Demo Project of Speed Dome Camera

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1. Overview and Operation

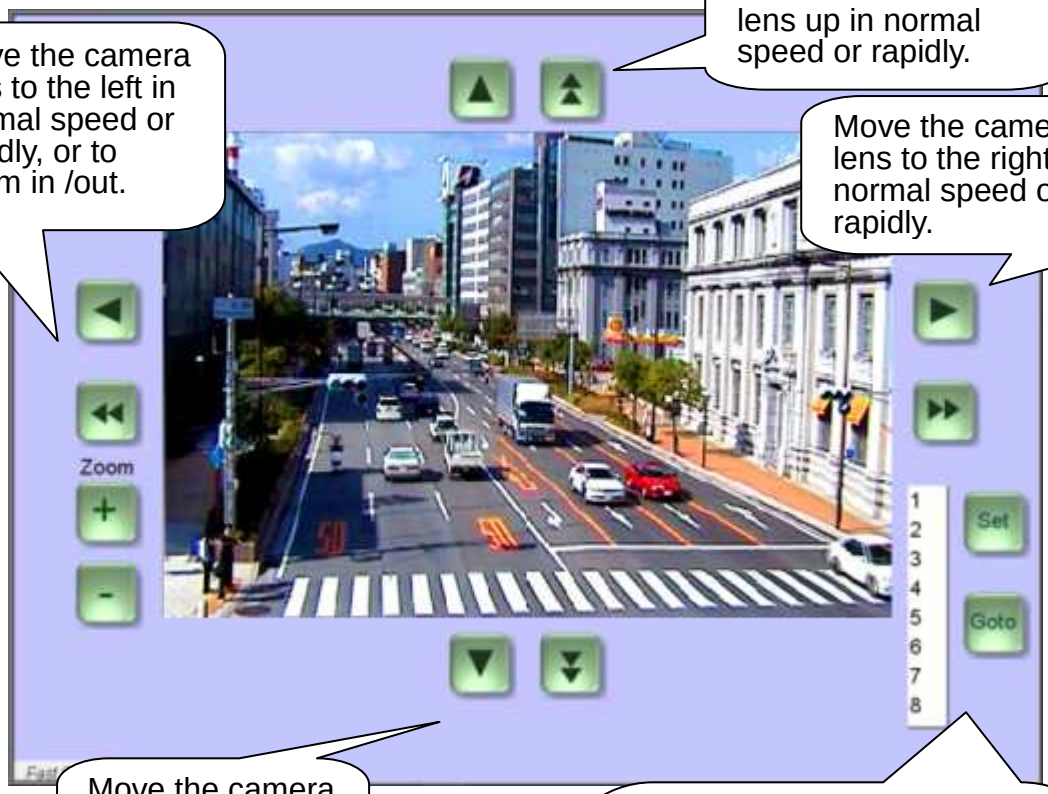
Speed Dome Camera

[Overview]
This demo project is to display how to use macro to write PELCO-D protocol and use free protocol driver for controlling speed dome camera.

{Note} This function can only be applied to X Series HMI that support Video Input objects.

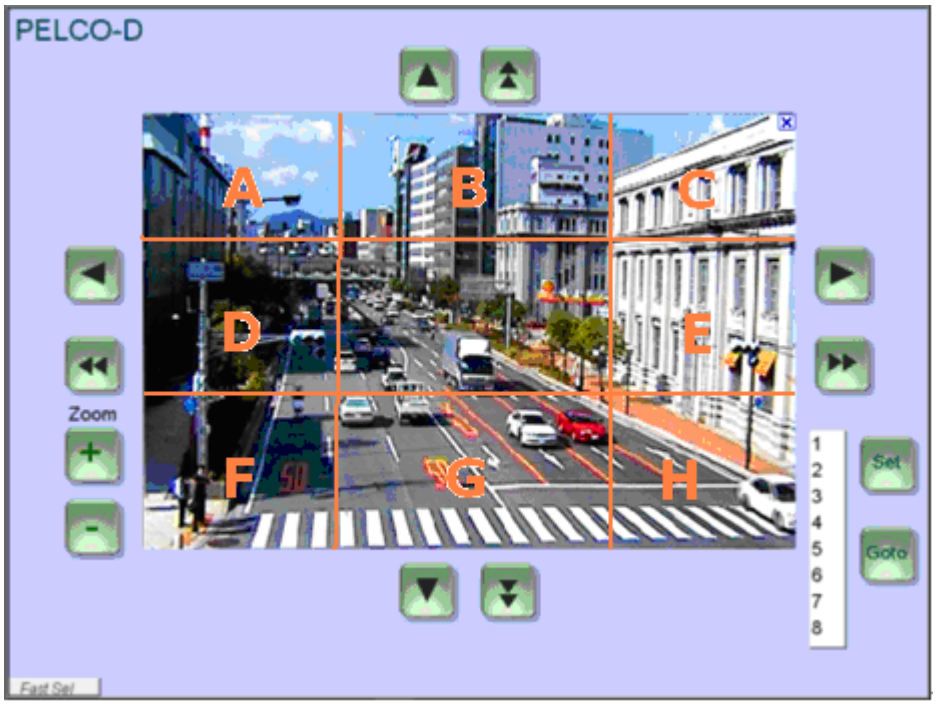
[Operation]

The buttons on screen are for moving the camera lens up, down, left, right or to zoom in / out.



1. Set the position of the lens, press [1] and press [Set], the lens will move to position 1 where preset. 8 positions can be preset.
2. Press one of the numbers 1~8 then press [Goto]; the lens will be moved to the preset position.

The lens can also be moved by touching the image display zone.

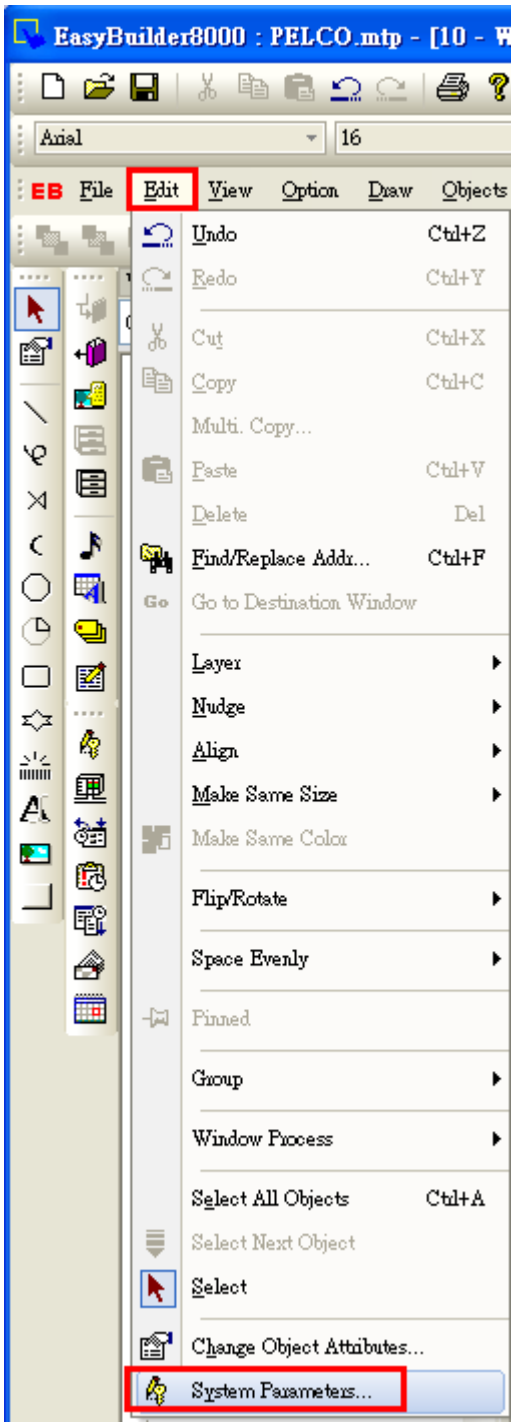


Press area A, the lens will move to the upper left.
Press area B, the lens will move upwards.
Press area C, the lens will move to the upper right.
Press area D, the lens will move to the left.
Press area E, the lens will move to the right.
Press area F, the lens will move to the lower left.
Press area G, the lens will move downwards.
Press area H, the lens will move to the lower right.

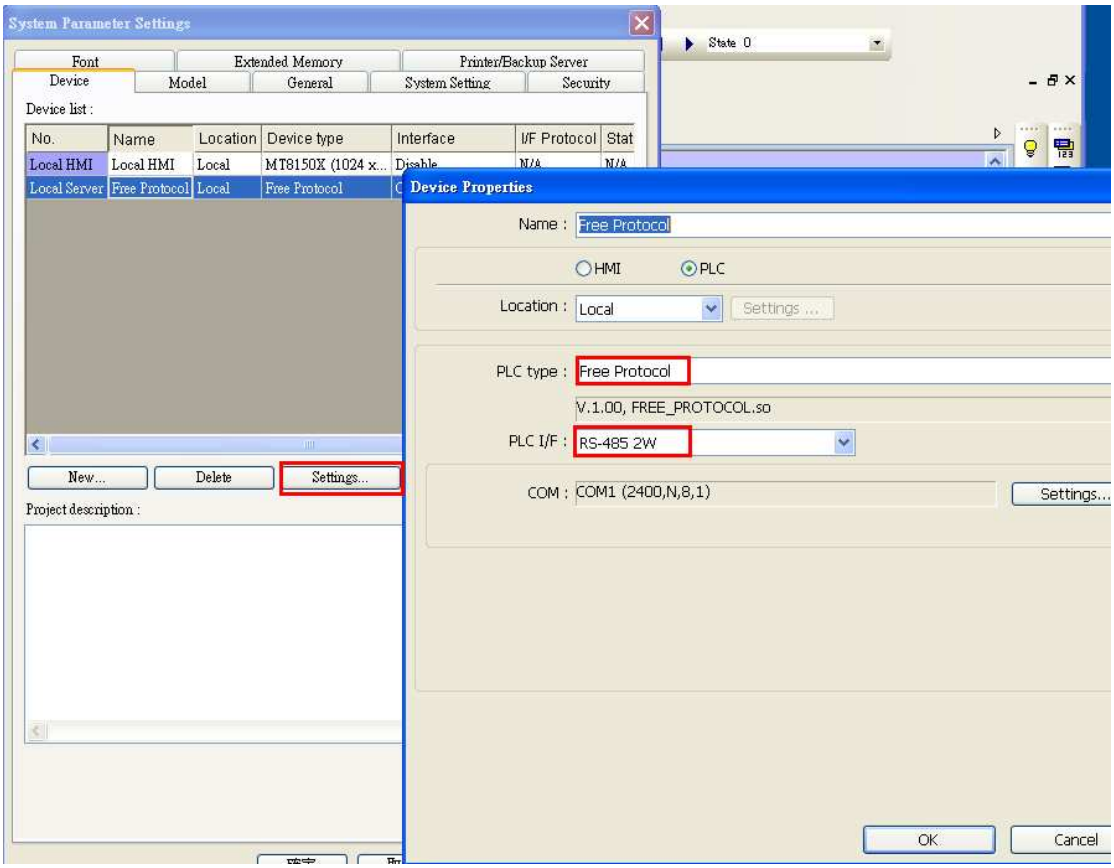
2. Setting up the screen

Set this feature in the project file as follow.

