STOP\_PROGRESS flag and if the flag value is 100, it means all the data is completely saved.



When saving data with scan type, it is suggested to set data log parameter referring to PLC scan.  
→ If too much data is set during fast cycle, data lost can be occurred.

## 7) Setting

### ㉞ Data log group's Enable flag

Item	Type	Description
K4000	WORD	Data log Enable flag
K40000	BIT	Group #0 Enable flag 1: Run 0: Stop
K40001	BIT	Group #1 Enable flag 1: Run 0: Stop
K40002	BIT	Group #2 Enable flag 1: Run 0: Stop
K40003	BIT	Group #3 Enable flag 1: Run 0: Stop
K40004	BIT	Group #4 Enable flag 1: Run 0: Stop
K40005	BIT	Group #5 Enable flag 1: Run 0: Stop
K40006	BIT	Group #6 Enable flag 1: Run 0: Stop
K40007	BIT	Group #7 Enable flag 1: Run 0: Stop
K40008	BIT	Group #8 Enable flag 1: Run 0: Stop
K40009	BIT	Group #9 Enable flag 1: Run 0: Stop

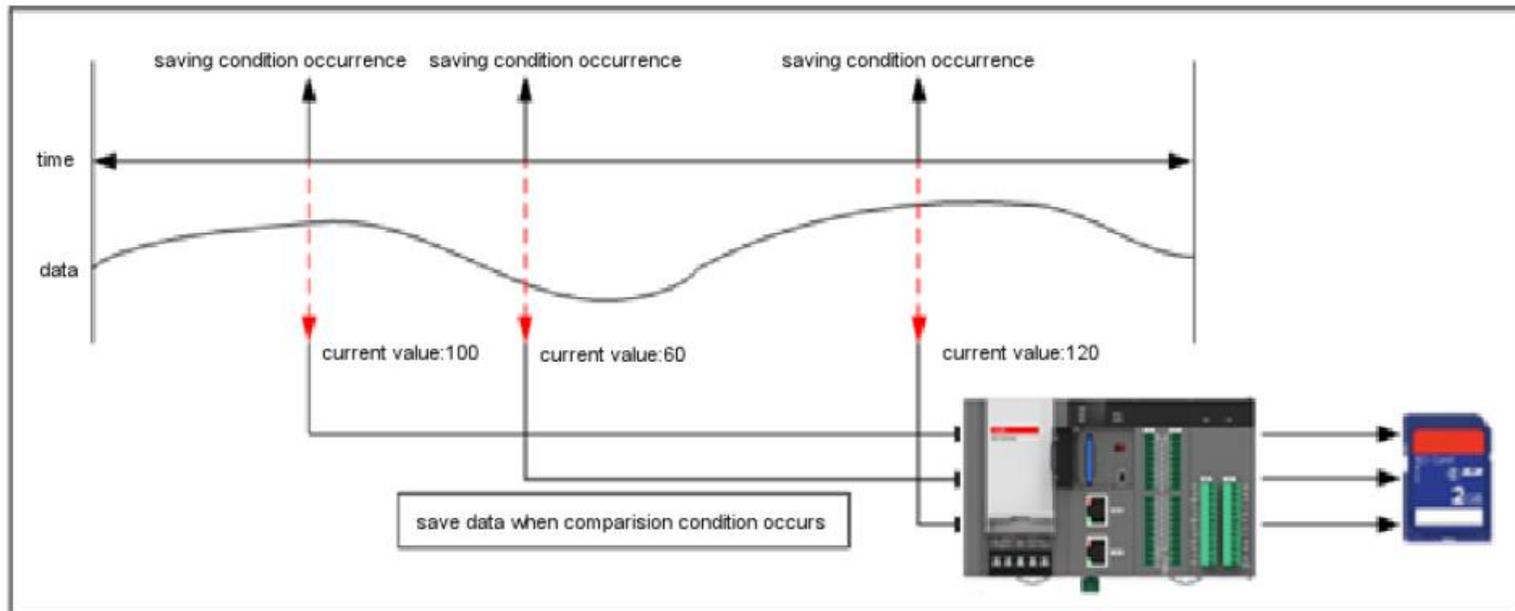
## 7) Setting

### (1) General Saving

- General saving is [Save every scan], [Save specific cycle]

### ③ Save specific cycle

- Saves data every specific cycle user has set
- Can collect data every specific cycle, so it can save data at more accurate point
- Collected data is saved as CSV file in SD memory after scan END



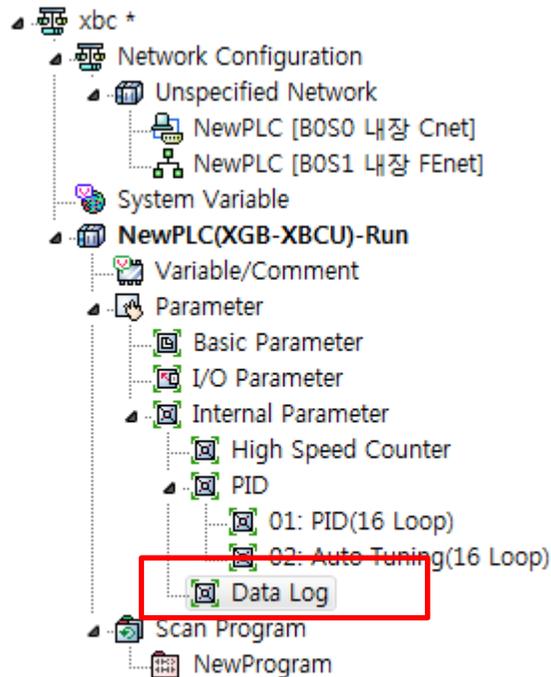
## 7) Setting

### (1) General Saving

- General saving is [Save every scan], [Save specific cycle]

### ③ Save specific cycle

- ① XG5000 > [Project Window] > Internal Parameter > Data Log

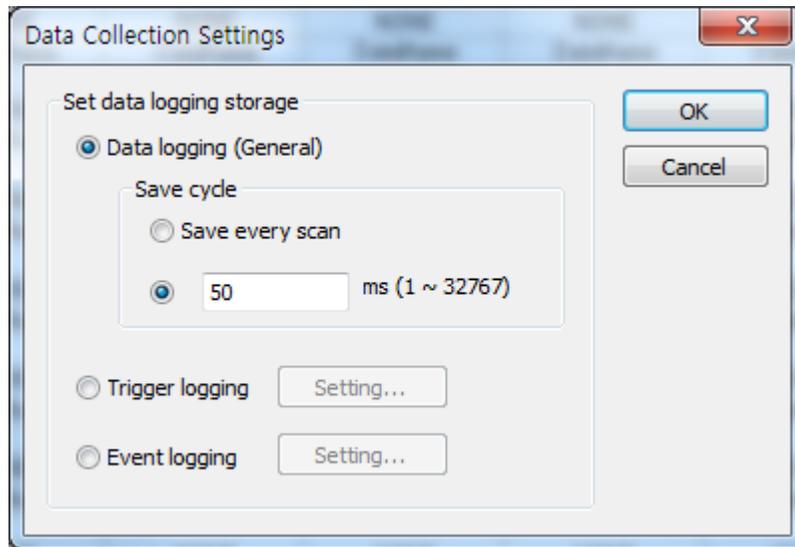


## 7) Setting

② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

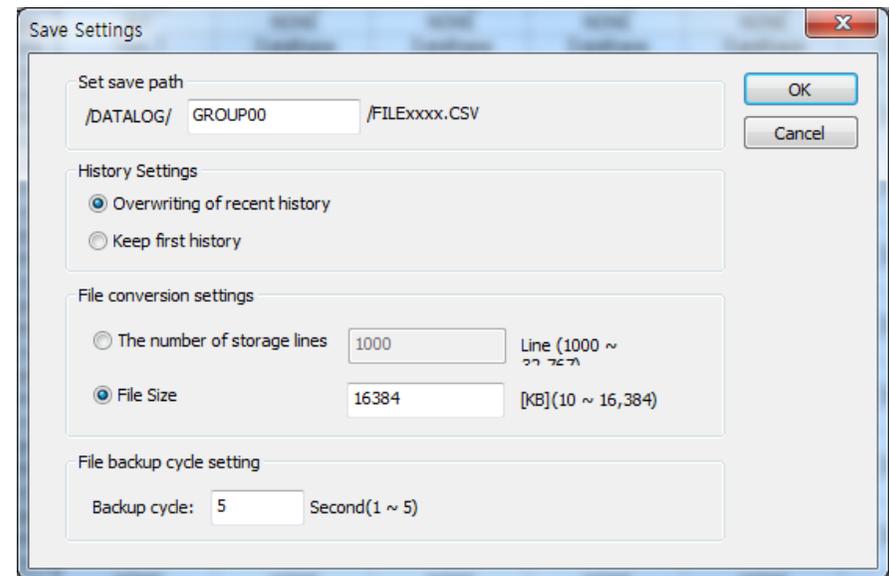
③ Enter save cycle in [Data collection mode]



If cycle is set more frequent than data log save performance, it may cause data loss.

- Data log: 4 Word/10ms
- Data log + FTP (WEBSERVER): 4 Word/20ms
- Data log + FTP + WEBSERVER: 4 Word/30ms

④ Set [Set save path], [History Settings], [File conversion settings] from [Save Settings]



## 7) Setting

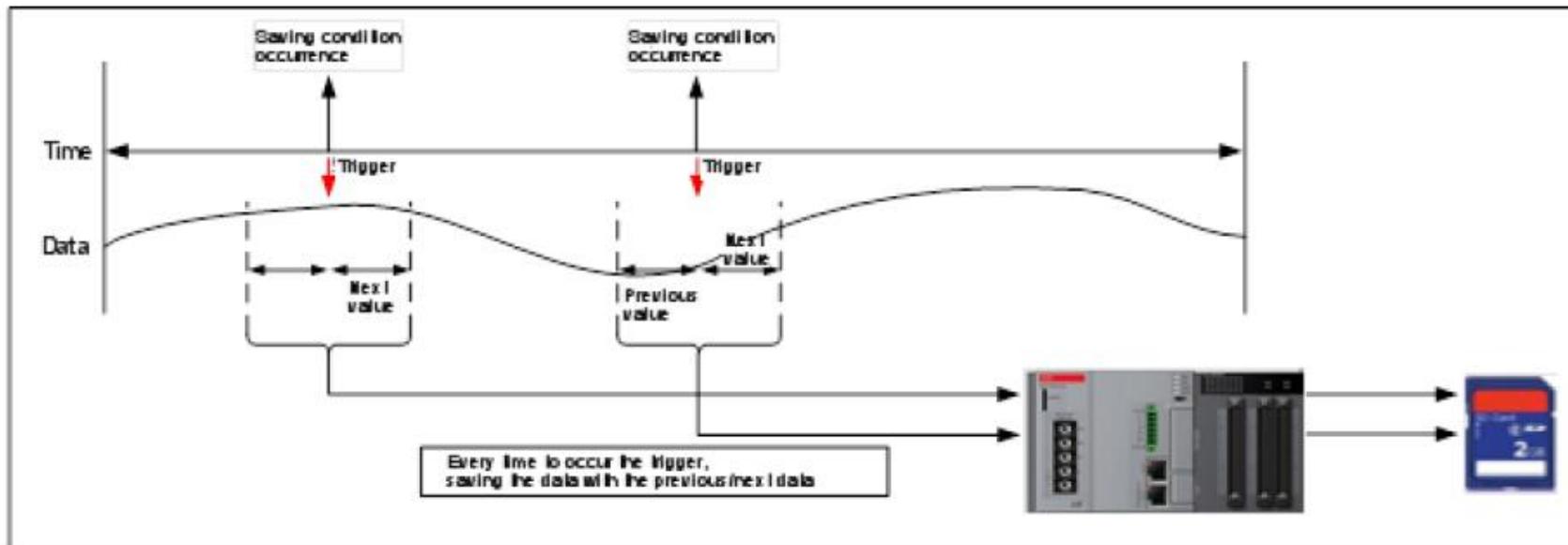
③ Set Data Type, Saving Device and Name

Data 0	<input type="checkbox"/> Type	INT	NONE
	<input type="checkbox"/> Name	Test_1	DataName
	Device	M0100	

## 7) Setting

### (2) Trigger Saving

- If specific data saving condition is satisfied, it saves previous and next data when condition is fulfilled.
- It is useful to check the previous and next data when certain value is occurred.
- Saves data when the condition occurred scan is END.



When first trigger condition occurs and another trigger condition occurs during collecting data, then it ignores the trigger.

## 7) Setting

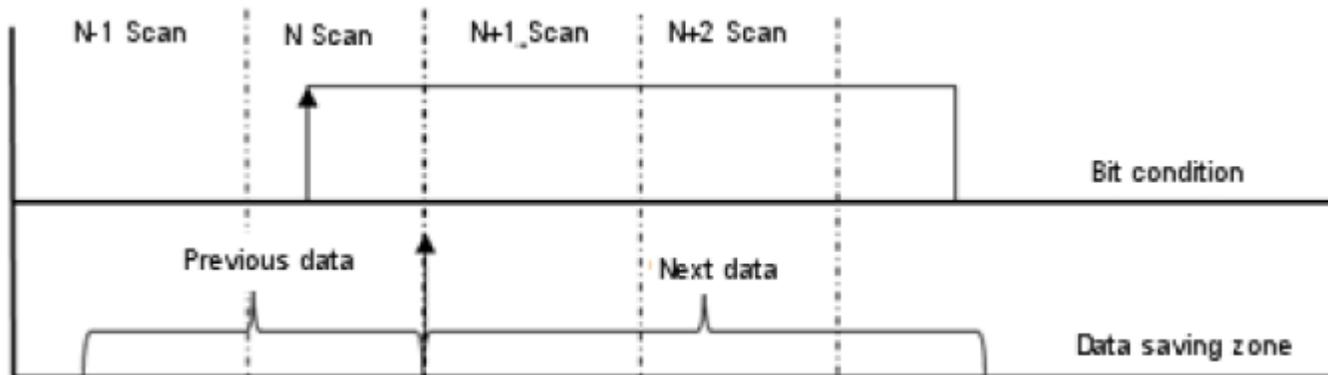
### (2) Trigger Saving

#### ① Trigger condition

- Trigger Saving functions depending on single condition, multiple condition
- Multiple condition: Acts using single condition AND, OR (Maximum 4 of single condition)
- When trigger condition occurs and starts saving data, it is able to check the trigger start point since it shows 'T' in first data

#### ⓐ Single condition : BIT condition / WORD condition

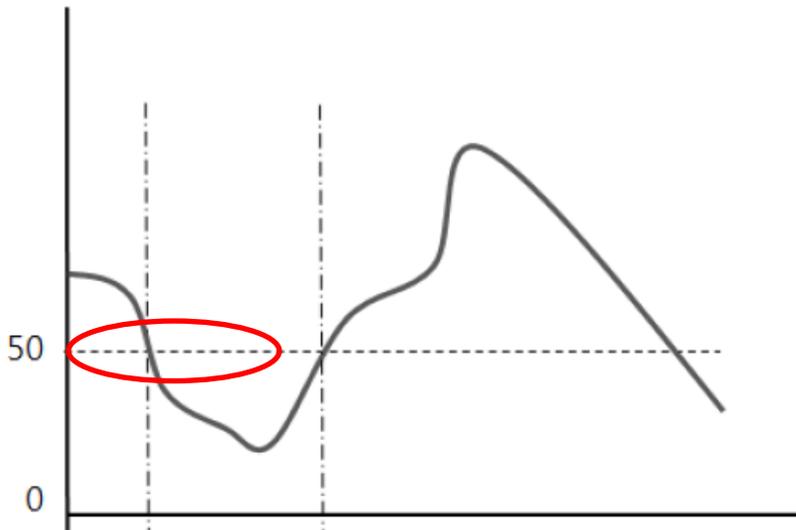
- BIT condition : Check the set device bit value and collects data sensing trigger when the value is [Rising] or [Falling]



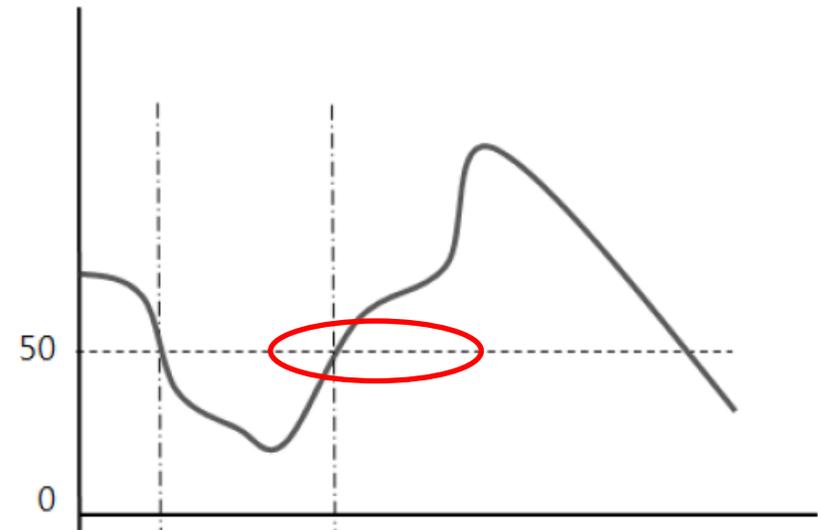
## 7) Setting

- WORD condition : Compare the specific device with value and convert to TRUE, FALSE. If the set device value satisfies the input condition, data are collected when the value is rising or falling

Example) Set value < 50, rising condition



Example) Set value < 50, falling condition



Sample Block settings

Sampling frequency:	500 ms	2240 Sample
Total sample blocks:	40	Sample (Max.:
Sample blocks after	30	Sample

OK Cancel

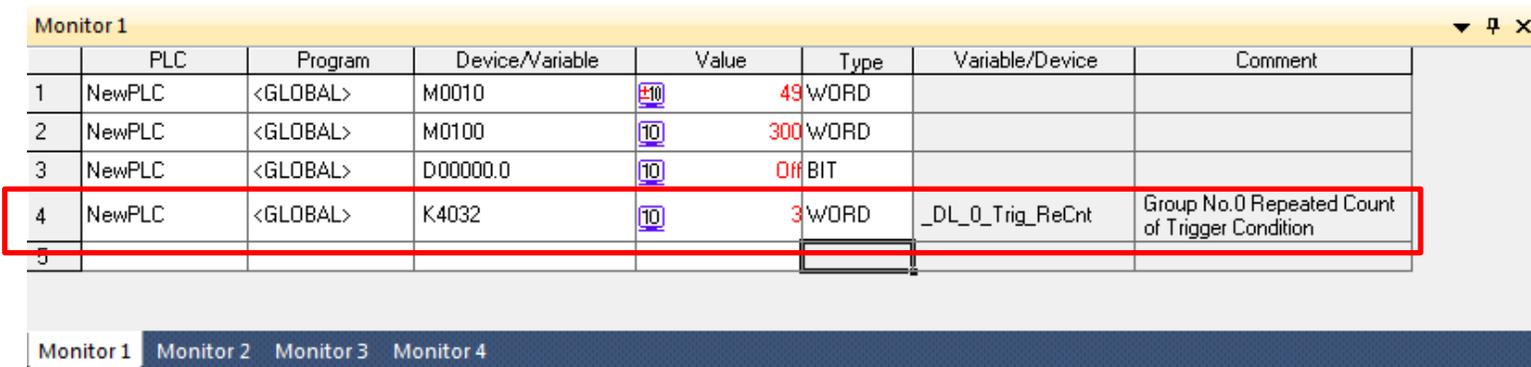
## 7) Setting

### ㉞ Multiple condition

- Multiple Condition refers to setting up to 4 single conditions and operating by performing the operations that fit the conditions
- At least two Single Conditions should be set. Trigger Save begins when operation with the set single conditions satisfy the result.
- Runs under AND calculation, OR calculation

### ㉟ Trigger sample saving cycle

- When trigger condition occurs, collecting data is saved in every cycle set in parameter
- Scan cycle, 100ms, 200ms, 500ms, 1000ms, 2000ms
- If another trigger reoccurs again while saving data because of trigger, it ignores trigger and increases trigger reoccur flag



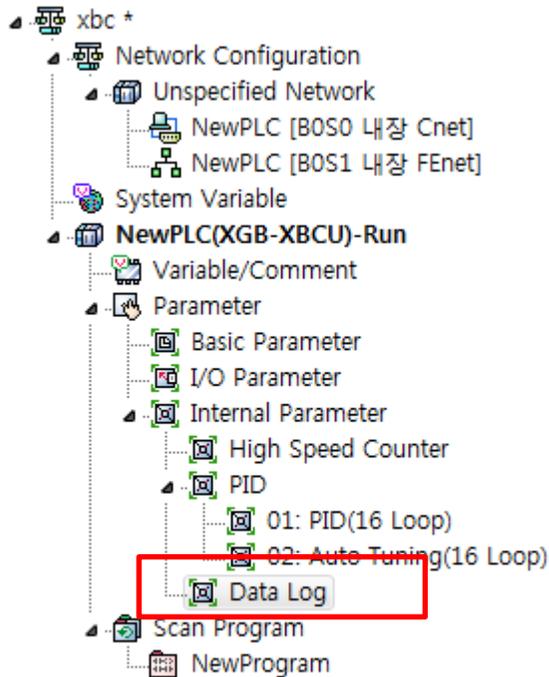
	PLC	Program	Device/Variable	Value	Type	Variable/Device	Comment
1	NewPLC	<GLOBAL>	M0010	410	49 WORD		
2	NewPLC	<GLOBAL>	M0100	10	300 WORD		
3	NewPLC	<GLOBAL>	D00000.0	10	0ff BIT		
4	NewPLC	<GLOBAL>	K4032	10	3 WORD	_DL_0_Trig_ReCnt	Group No.0 Repeated Count of Trigger Condition
5							

## 7) Setting

### (3) How to set trigger

#### ① Single BIT condition

① XG5000 > [Project Window] > Internal Parameter > Data Log

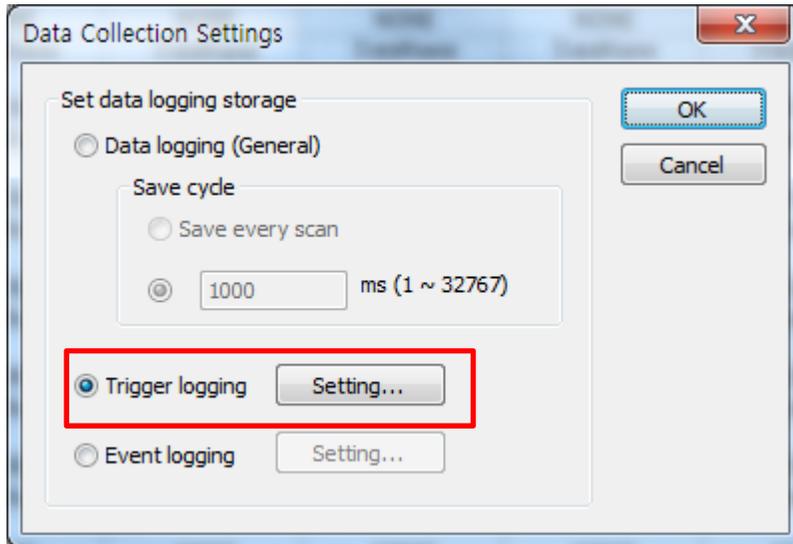


## 7) Setting

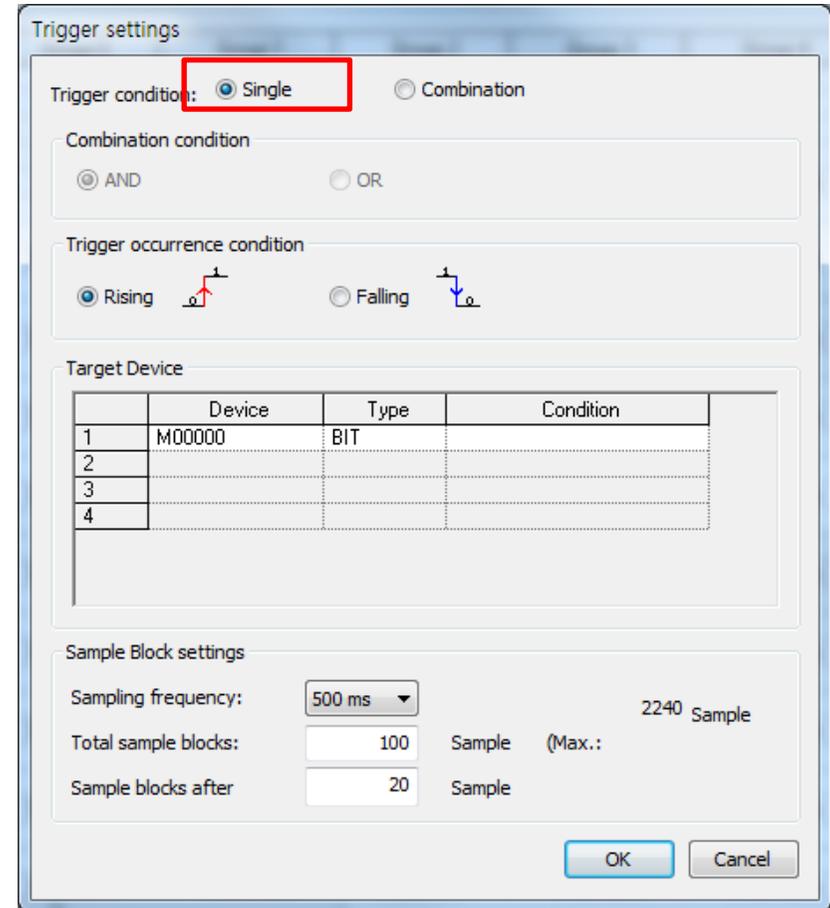
② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