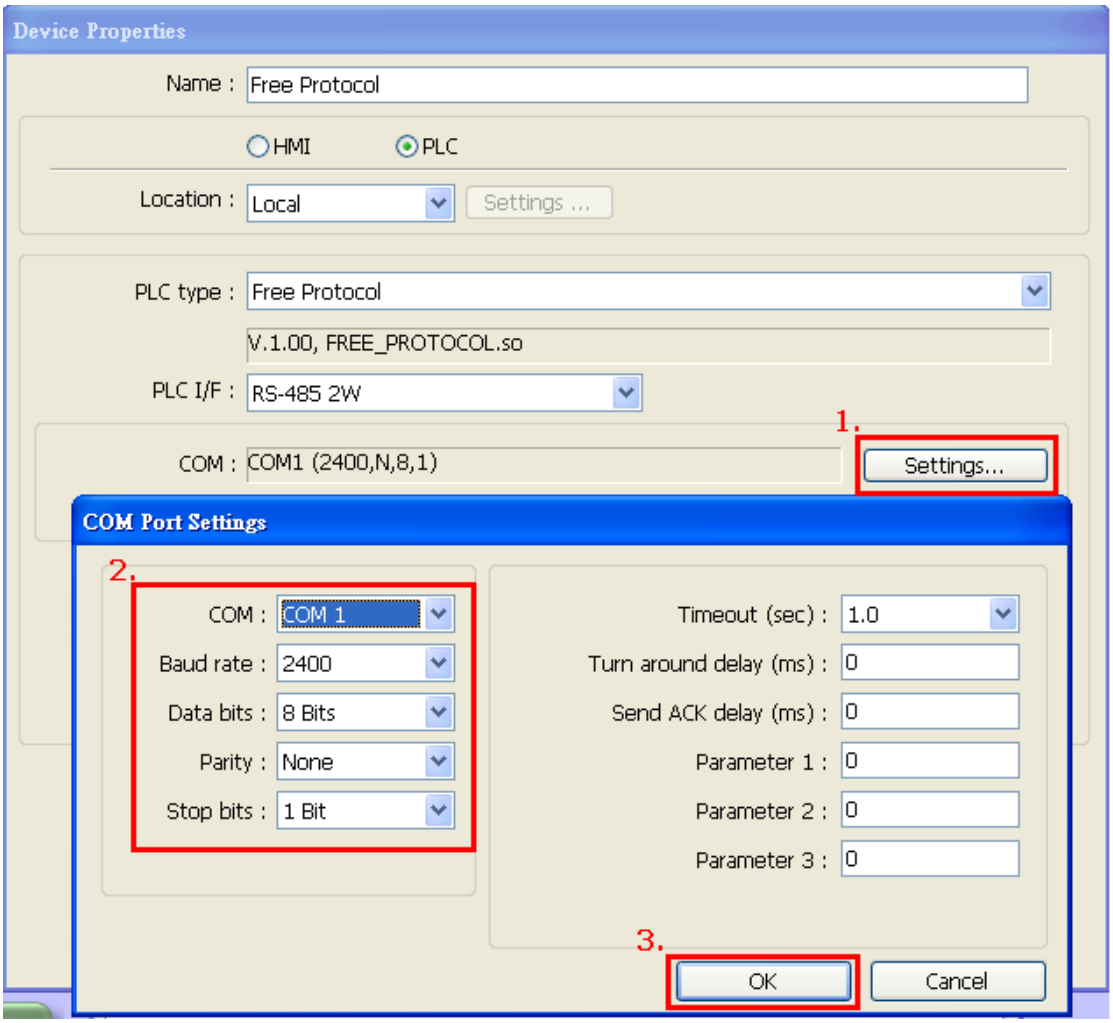
2-1 In the Edit area, click “System Parameters”.



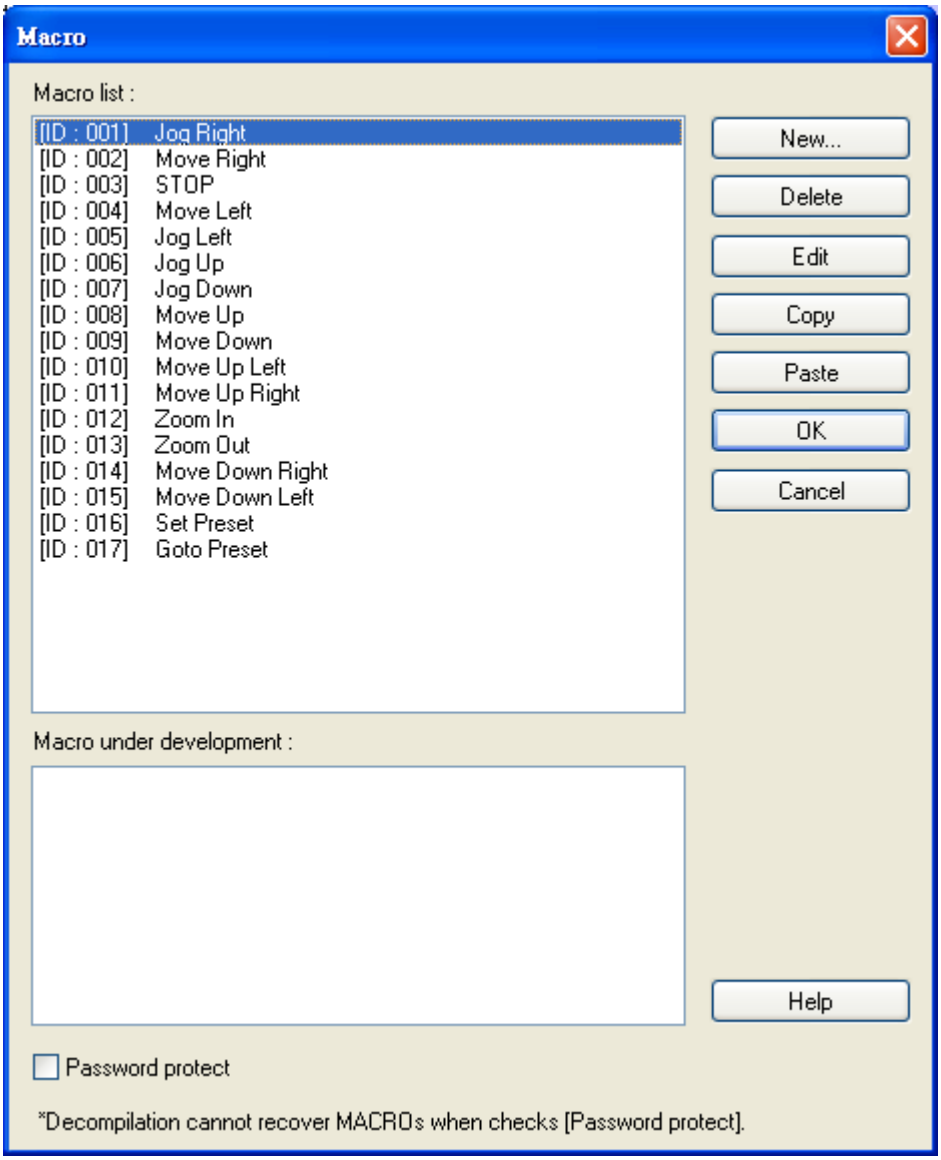
2-2 Click [Settings] and Device Properties dialogue appears. Select [Free Protocol] driver in PLC type and select [RS485 2w] in PLC I/F.



2-3 Click [Settings] and Com Port Settings dialogue appears. Set the parameters and then click [OK] to exit.



2-4Write macro for PELCO-D protocol to control the camera.



- ID:001 JOG RIGHT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x02,0x06,0x00,0x09}
unsigned char stop[7]={0xFF,0x01,0x00,0x00,0x00,0x00,0x01}

OUTPORT(send[0], "Free Protocol", 7)
DELAY(20)
OUTPORT(stop[0], "Free Protocol", 7)

end macro_command
```

- ID:002 MOVE RIGHT

```
macro_command main()
```

```
unsigned char send[7]={0xFF,0x01,0x00,0x02,0x0A,0x00,0x0D}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:003 STOP

```
macro_command main()
unsigned char stop[7]={0xFF,0x01,0x00,0x00,0x00,0x00,0x01}
OUTPORT(stop[0], "Free Protocol", 7)
end macro_command
```

- ID:004 MOVE LEFT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x04,0x0A,0x00,0x0F}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:005 JOG LEFT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x04,0x06,0x00,0x0B}
unsigned char stop[7]={0xFF,0x01,0x00,0x00,0x00,0x00,0x01}

OUTPORT(send[0], "Free Protocol", 7)
DELAY(20)
OUTPORT(stop[0], "Free Protocol", 7)

end macro_command
```

- ID:006 JOG UP

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x08,0x00,0x0A,0x13}
unsigned char stop[7]={0xFF,0x01,0x00,0x00,0x00,0x00,0x01}

OUTPORT(send[0], "Free Protocol", 7)
DELAY(20)
OUTPORT(stop[0], "Free Protocol", 7)

end macro_command
```

- ID:007 JOG DOWN

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x10,0x00,0x0A,0x1B}
unsigned char stop[7]={0xFF,0x01,0x00,0x00,0x00,0x00,0x01}

OUTPORT(send[0], "Free Protocol", 7)
DELAY(20)
OUTPORT(stop[0], "Free Protocol", 7)

end macro_command
```

- MOVE UP

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x08,0x00,0x0A,0x13}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:009 MOVE DOWN

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x10,0x00,0x0A,0x1B}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:010 MOVE UP LEFT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x0C,0x0A,0x0A,0x21}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:011 MOVE UP RIGHT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x0A,0x0A,0x0A,0x1F}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:012 ZOOM IN

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x20,0x00,0x00,0x21}
```

```
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:013 ZOOM OUT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x40,0x00,0x00,0x41}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:014 MOVE DOWN RIGHT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x12,0x0A,0x0A,0x27}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:015 MOVE DOWN LEFT

```
macro_command main()
unsigned char send[7]={0xFF,0x01,0x00,0x14,0x0A,0x0A,0x29}
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:016 SET PRESET

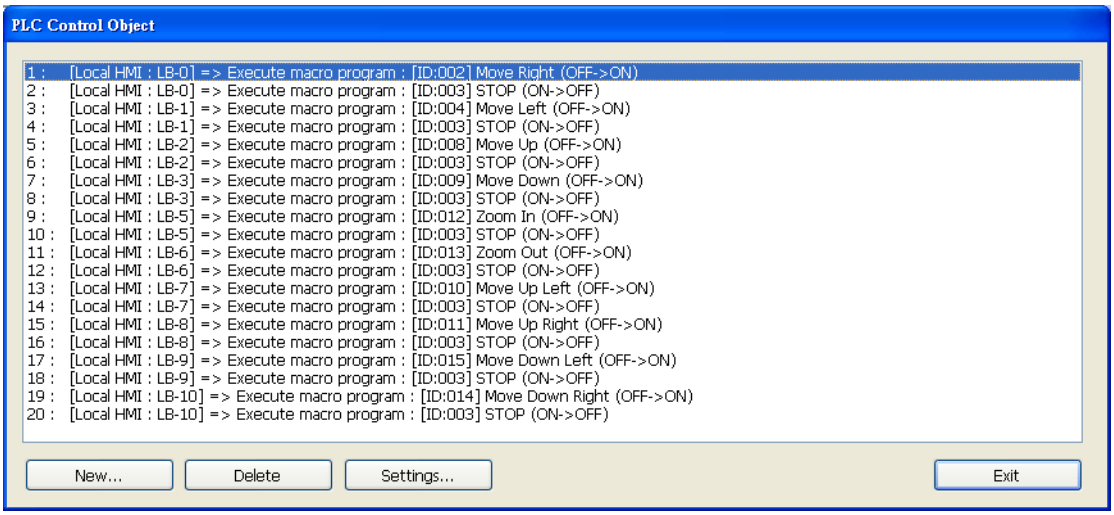
```
macro_command main()
short area, checksum
unsigned char send[7]={0xFF,0x01,0x00,0x03,0x00,0x01,0x05}
GetData(area, "Local HMI", LW, 20, 1)
send[5]=area
ADDSUM(send[1], send[6], 5)
OUTPORT(send[0], "Free Protocol", 7)
end macro_command
```

- ID:017 GOTO PRESET

```
macro_command main()
short area, checksum
unsigned char send[7]={0xFF,0x01,0x00,0x07,0x00,0x01,0x09}
GetData(area, "Local HMI", LW, 20, 1)
send[5]=area
ADDSUM(send[1], send[6], 5)
```

OUTPORT(send[0], "Free Protocol", 7)
end macro_command

2-5 Set PLC Control objects for triggering macros.



- 1 : [Local HMI : LB-0] => Execute macro program : [ID:002] Move Right (OFF->ON)
- 2 : [Local HMI : LB-0] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 1&2 will execute macro ID:002&003

- 3 : [Local HMI : LB-1] => Execute macro program : [ID:004] Move Left (OFF->ON)
- 4 : [Local HMI : LB-1] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 3&4 will execute macro ID:004&003

- 5 : [Local HMI : LB-2] => Execute macro program : [ID:008] Move Up (OFF->ON)
- 6 : [Local HMI : LB-2] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 5&6 will execute macro ID:008&003

- 7 : [Local HMI : LB-3] => Execute macro program : [ID:009] Move Down (OFF->ON)
- 8 : [Local HMI : LB-3] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 7&8 will execute macro ID: 009&003

- 9 : [Local HMI : LB-5] => Execute macro program : [ID:012] Zoom In (OFF->ON)
- 10 : [Local HMI : LB-5] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 9&10 will execute macro ID:012&003

- 11 : [Local HMI : LB-6] => Execute macro program : [ID:013] Zoom Out (OFF->ON)
- 12 : [Local HMI : LB-6] => Execute macro program : [ID:003] STOP (ON->OFF)

While clicking on the screen, PLC Control 11&12 will execute macro ID:013&003

- 13 : [Local HMI : LB-7] => Execute macro program : [ID:010] Move Up Left (OFF->ON)
- 14 : [Local HMI : LB-7] => Execute macro program : [ID:003] STOP (ON->OFF)

While touching the upper left side of the screen, PLC Control 13&14 will execute macro ID:010&003

- 15 : [Local HMI : LB-8] => Execute macro program : [ID:011] Move Up Right (OFF->ON)
- 16 : [Local HMI : LB-8] => Execute macro program : [ID:003] STOP (ON->OFF)

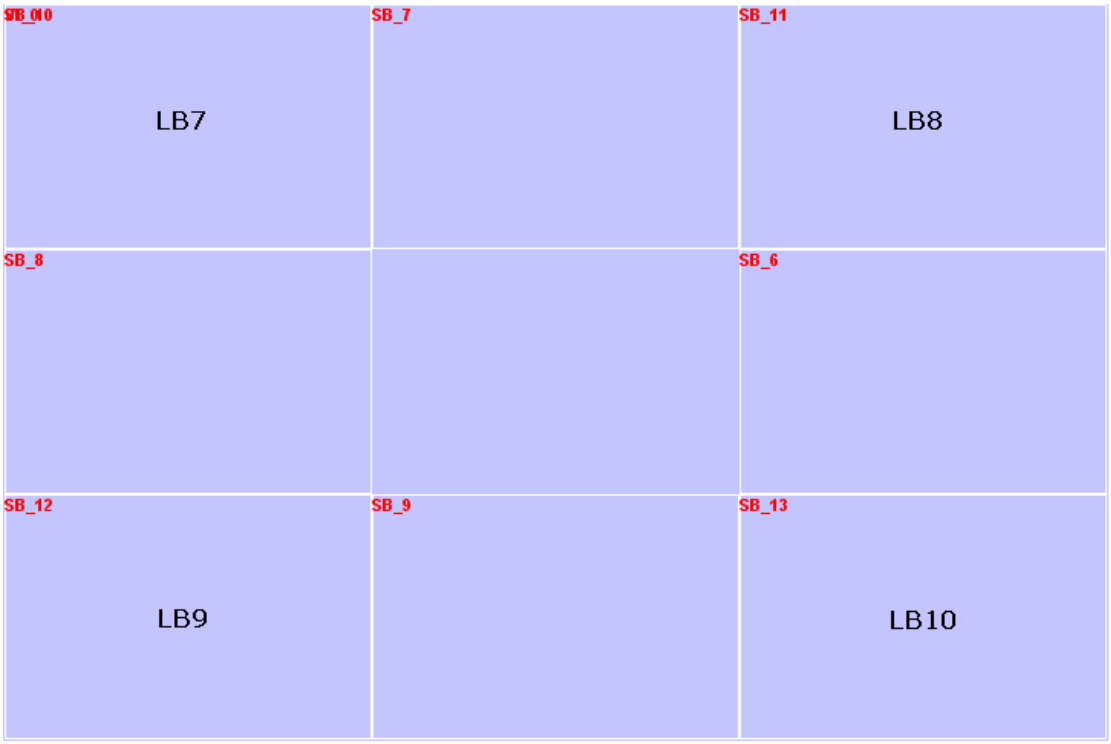
While touching the upper right side of the screen, PLC Control 15&16 will execute macro ID:011&003

- 17 : [Local HMI : LB-9] => Execute macro program : [ID:015] Move Down Left (OFF->ON)
- 18 : [Local HMI : LB-9] => Execute macro program : [ID:003] STOP (ON->OFF)

While touching the lower left side of the screen, PLC Control 17&18 will execute macro ID:015&003

- 19 : [Local HMI : LB-10] => Execute macro program : [ID:014] Move Down Right (OFF->ON)
- 20 : [Local HMI : LB-10] => Execute macro program : [ID:003] STOP (ON->OFF)

While touching the lower right side of the screen, PLC Control 19&20 will execute macro ID:014&003



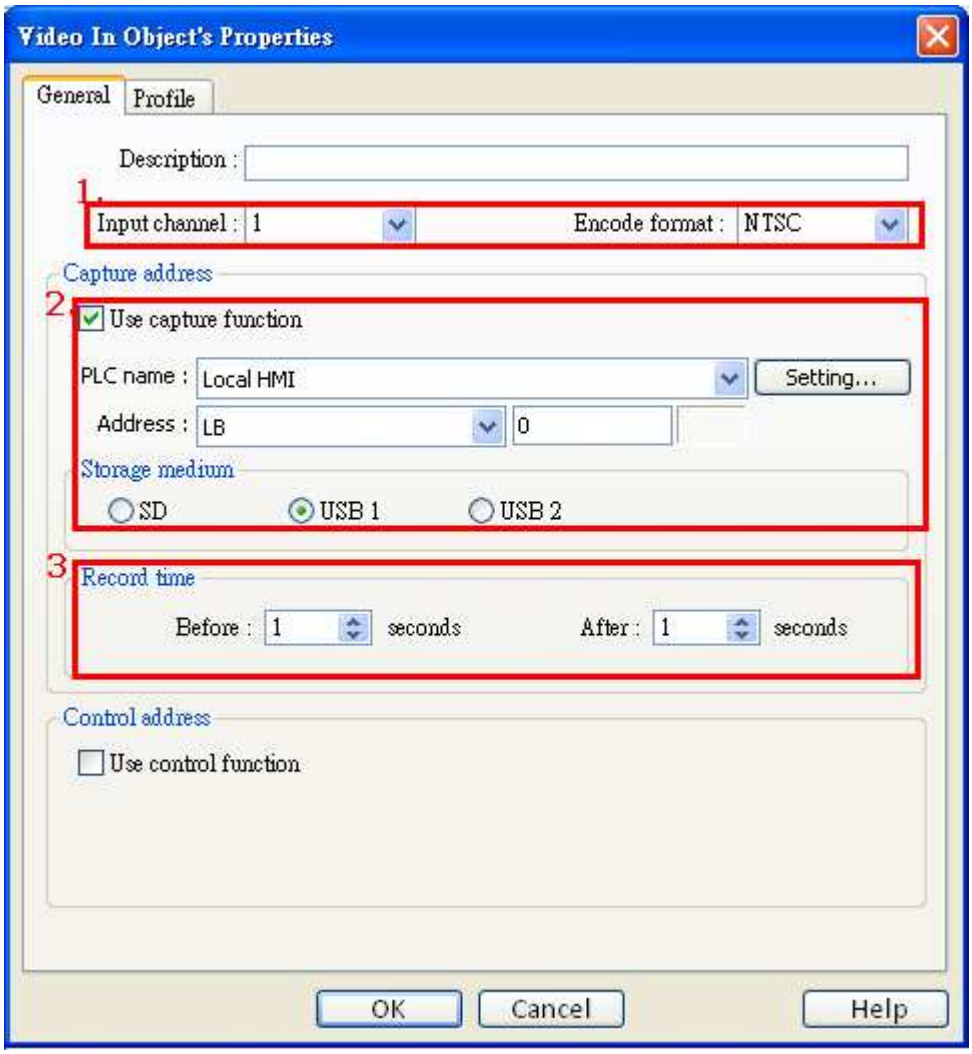
2-6 Create a Video In object.

Set “1” in [Input channel]

Encode format: NTSC

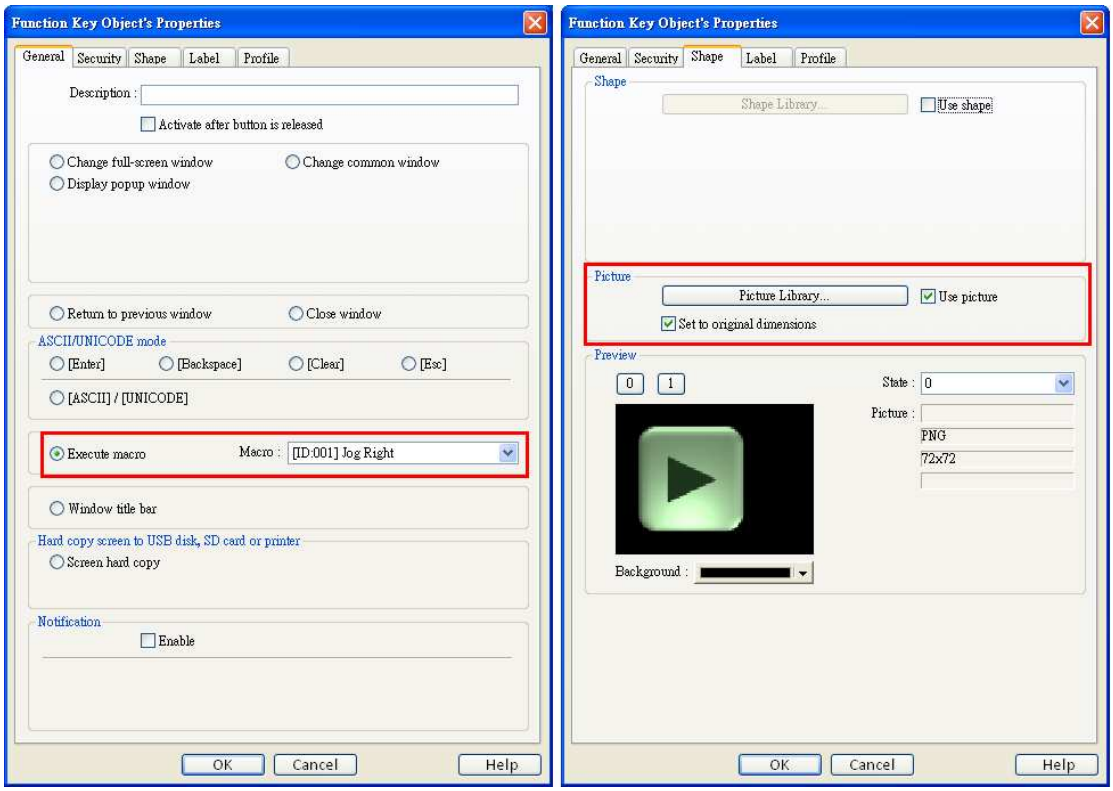
Set “LB 0” in [Use capture function]

Set before & after “1” second in [Record time]