③ Select [Trigger logging] from [Data collection mode]

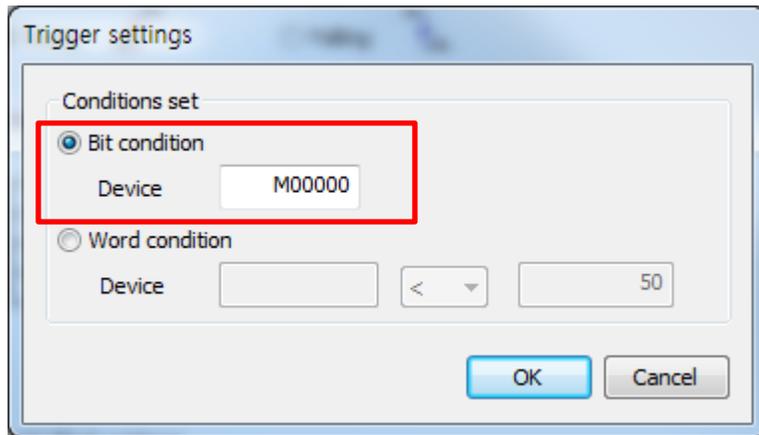


④ Choose [Setting] and [Single]

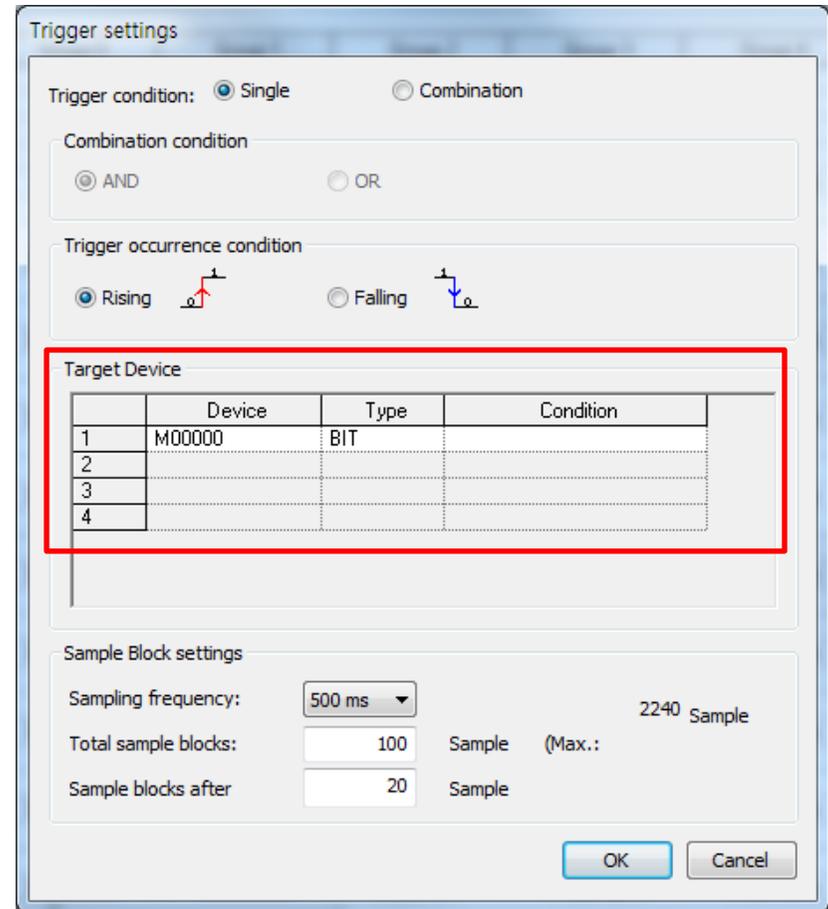


## 7) Setting

- ④ Double click on [Target Device] menu and select [BIT Condition]



- ⑤ If setting is completed, it shows the conditions



## 7) Setting

㉔ Select trigger occurrence condition and enter Sampling frequency, Total sample blocks, Sample blocks after

Trigger settings

Trigger condition:  Single  Combination

Combination condition  
 AND  OR

Trigger occurrence condition  
 Rising  Falling

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

Sample Block settings

Sampling frequency: 500 ms 2240 Sample

Total sample blocks: 100 Sample (Max.: 2240 Sample)

Sample blocks after: 20 Sample

OK Cancel

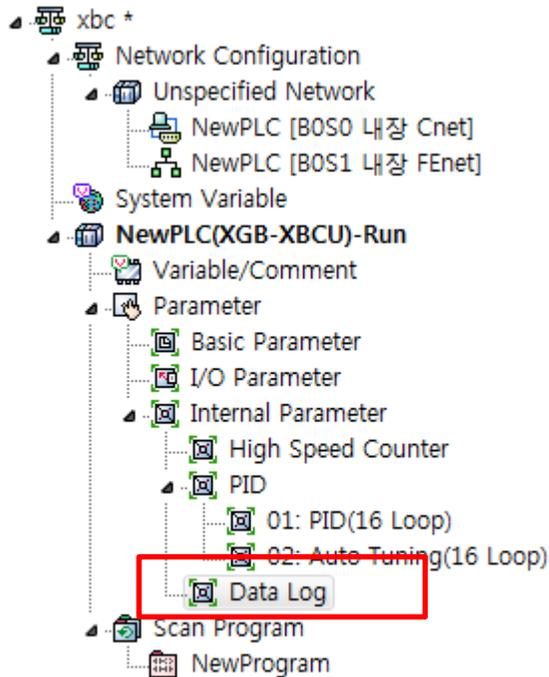
㉕ Complete setting after writing parameter at Online > Write.

## 7) Setting

(3) How to set trigger

② Single WORD condition

ⓐ XG5000 > [Project Window] > Internal Parameter > Data Log

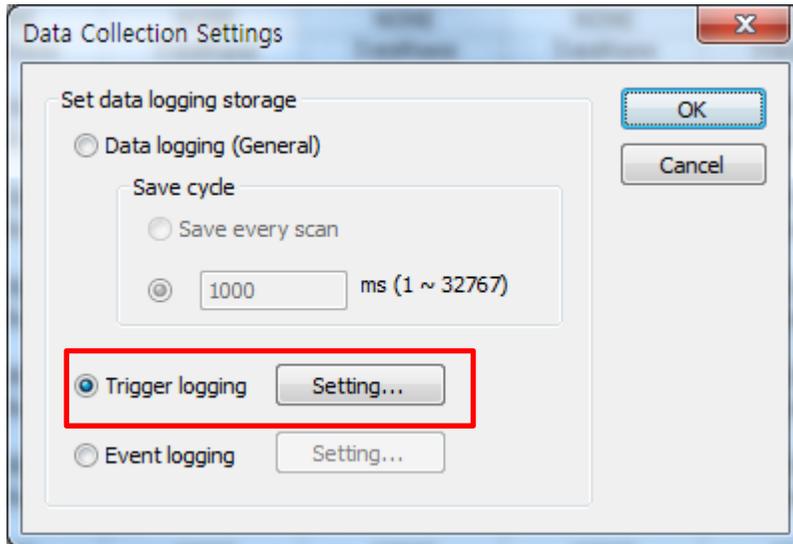


## 7) Setting

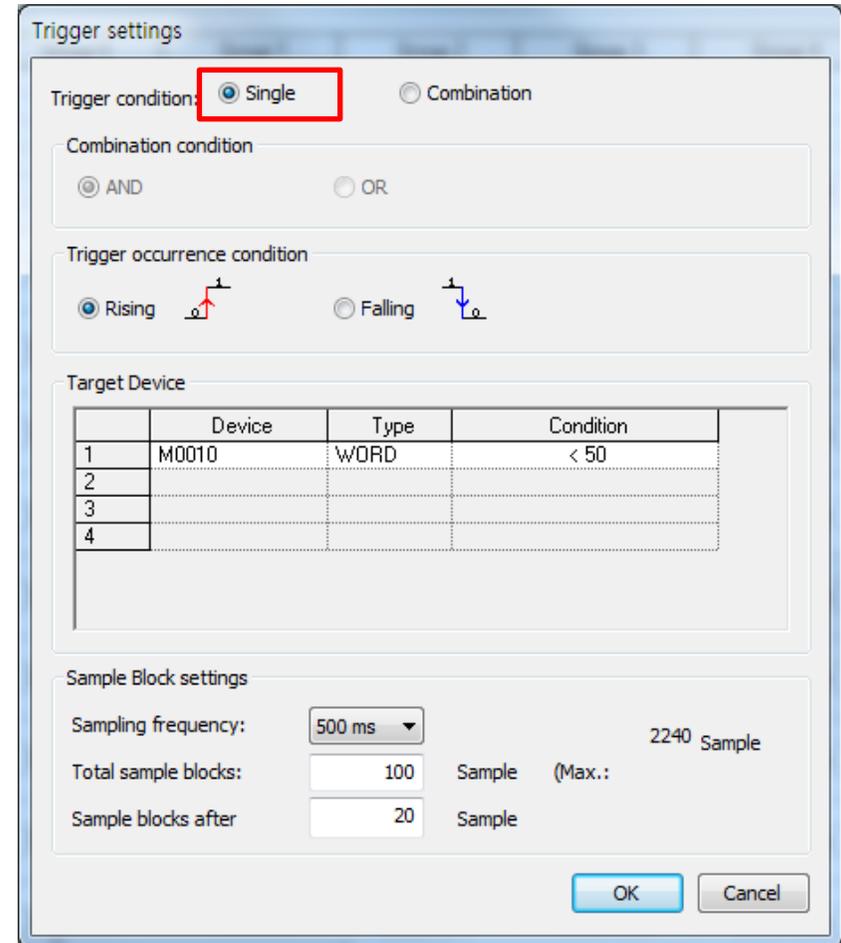
ⓑ Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

ⓒ Select [Trigger logging] from [Data collection mode]

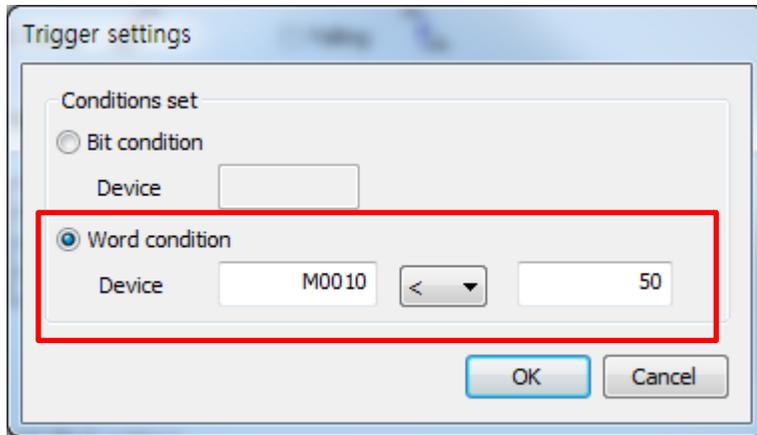


ⓓ Choose [Setting] and [Single]



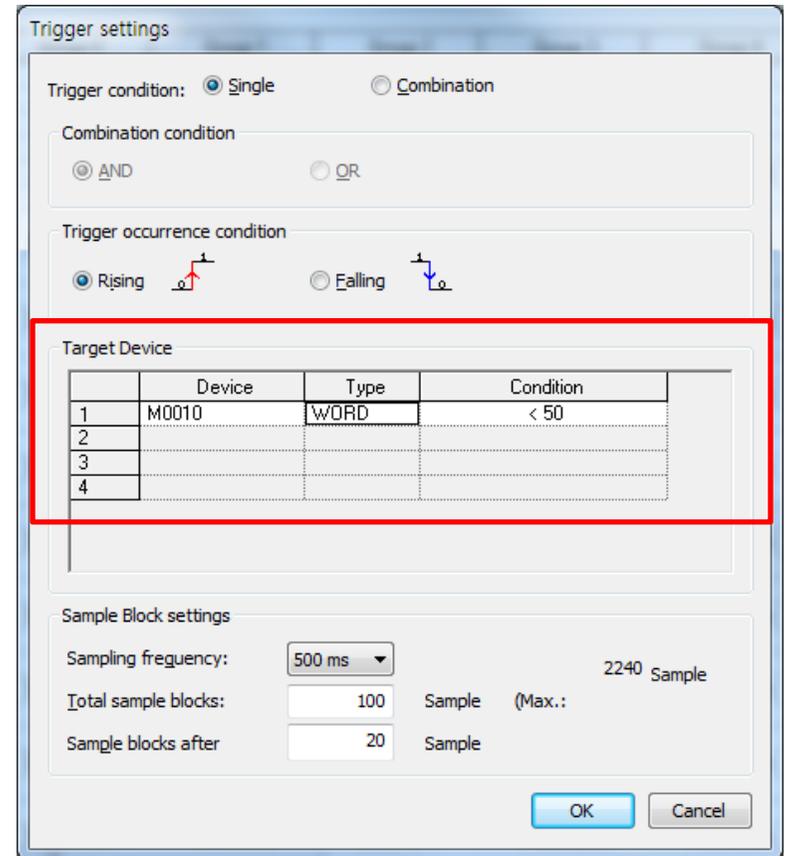
## 7) Setting

- ④ Double click on [Target Device] menu and select [WORD Condition], enter device, relational condition, and compare value



Relational condition : >, >=, =, <, <=, <>

- ⑤ If setting is completed, it shows the conditions



## 7) Setting

㉔ Select trigger occurrence condition and enter Sampling frequency, Total sample blocks, Sample blocks after

Trigger settings

Trigger condition:  Single  Combination

Combination condition  
 AND  OR

Trigger occurrence condition  
 Rising  Falling

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

Sample Block settings

Sampling frequency: 500 ms 2240 Sample

Total sample blocks: 100 Sample (Max.:)

Sample blocks after: 20 Sample

OK Cancel

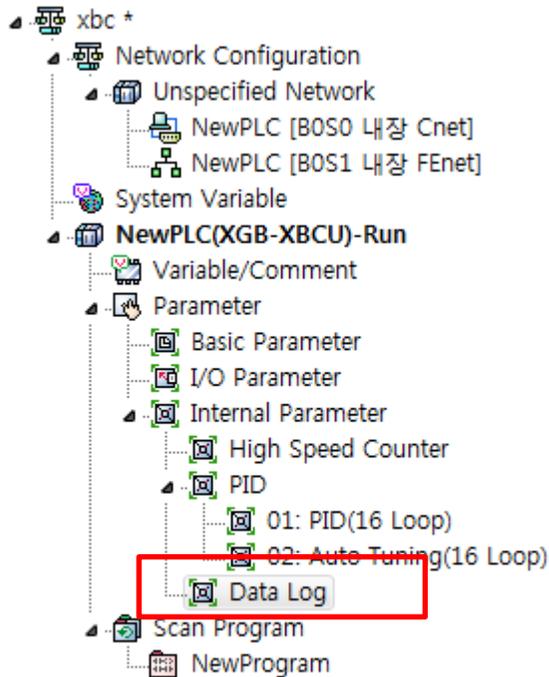
㉕ Complete setting after writing parameter at Online > Write.

## 7) Setting

(3) How to set trigger

③ Multiple AND condition

ⓐ XG5000 > [Project Window] > Internal Parameter > Data Log

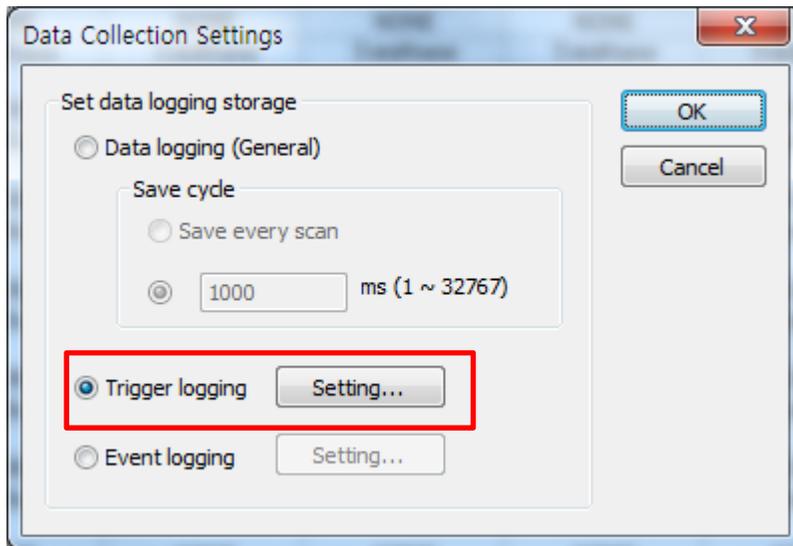


## 7) Setting

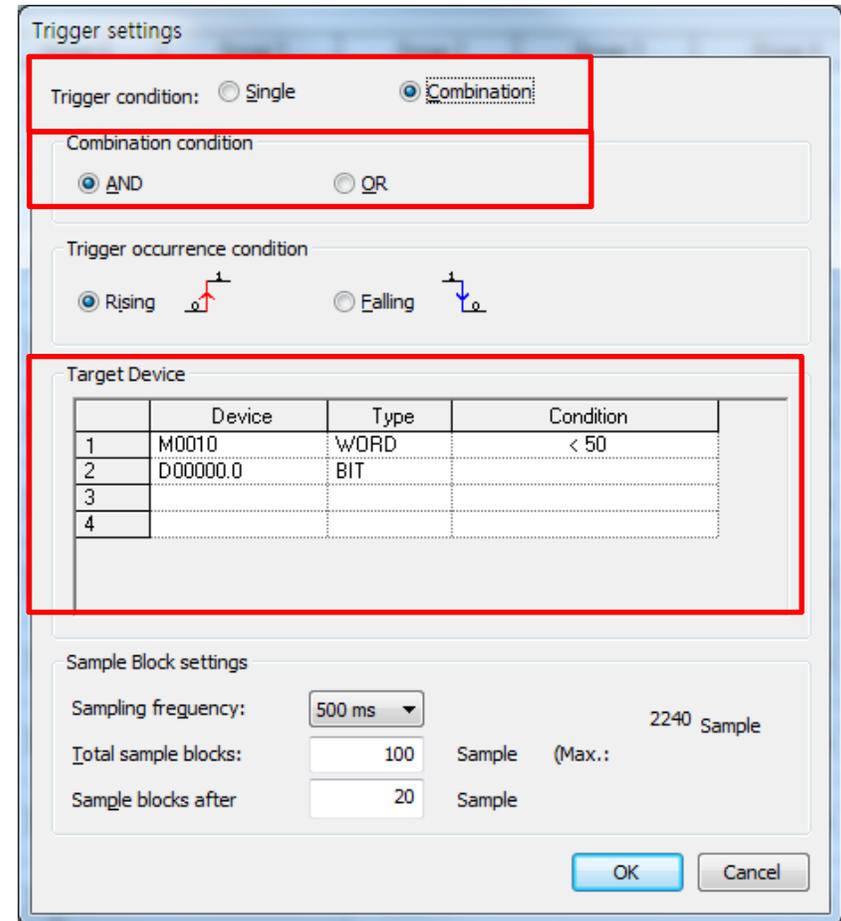
㉞ Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

㉟ Select [Trigger logging] from [Data collection mode]



㊸ Click [Setting], choose [Combination]-[AND] and enter Target Device (Max. 4)



## 7) Setting

㉔ Enter Sampling frequency, Total sample blocks, Sample blocks after

Trigger settings

Trigger condition:  Single  Combination

Combination condition

AND  OR

Trigger occurrence condition

Rising  Falling

Target Device

	Device	Type	Condition
1	M0010	WORD	< 50
2	D000000.0	BIT	
3			
4			

Sample Block settings

Sampling frequency: 500 ms 2240 Sample

Total sample blocks: 100 Sample (Max.:

Sample blocks after: 20 Sample

OK Cancel

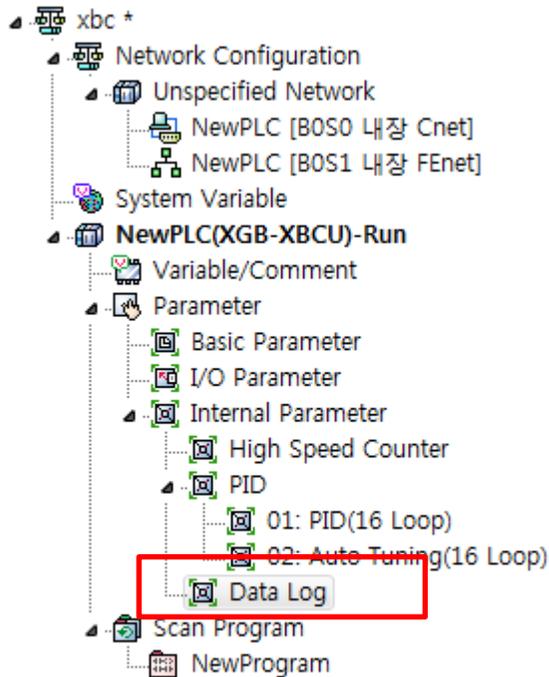
㉕ Complete setting after writing parameter at Online > Write.