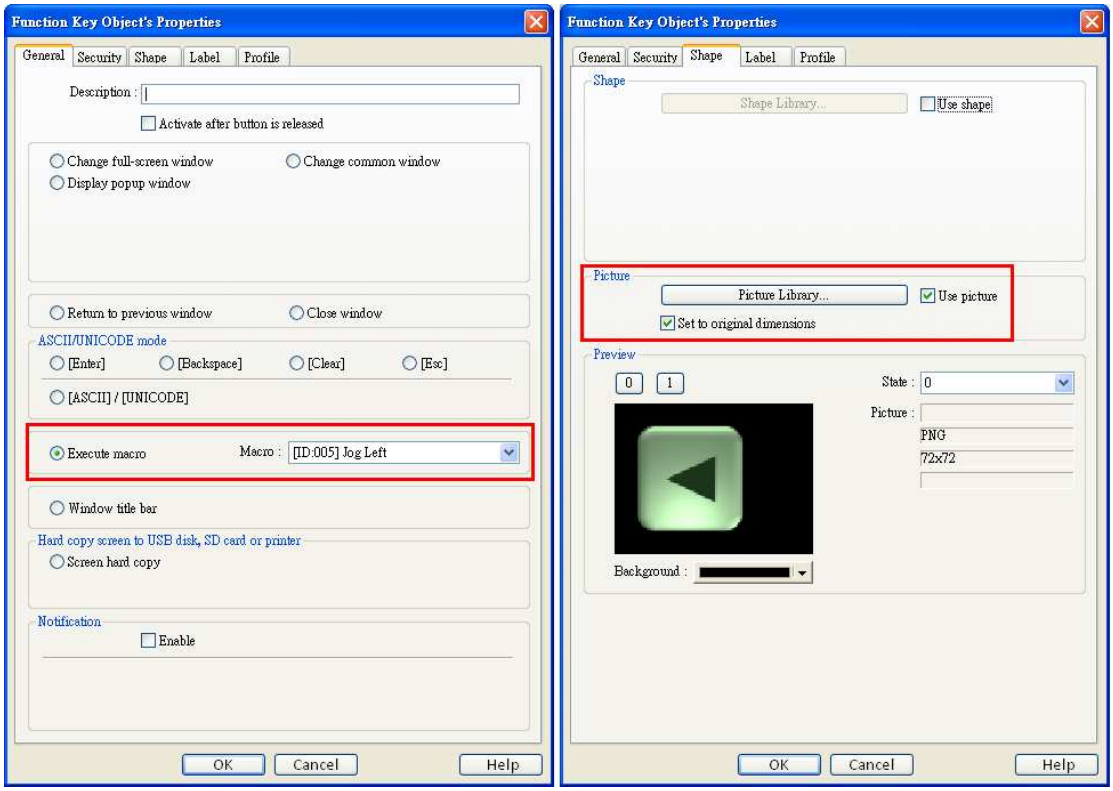


2-7 Set 4 Function Key objects for executing macro ID:001, ID:005, ID:006, ID:007

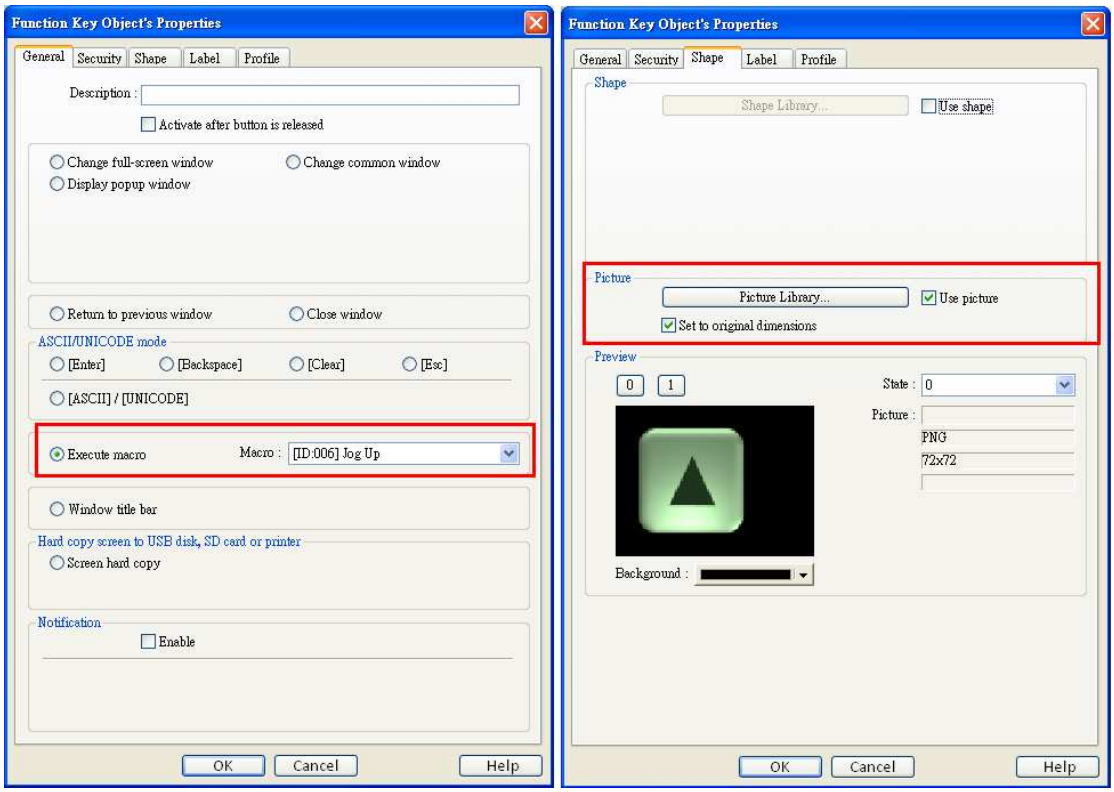
- [FK_0] The 1st Function Key, select [Execute macro ID:001] and then go to [Shape] tab to select a picture as shown below.



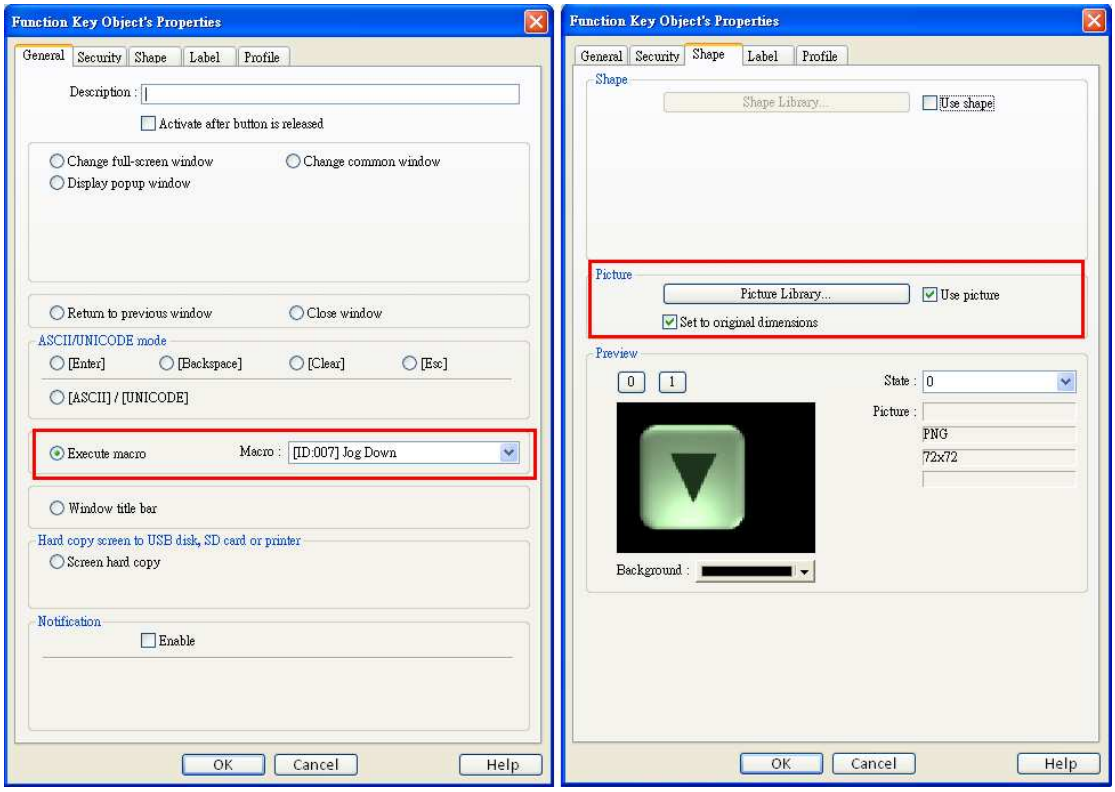
- [FK_1] The 2nd Function Key, select [Execute macro ID:005] and then go to [Shape] to select a picture as shown below.



- [FK_2] The 3rd Function Key, select [Execute macro ID:006] and then go to [Shape] to select a picture as shown below.

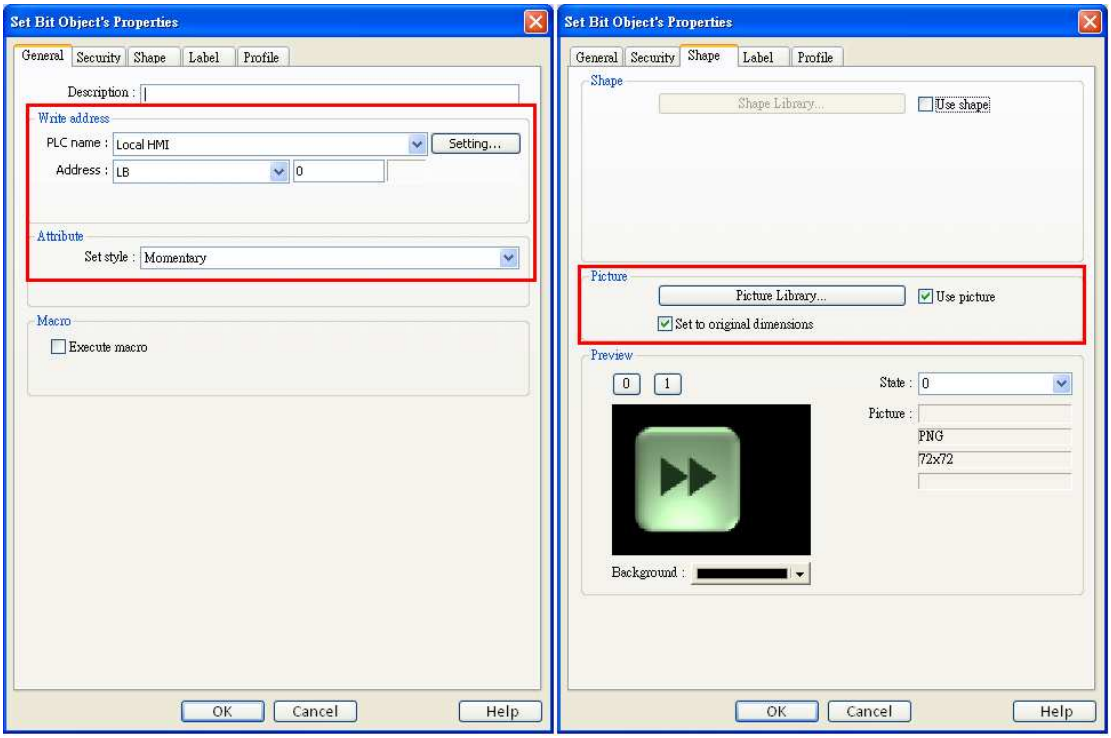


- [FK_3] The 4th Function Key, select [Execute macro ID:007] and then go to [Shape] to select a picture as shown below.