## 7) Setting

(3) How to set trigger

④ Multiple OR condition

① XG5000 > [Project Window] > Internal Parameter > Data Log

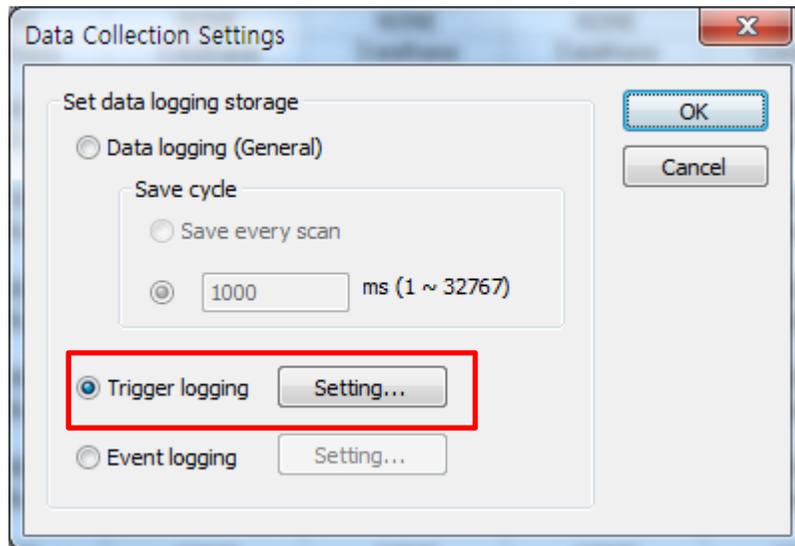


## 7) Setting

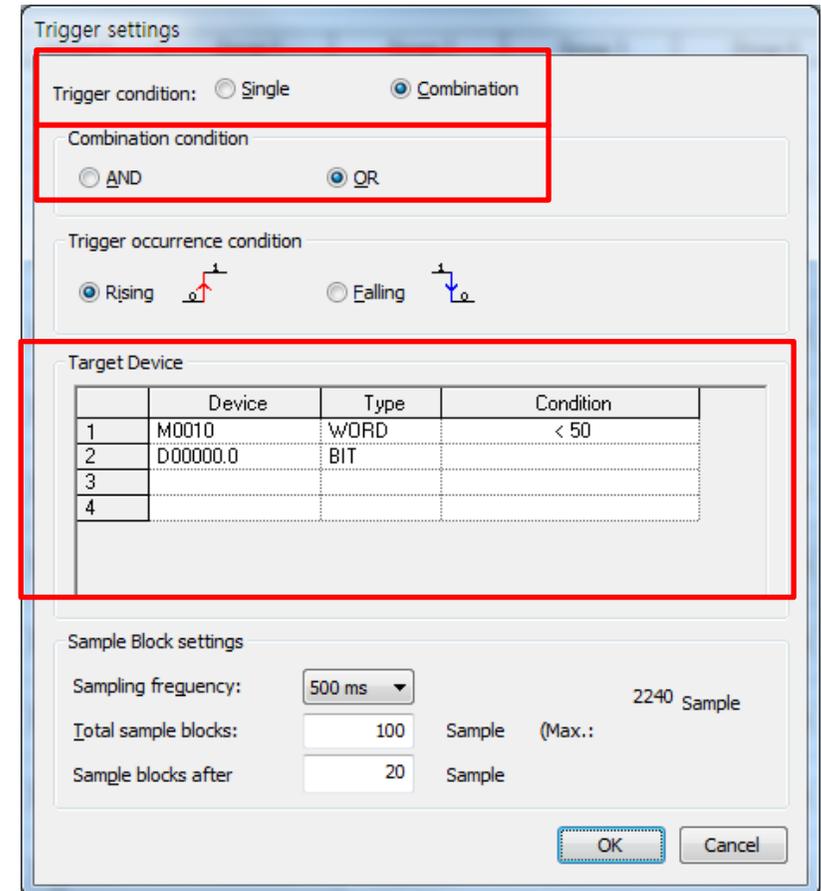
ⓑ Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

ⓒ Select [Trigger logging] from [Data collection mode]



ⓓ Click [Setting], choose [Combination]-[OR] and enter Target Device (Max. 4)



## 7) Setting

㉔ Enter Sampling frequency, Total sample blocks, Sample blocks after

Trigger settings

Trigger condition:  Single  Combination

Combination condition

AND  OR

Trigger occurrence condition

Rising   Falling 

Target Device

	Device	Type	Condition
1	M0010	WORD	< 50
2	D000000.0	BIT	
3			
4			

Sample Block settings

Sampling frequency: 500 ms 2240 Sample

Total sample blocks: 100 Sample (Max.: )

Sample blocks after: 20 Sample

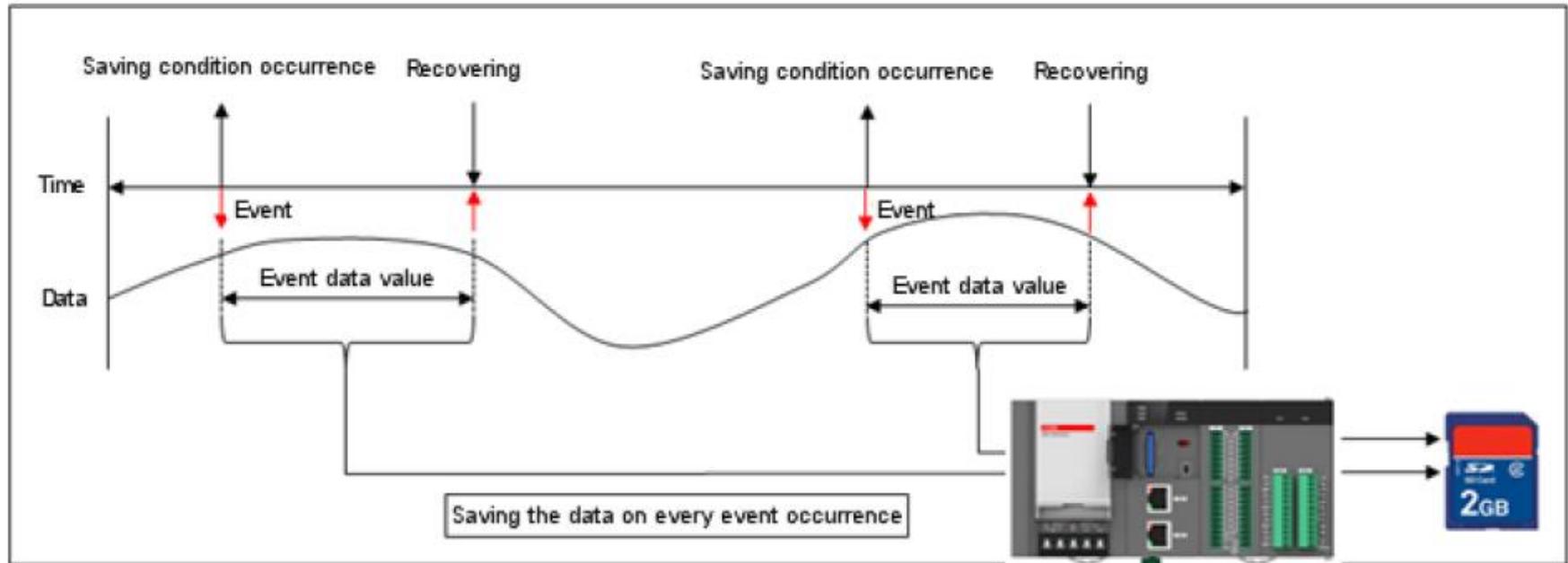
OK Cancel

㉕ Complete setting after writing parameter at Online > Write.

## 7) Setting

### (4) Save Event

- Monitor collected device value and if the event condition is satisfied, it saves the data at that point
- Saves data from the event occurrence and until the event cancellation
- Useful to analyze the fluctuation in event value and the timing



After selecting Trigger Save, if the first trigger condition occurs and another trigger condition occurs while collecting data, the new trigger is ignored.

## 7) Setting

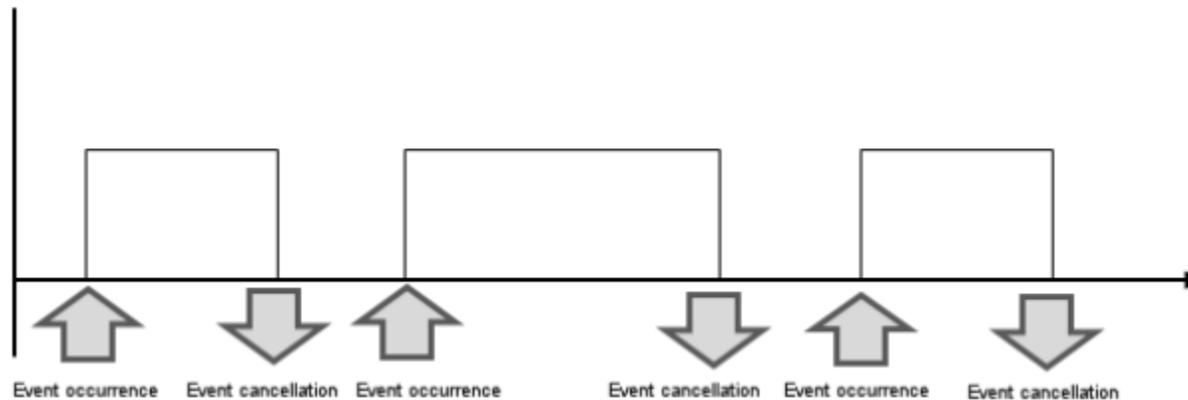
### (4) Save Event

#### ① Event condition

- Saving Event function works on single condition and multiple condition
- Multiple condition: Acts using single condition AND, OR (Maximum 4 of single condition)
- When the Trigger Condition occurs and data saving initiates, E character string is inserted into the first data string to indicate the trigger starting point.

#### ② Single condition : BIT condition / WORD condition

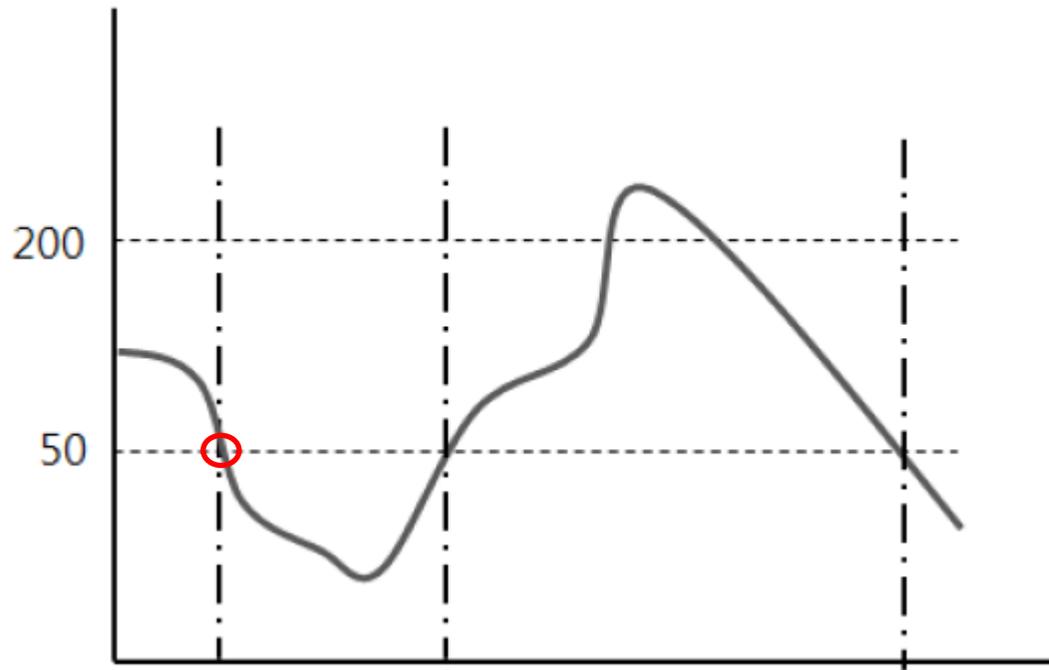
- BIT condition : Check the device BIT value and collect data if the value is [Rising], [Falling], [Transfer], [ON], [OFF]



## 7) Setting

- WORD condition : Compare previously set device with the entered value and convert it to TRUE, FALSE. If the device value satisfies the entered condition, it saves the BIT's data when it is [Rising], [Falling], [Transfer], [ON], [OFF]

Example) previously set value < 50, Rising condition

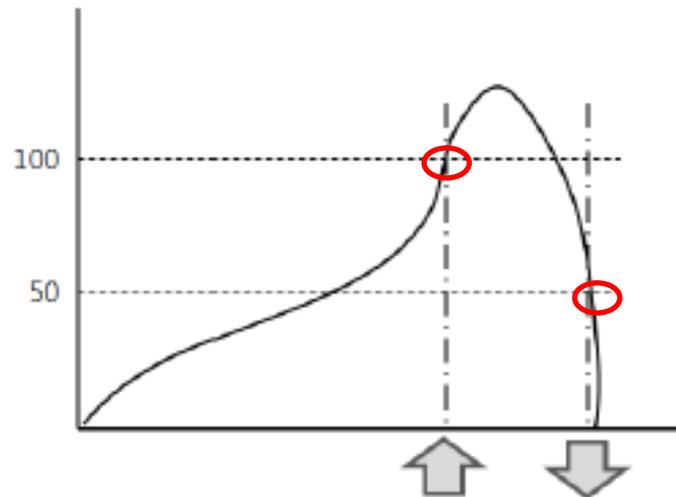


## 7) Setting

### ⓑ Set Cancellation value

- Setting cancellation value is only available in word condition
- Data saving cycle and frequency depend on its usage
- Condition after event occurrence saves data until it satisfies its cancellation value

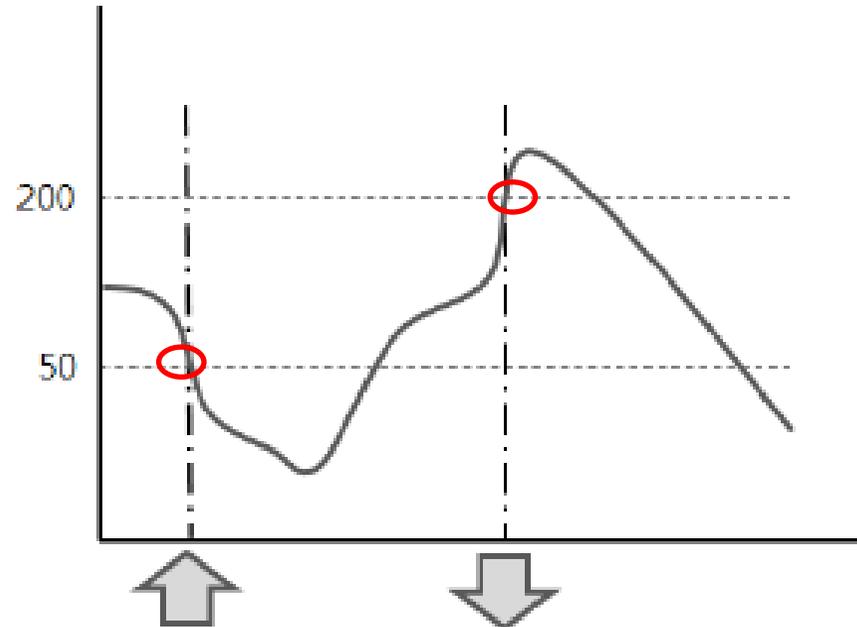
Example 1) When it's set  $M0000 > 100$  in word condition, and Recovery value to 50



If M0000 exceeds 100, event occurs and saves data, but it saves data until the value becomes 50 because the cancellation value is set to be 50

## 7) Setting

Example 2) Set  $M0000 < 50$  in word condition and Recovery value to 200



If M0000 is below 50, event occurs and saves data, but it only saves data until it reaches 200 because its recovery value is set to 200.

## 7) Setting

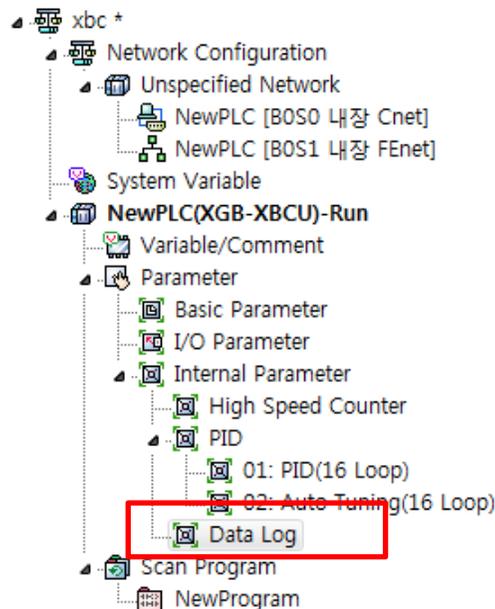
### ㉞ Multiple condition

- Multiple Condition refers to setting up to 4 single conditions and operating by performing the runs that fit the conditions. Event condition occurs when operation with the set condition satisfies the result

### (4) Setting Event

#### ① Single BIT condition

##### ㉠ XG5000 > [Project Window] > Internal Parameter > Data Log

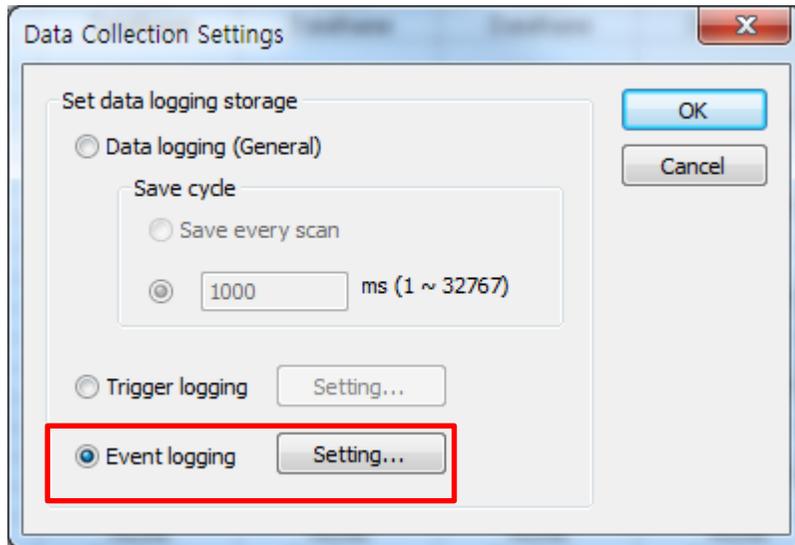


## 7) Setting

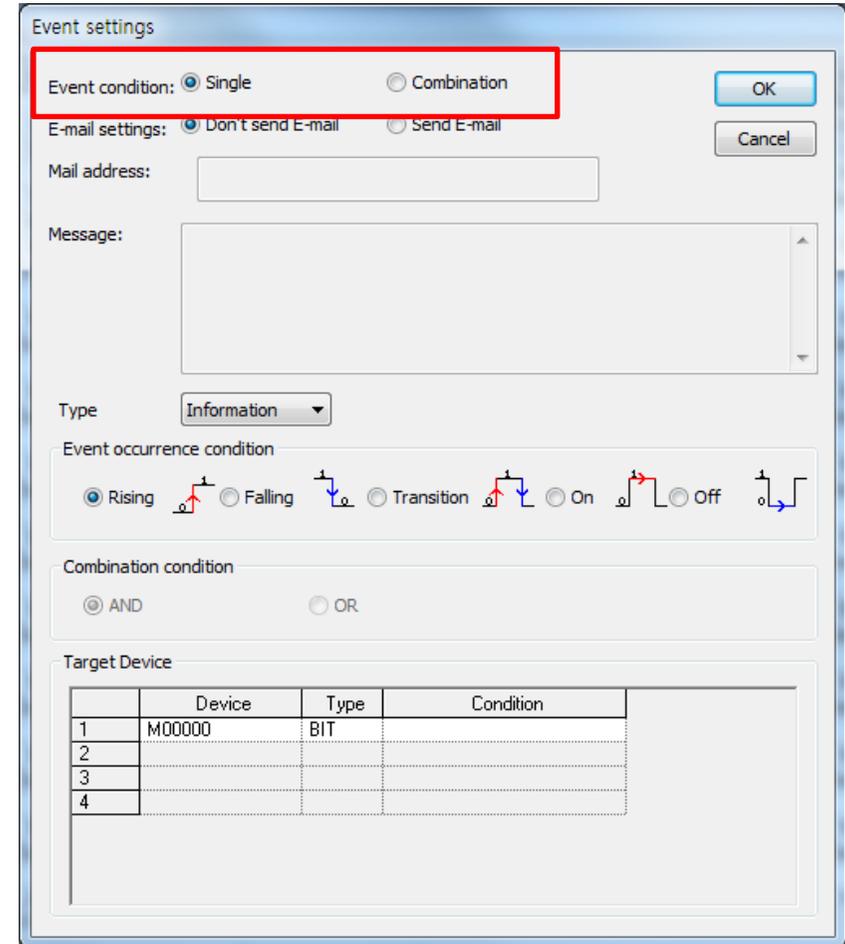
② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

③ Select [Event logging] from [Data collection mode]

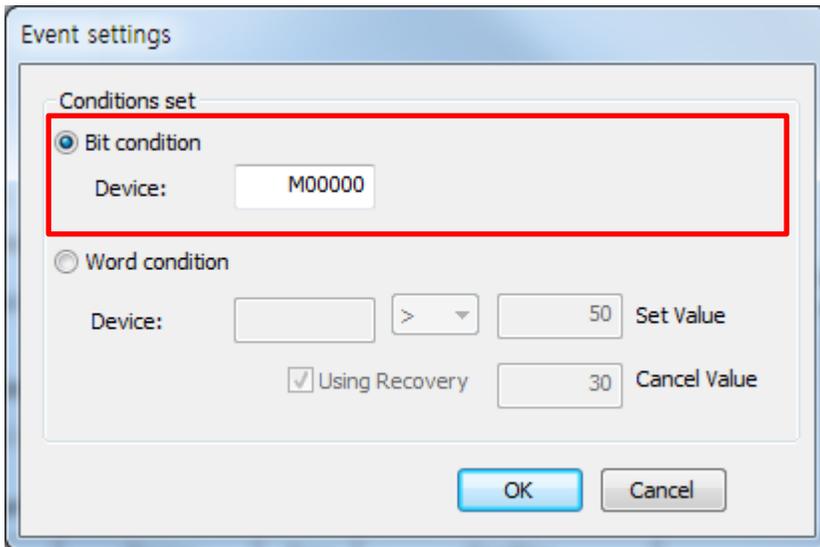


④ Choose [Setting] and [Single]

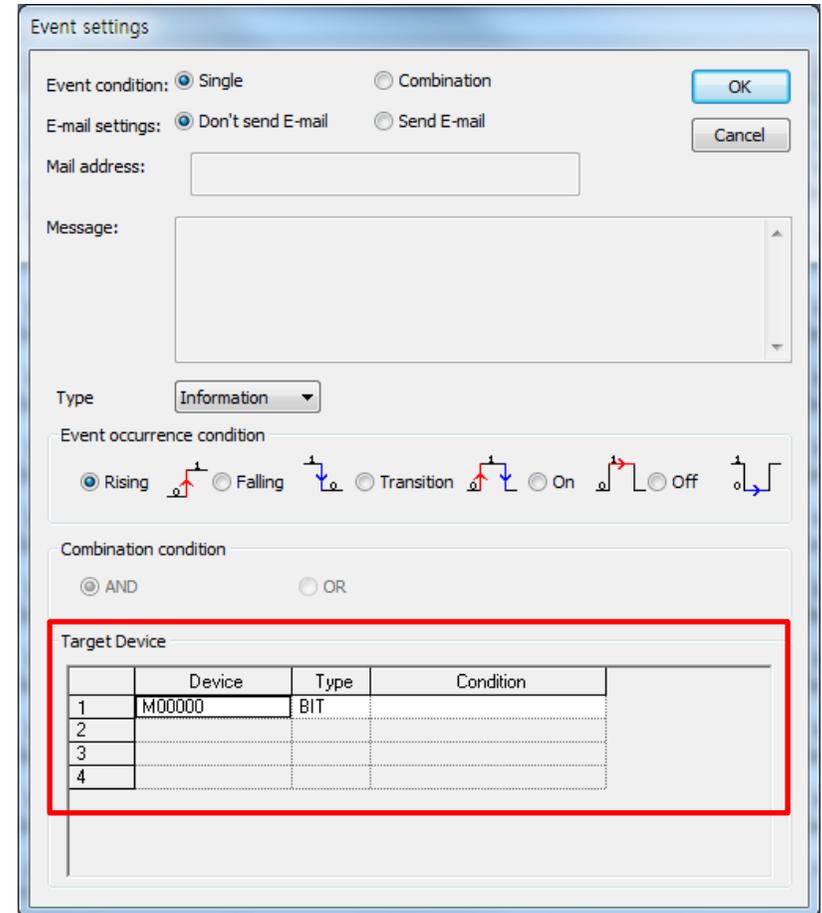


## 7) Setting

- ③ Double click on [Target Device], and select [Bit Condition] to enter device



- ④ If setting is completed, it shows the conditions



## 7) Setting

㉓ Select saving point from Event occurrence condition

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

㉔ Sending E-mail setting is used to receive information when event occurs

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

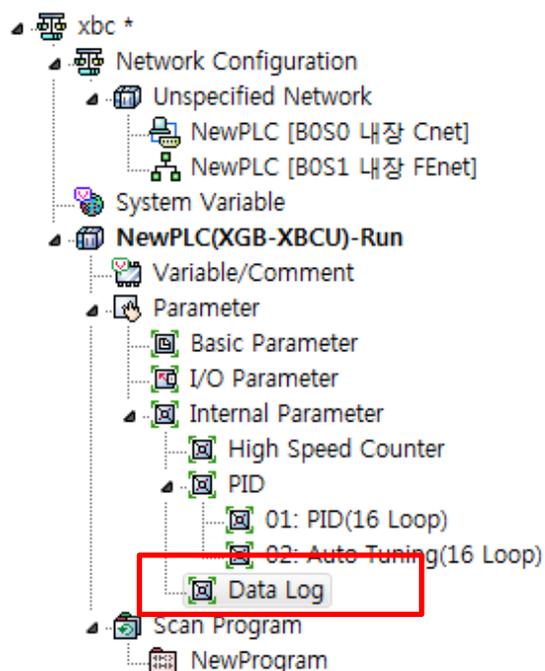
	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