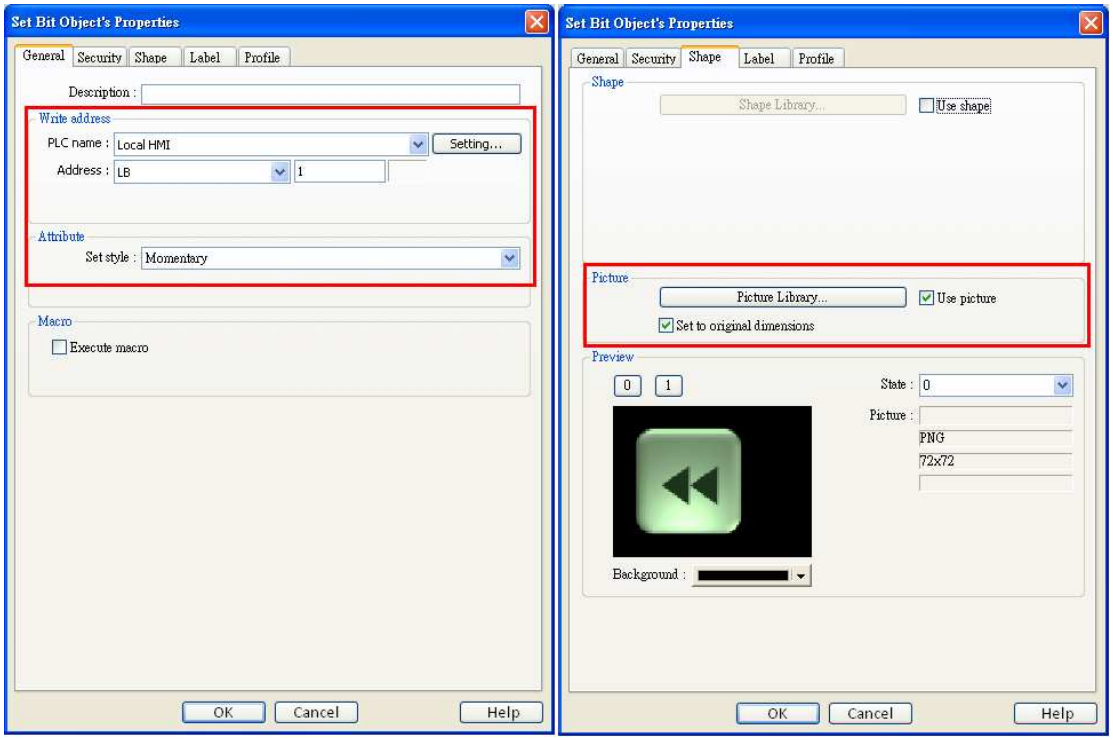


2-8 Create 14 Set Bit objects

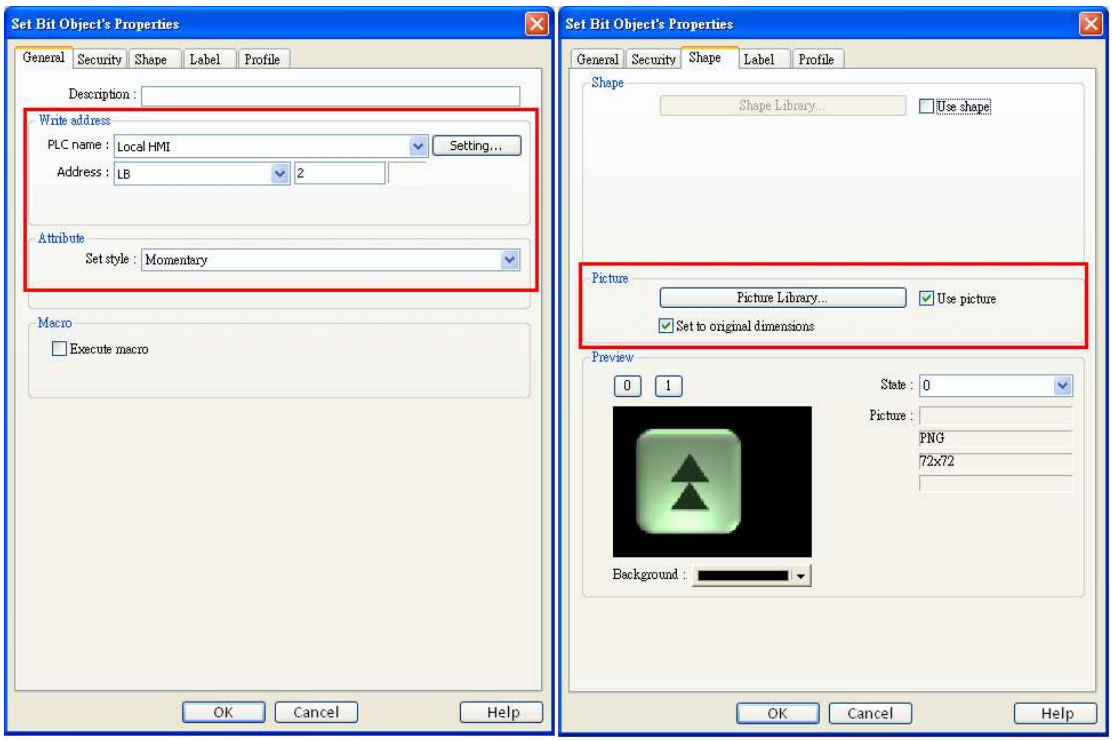
- [SB_0] The 1st Set Bit object, set LB 0 in write address and select a picture as shown below.



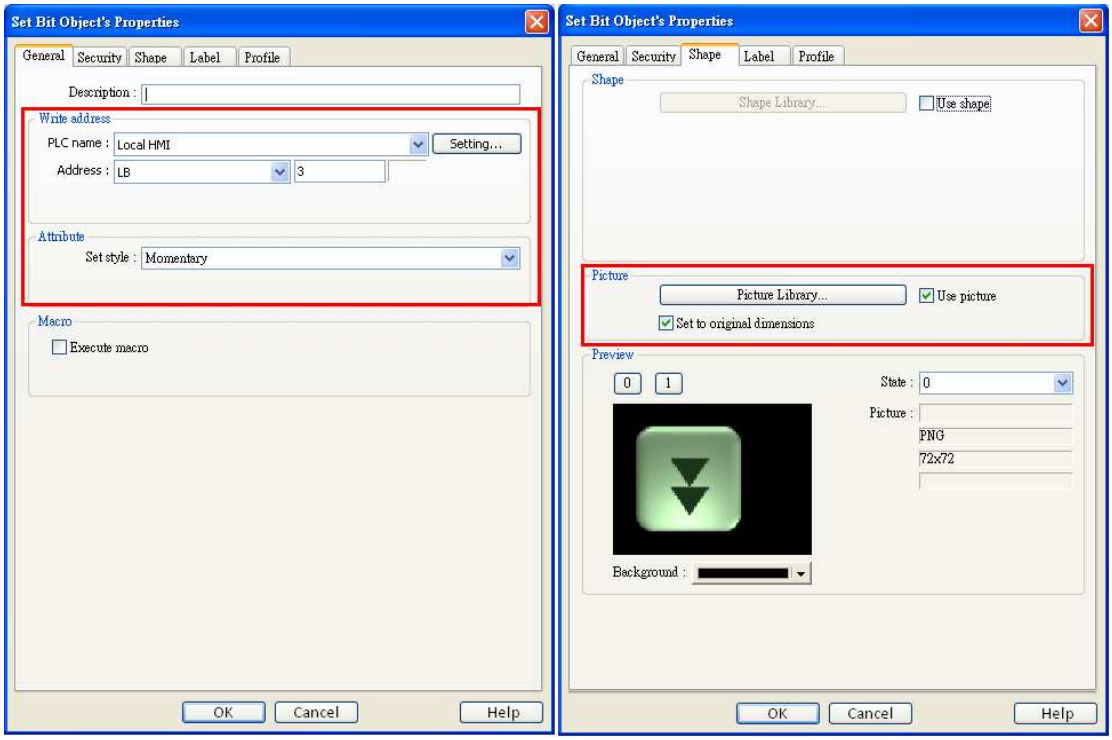
- [SB_1] The 2nd Set Bit object set LB 1 in write address and select a picture as shown below.



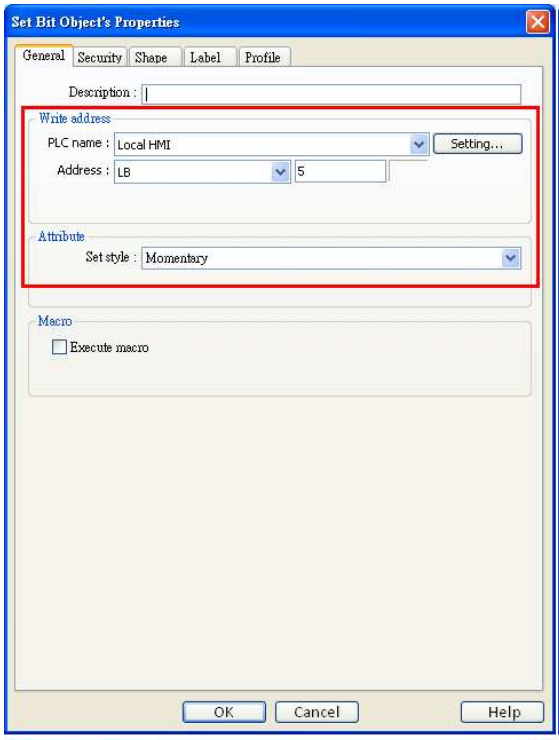
- [SB_2] The 3rd Set Bit object set LB 2 in write address and select a picture as shown below.

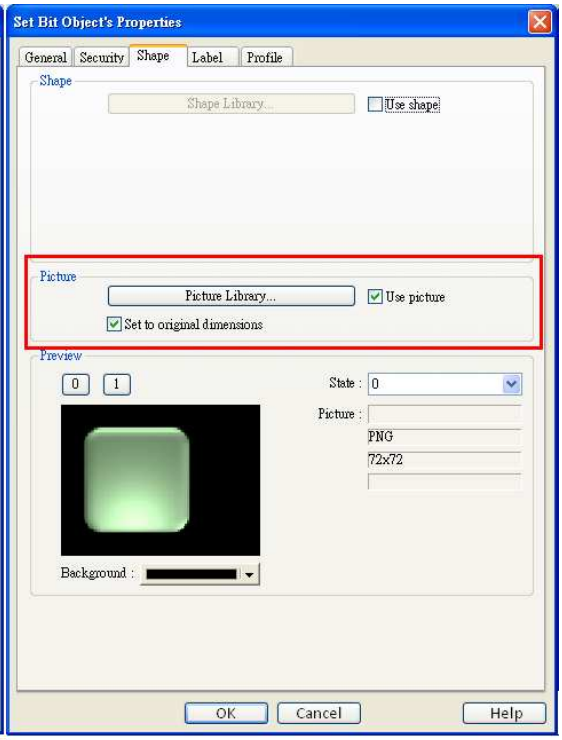


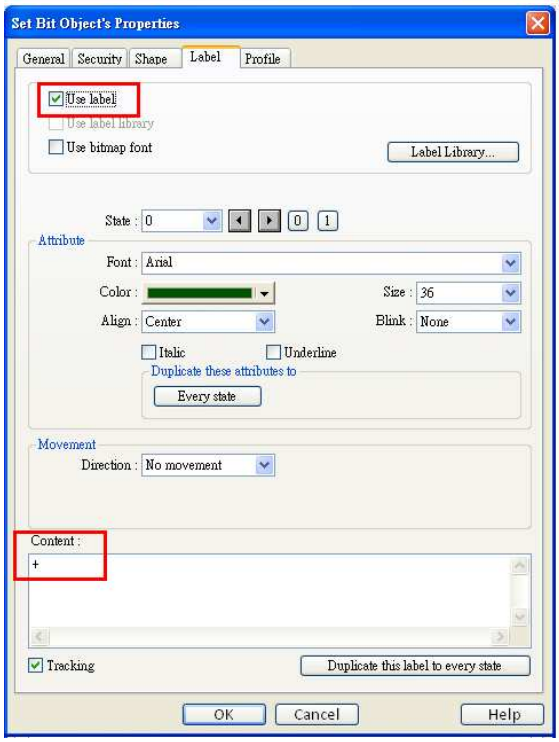
- [SB_3] The 4th Set Bit object, set LB 3 in write address and select a picture as shown below.



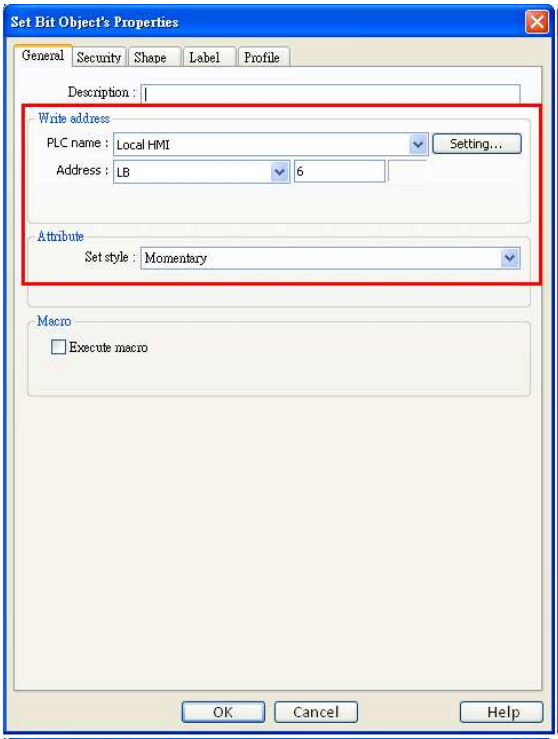
- [SB_4] The 5th Set Bit object, set LB 5 in write address and tick [Use label] to enable label "+" then select a picture as shown below.