## 7) Setting

### (4) Setting Event

#### ① Single WORD condition

##### ⓐ XG5000 > [Project Window] > Internal Parameter > Data Log

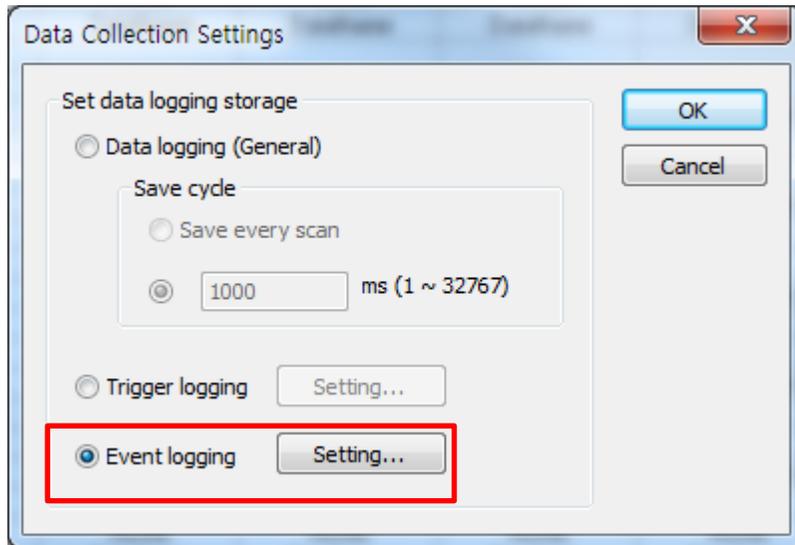


## 7) Setting

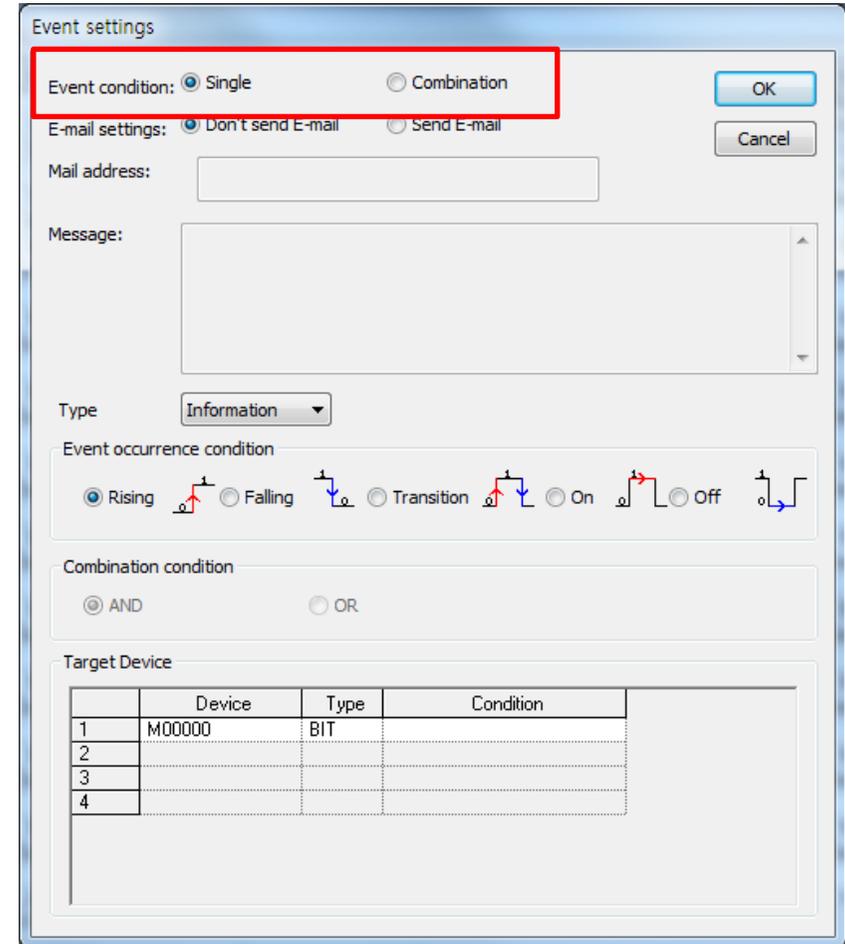
② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

③ Select [Event logging] from [Data collection mode]

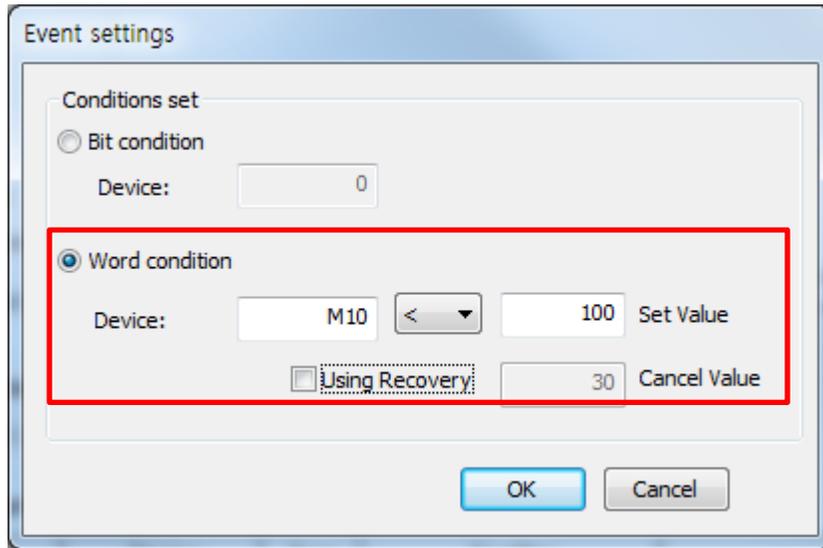


④ Choose [Setting] and [Single]

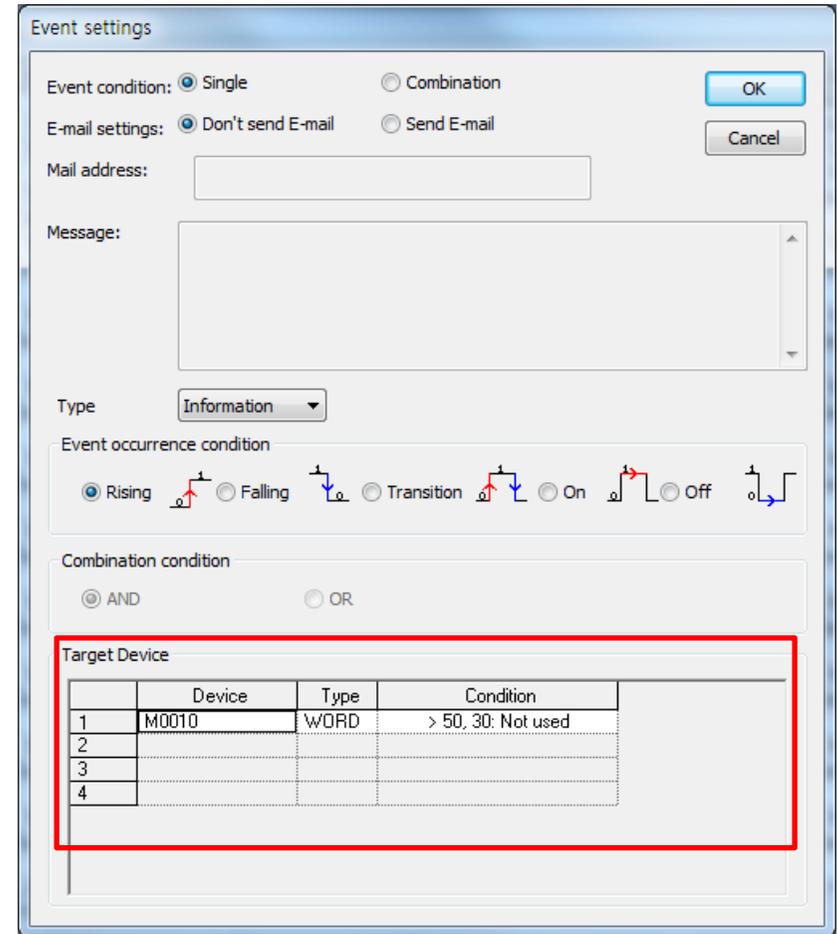


## 7) Setting

⑤ Double click on [Target Device] menu and select [Word Condition]. Enter Device, Comparison condition, Set Value (Check, if in need to set Recovery value)



⑥ If setting is completed, it shows the conditions



## 7) Setting

㉓ Select saving point from Event occurrence condition

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

㉔ Sending E-mail setting is used to receive information when event occurs

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

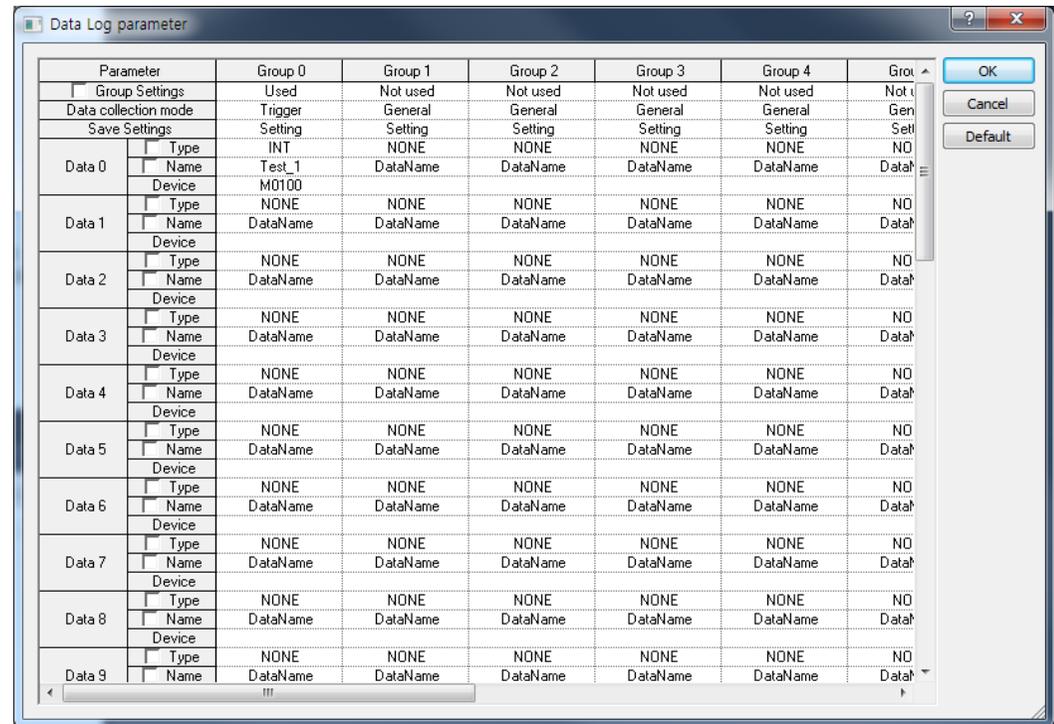
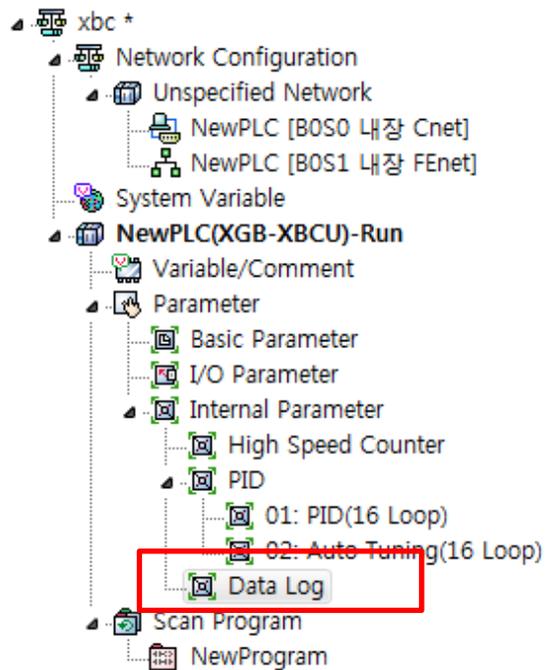
	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

## 7) Setting

### (4) Setting Event

#### ③ Multiple AND condition

##### ⓐ XG5000 > [Project Window] > Internal Parameter > Data Log

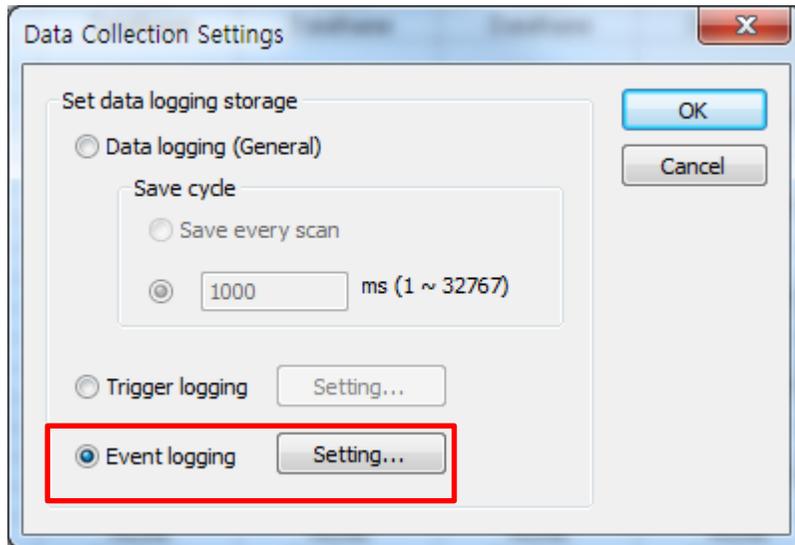


## 7) Setting

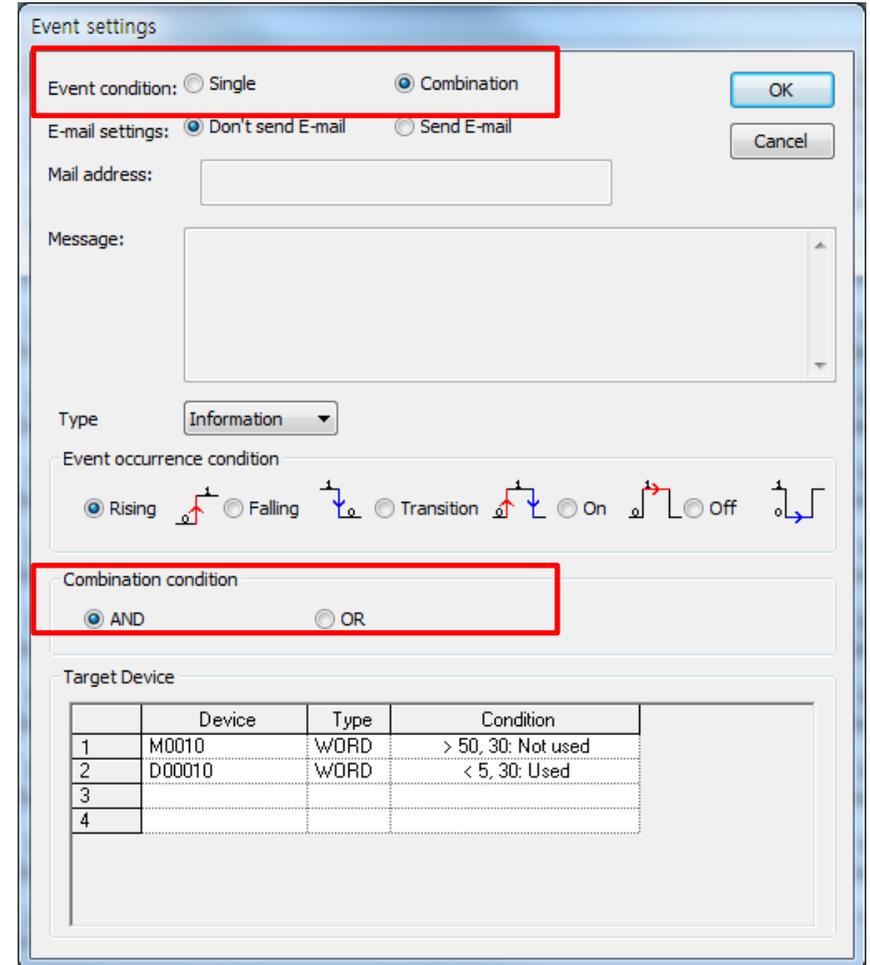
② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

③ Select [Event logging] from [Data collection mode]



④ Click [Setting], choose [Combination]-[AND]



## 7) Setting

㉔ Double click on [Target Device] menu and enter detail setting value for each conditional menu

Event settings

Conditions set

Bit condition

Device:

Word condition

Device:    Set Value

Using Recovery  Cancel Value

Event settings

Conditions set

Bit condition

Device:

Word condition

Device:    Set Value

Using Recovery  Cancel Value

㉕ If setting is completed, it shows the conditions

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type:

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2	M0010	WORD	< 100, 0: Not used
3			
4			

## 7) Setting

㉓ Select saving point from Event occurrence condition

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

㉔ Sending E-mail setting is used to receive information when event occurs

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

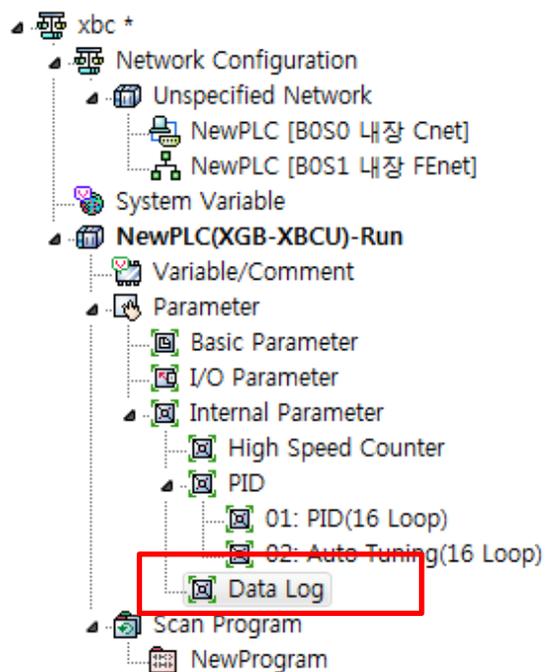
	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

## 7) Setting

### (4) Setting Event

#### ③ Multiple OR condition

##### ① XG5000 > [Project Window] > Internal Parameter > Data Log

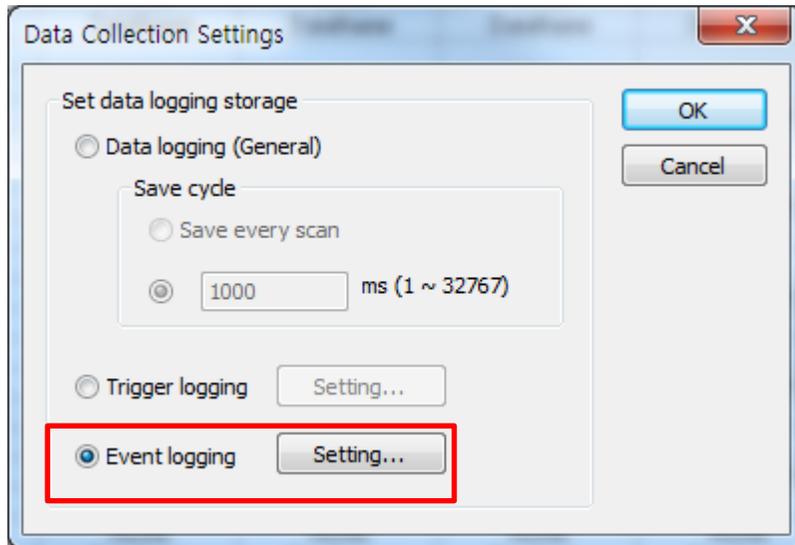


## 7) Setting

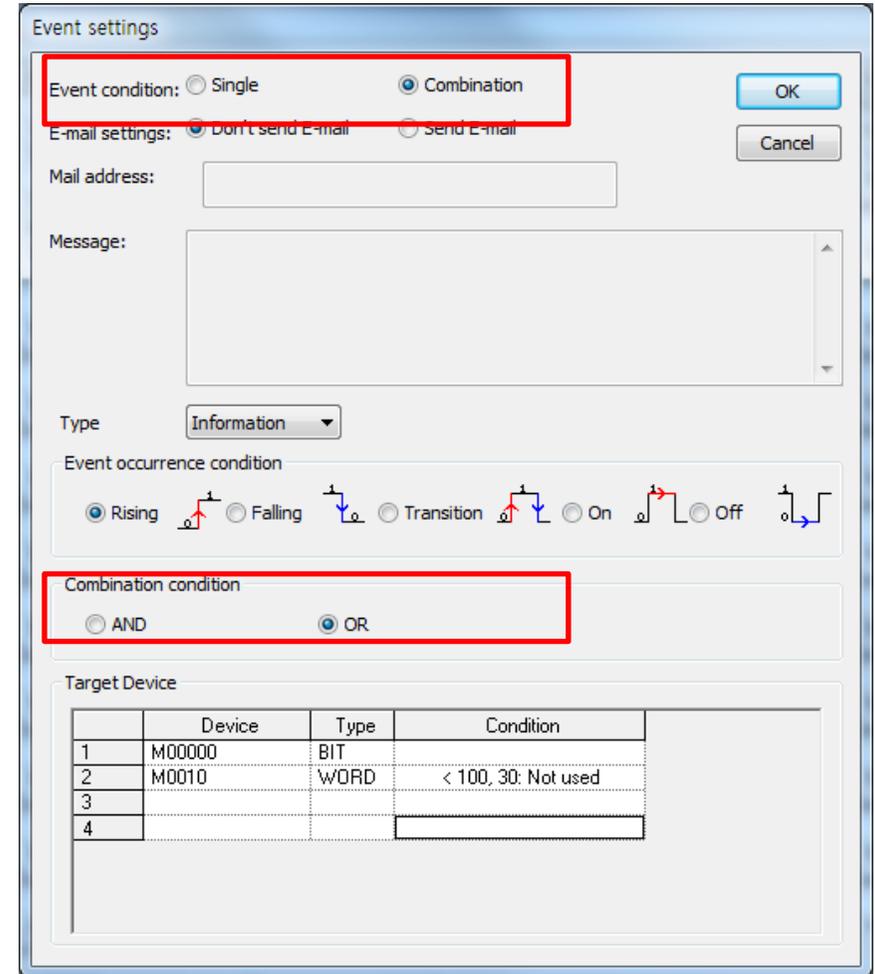
② Choose group from data log parameter window

Parameter	Group 0	Group 1
Group Settings	Not used	Not used
Data collection mode	Not used	General
Save Settings	Used	Setting

③ Select [Event logging] from [Data collection mode]



④ Click [Setting], choose [Combination]-[OR]



## 7) Setting

㉔ Double click on [Target Device] menu and enter detail setting value for each conditional menu

Event settings

Conditions set

Bit condition

Device:

Word condition

Device:    Set Value

Using Recovery  Cancel Value

Event settings

Conditions set

Bit condition

Device:

Word condition

Device:    Set Value

Using Recovery  Cancel Value

㉕ If setting is completed, it shows the conditions

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type:

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2	M0010	WORD	< 100, 0: Not used
3			
4			

## 7) Setting

㉔ Select saving point from Event occurrence condition

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			

㉕ Sending E-mail setting is used to receive information when event occurs

Event settings

Event condition:  Single  Combination

E-mail settings:  Don't send E-mail  Send E-mail

Mail address:

Message:

Type: Information

Event occurrence condition

Rising  Falling  Transition  On  Off

Combination condition

AND  OR

Target Device

	Device	Type	Condition
1	M00000	BIT	
2			
3			
4			