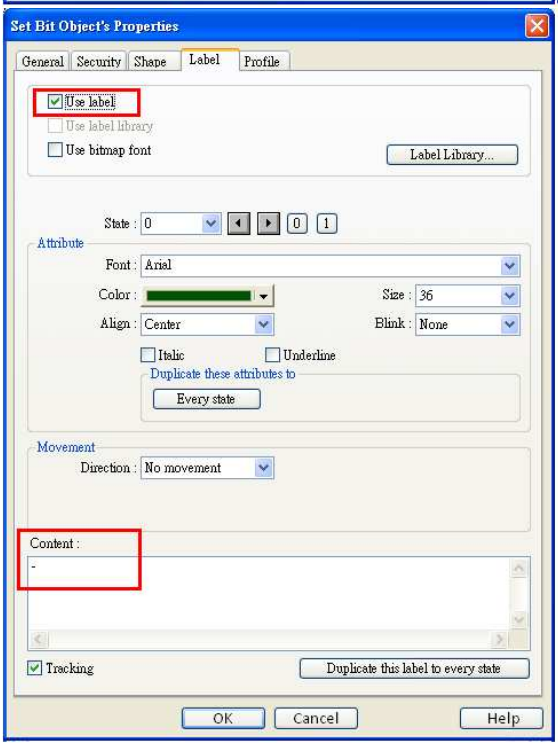




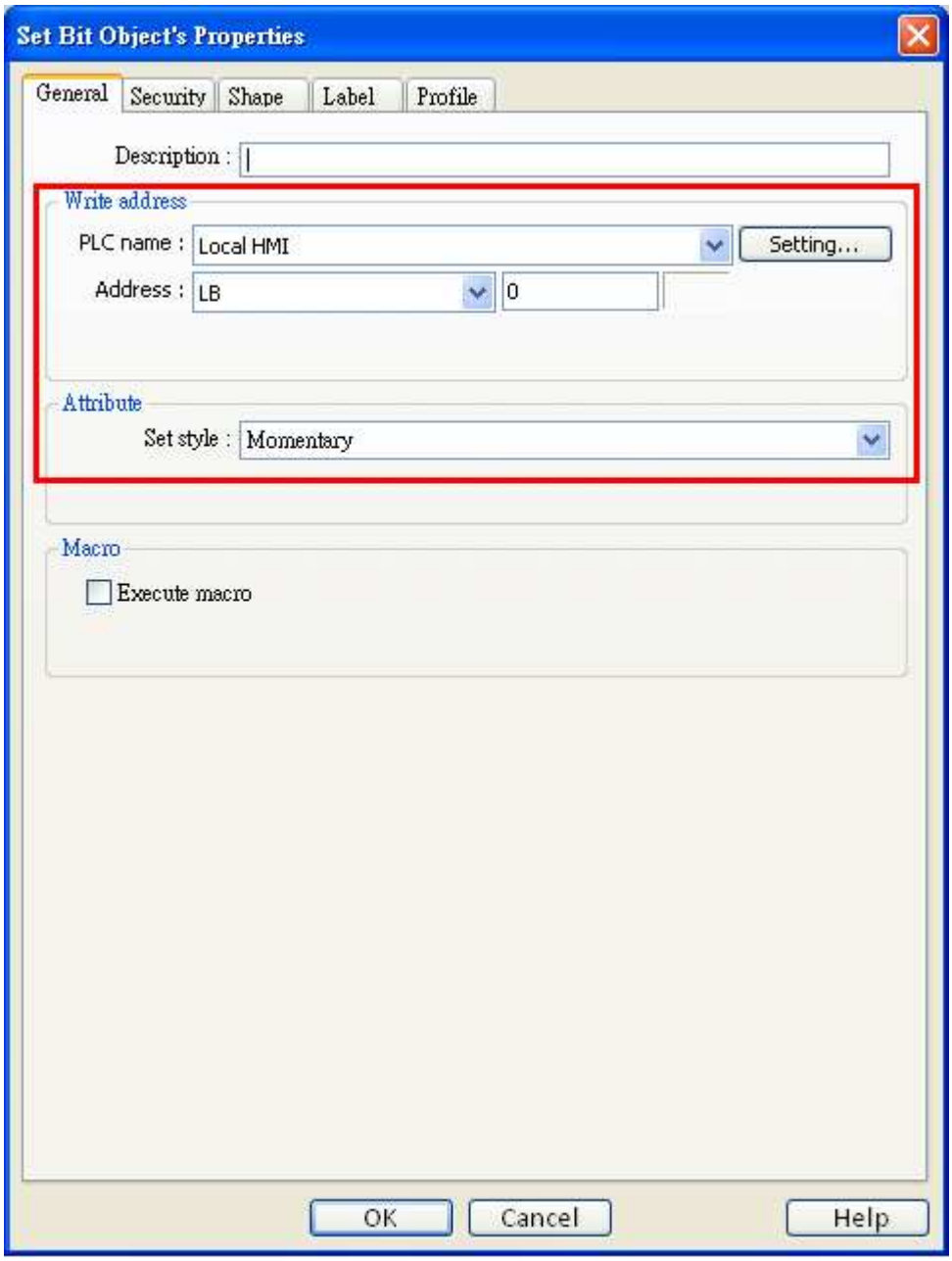


- [SB_5] The 6th Set Bit object, set LB 6 in write address and tick [Use label] to enable label "-" then select a picture as shown below.

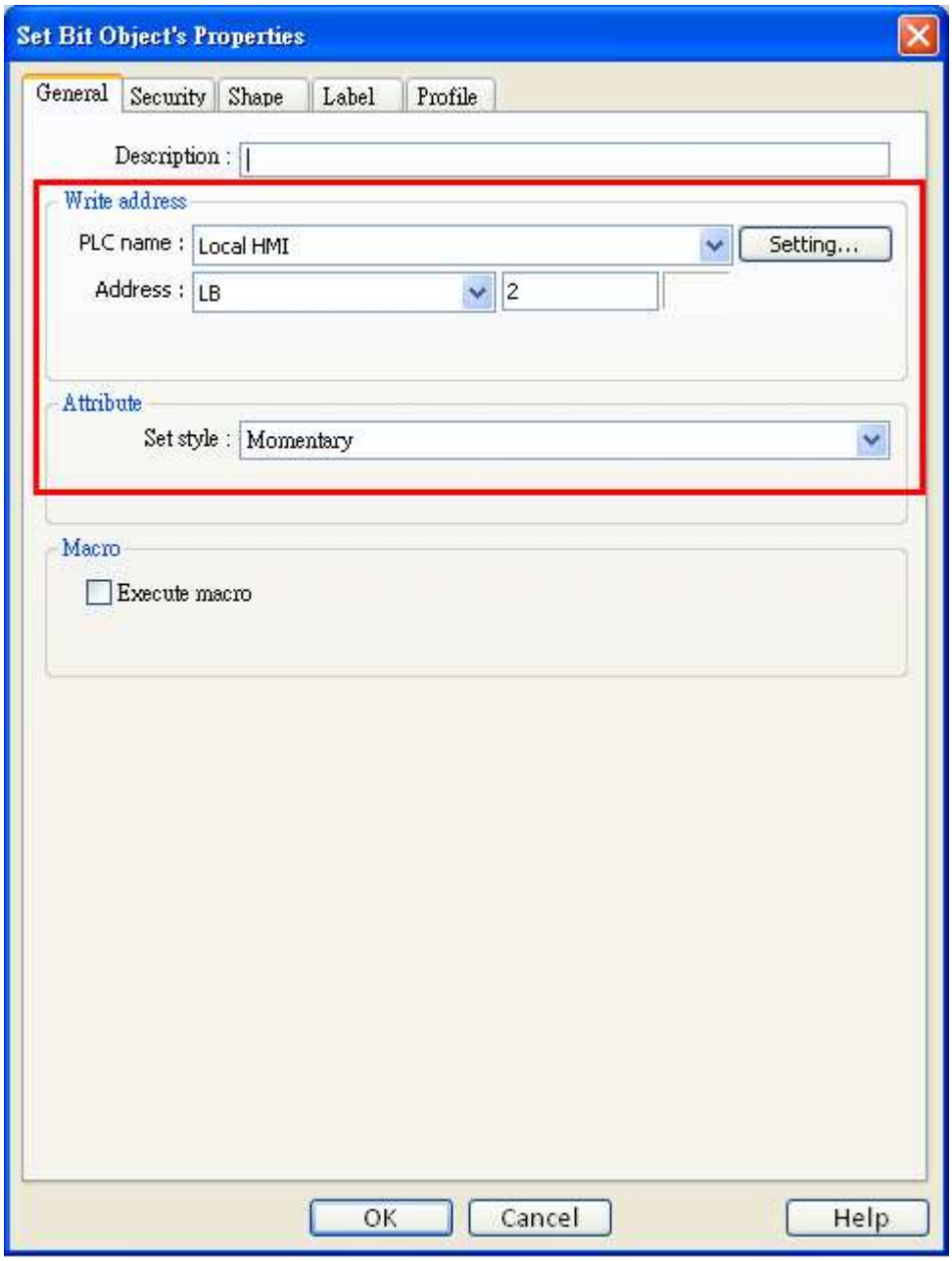




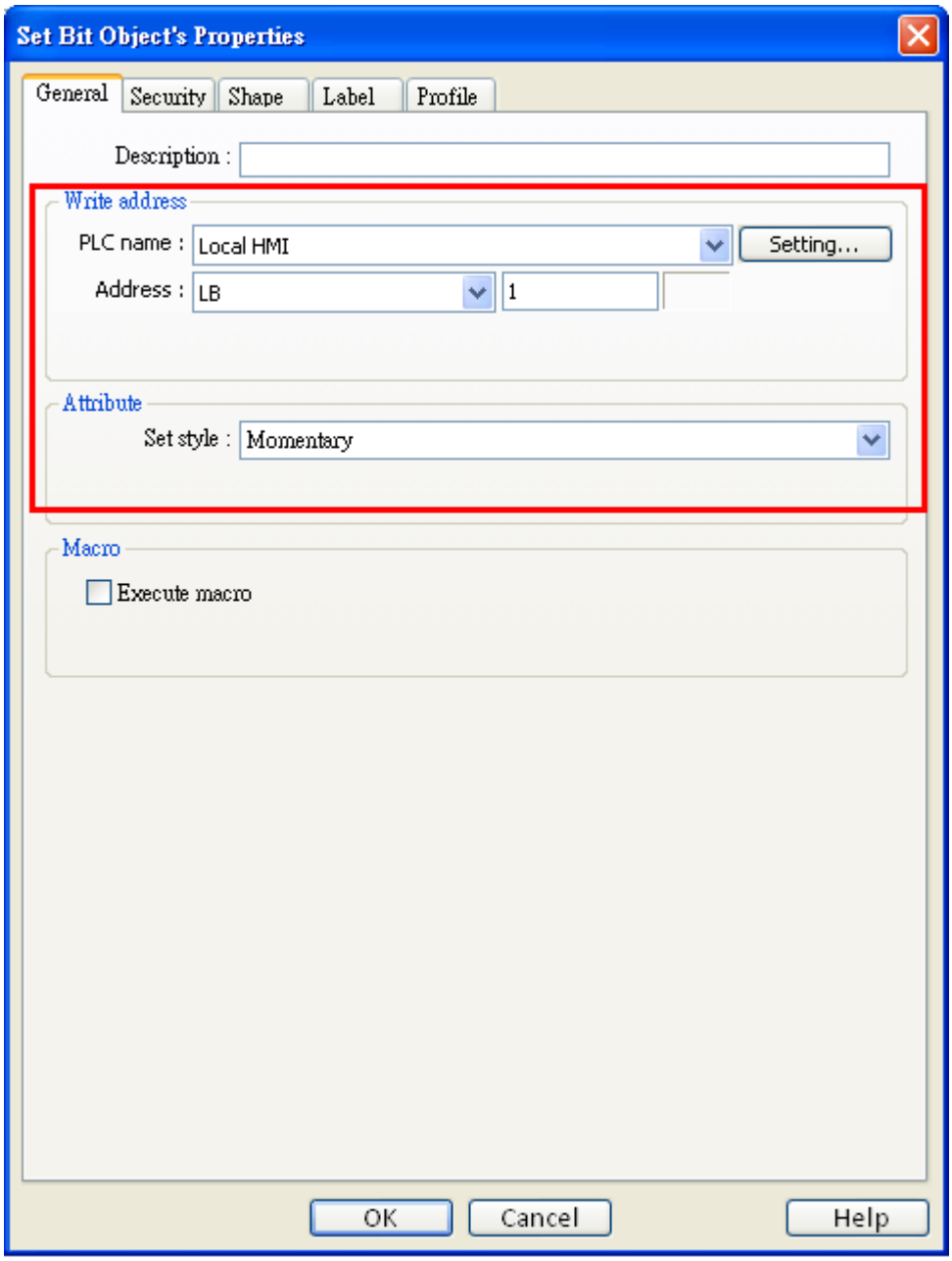
- [SB_6] The 7th Set Bit object, set LB 0 in write address.



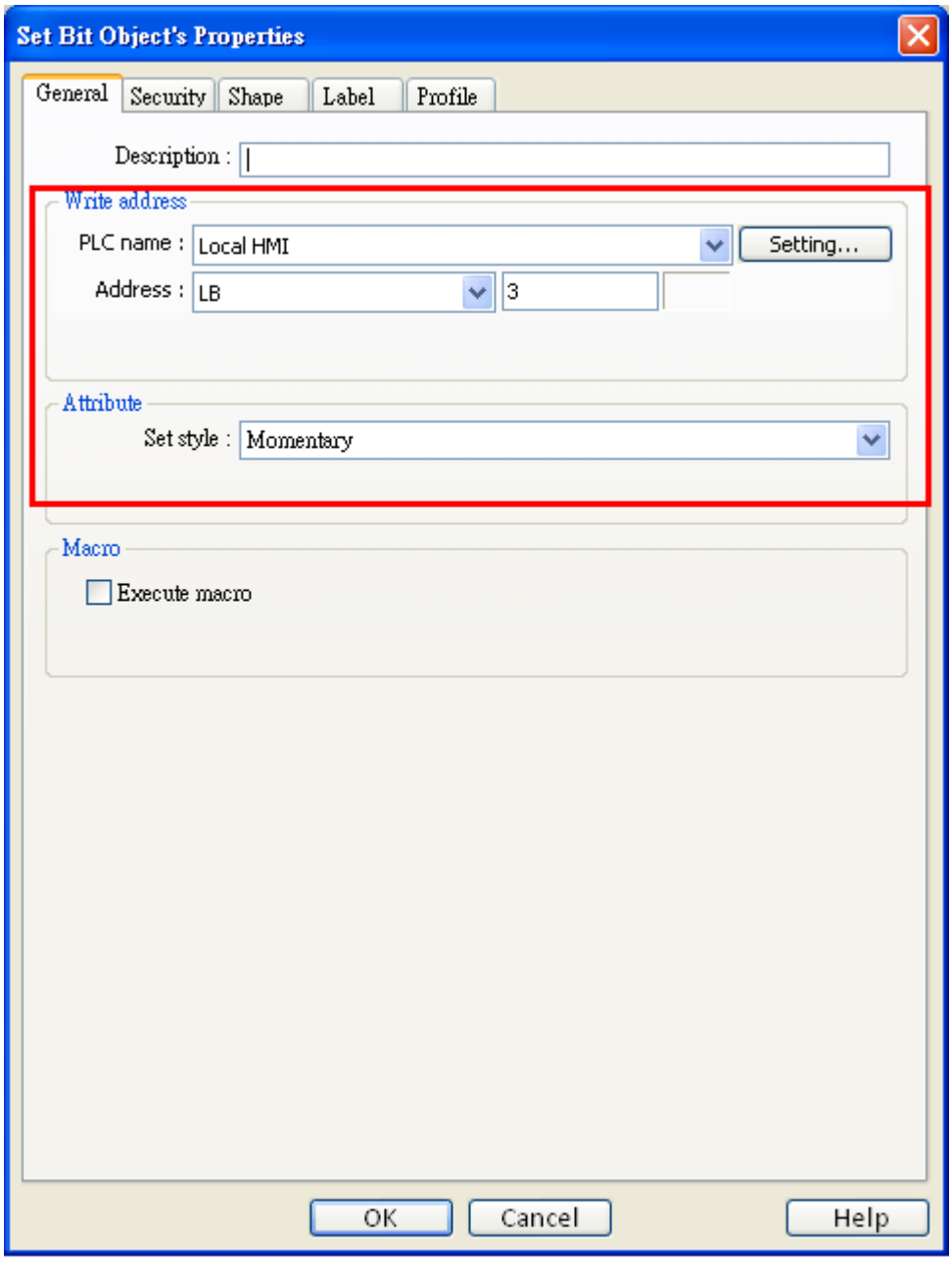
- [SB_7] The 8th Set Bit object, set LB 2 in write address.



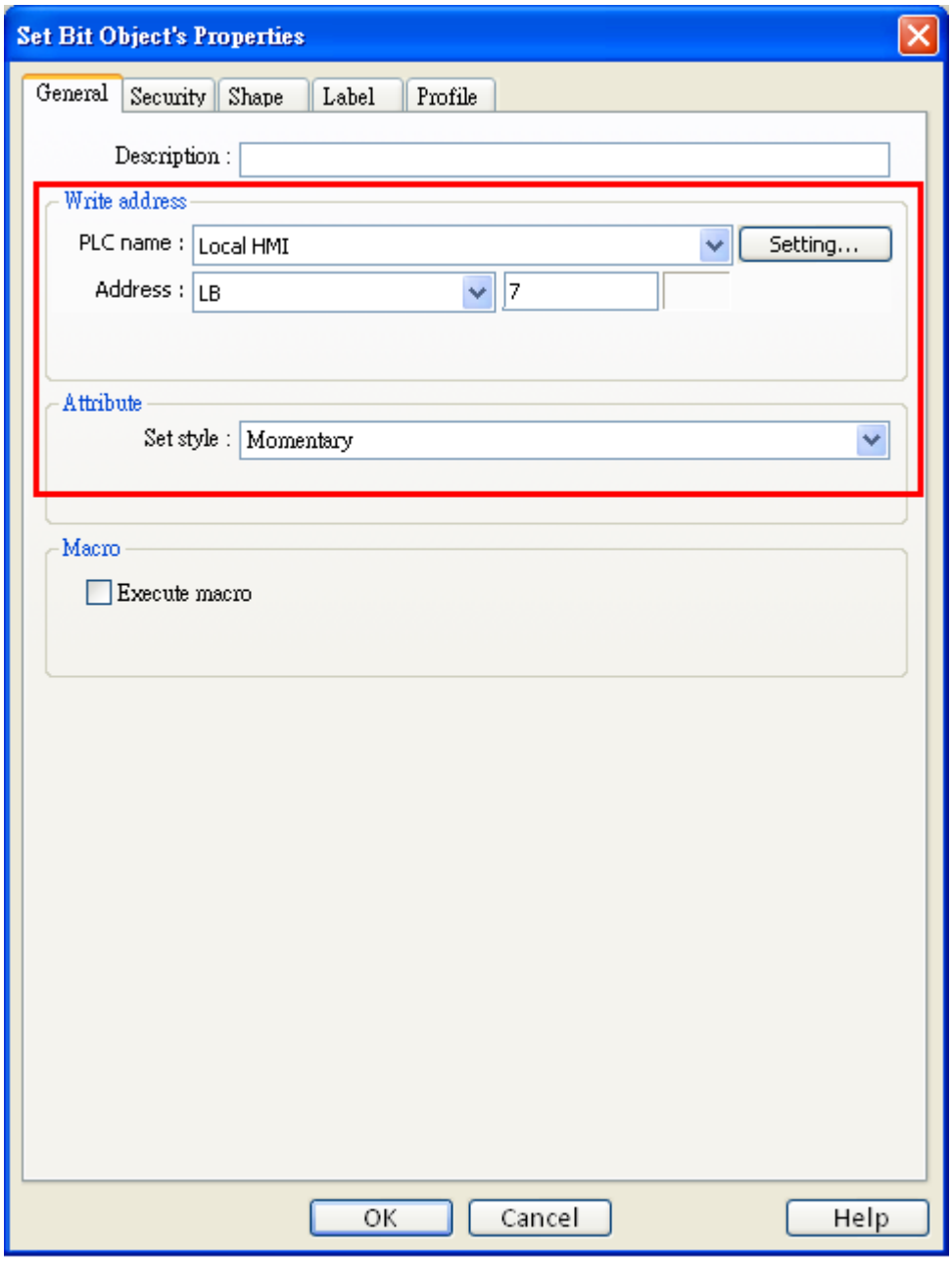
- [SB_8] The 9th Set Bit object, set LB 1 in write address.



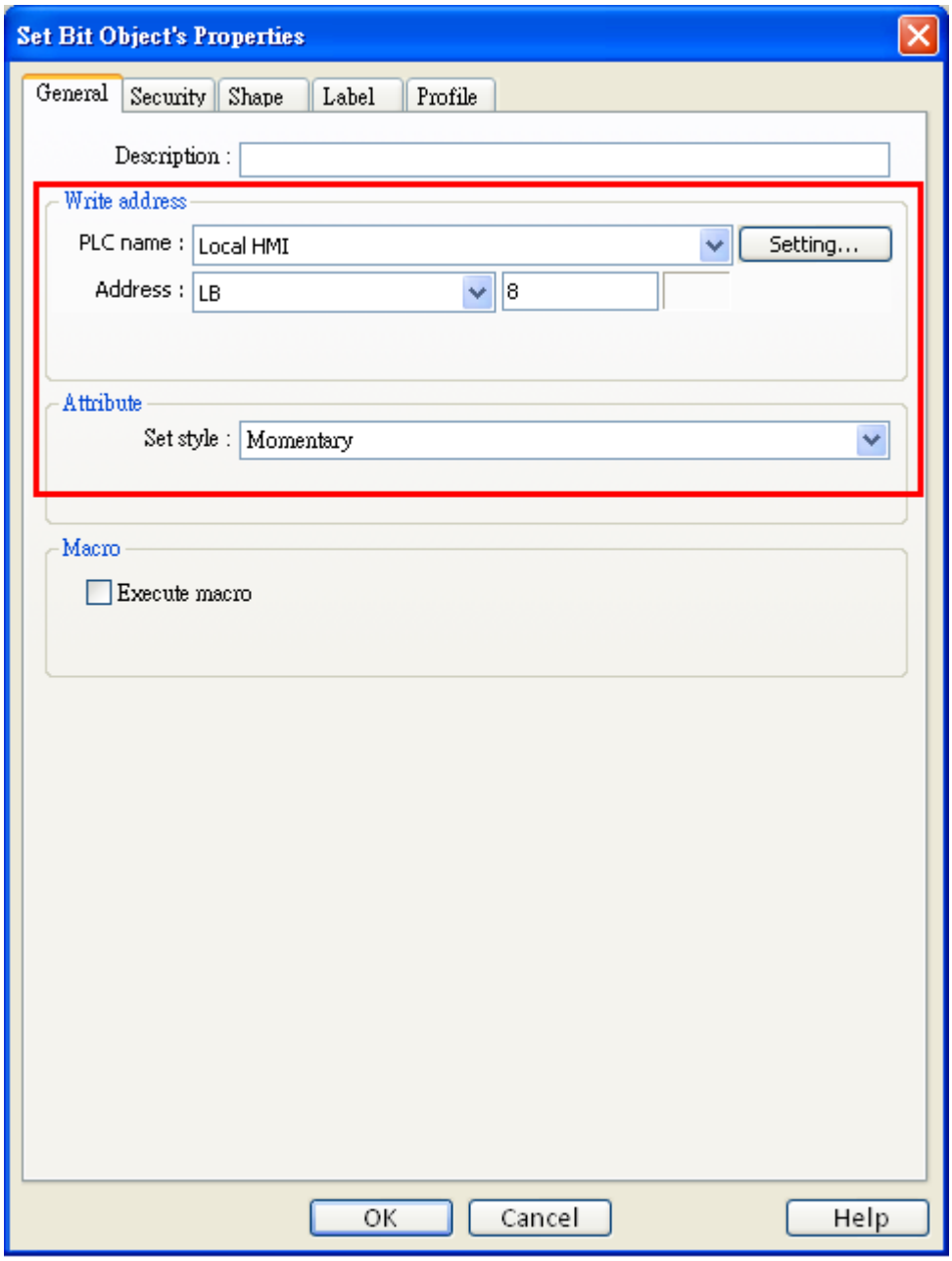
- [SB_9] The 10th Set Bit object, set LB 3 in write address.



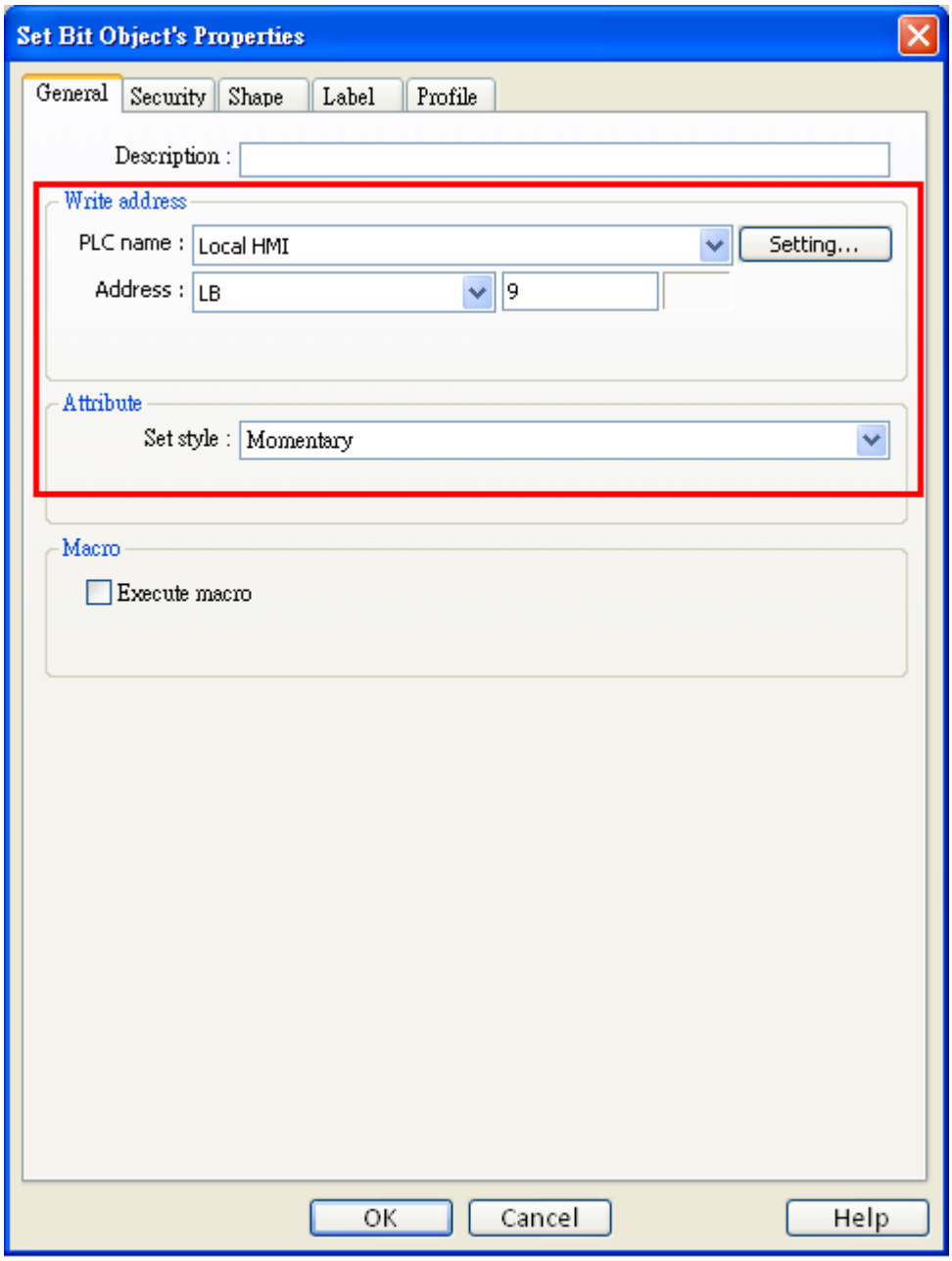
- [SB_10] The 11th Set Bit object, set LB 7 in write address.



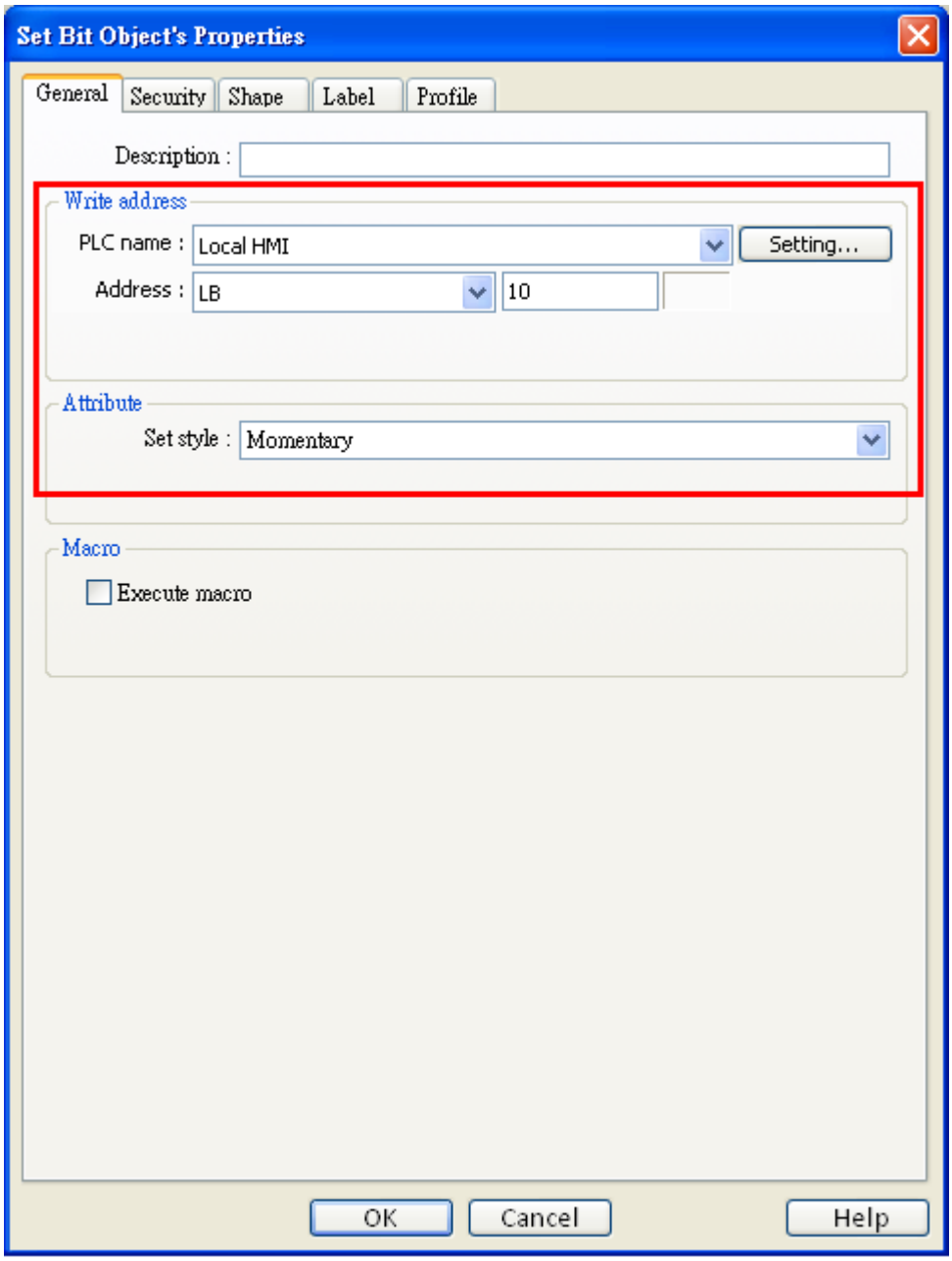
- [SB_11] The 12th Set Bit object, set LB 8 in write address.



- [SB_12] The 13th Set Bit object, set LB 9 in write address.



- [SB_13] The 14th Set Bit object, set LB 10 in write address.

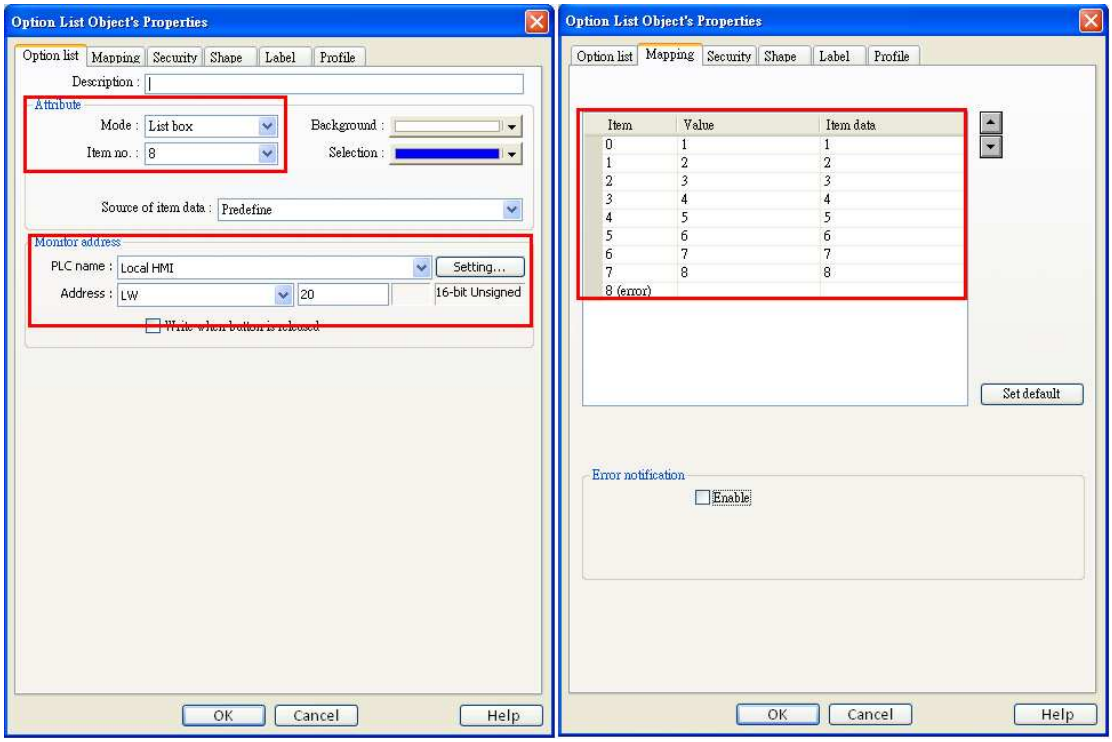


2-9 Create an Option List object.

Select “List box” in [Mode]. Set “8” in [Item no].

Set LW20 in [Monitor address].

Write in “1~8” in Item data on [Mapping] tab.



3 Addresses

The addresses used in this demo project are listed below. Please change these addresses according to your system.

Addresses		Object's ID	Detail
Window 10			
Bit	VI_0	LB 0	Video Input object
	SB_0	LB 0	Run PLC control 1&2
	SB_1	LB 1	Run PLC control 3&4
	SB_2	LB 2	Run PLC control 5&6
	SB_3	LB 3	Run PLC control 7&8
	SB_4	LB 5	Run PLC control 9&10
	SB_5	LB 6	Run PLC control 11&12
	SB_6	LB 0	Run PLC control 1&2
	SB_7	LB 2	Run PLC control 5&6
	SB_8	LB 1	Run PLC control 3&4
	SB_9	LB 3	Run PLC control 7&8
	SB_10	LB 7	Run PLC control 13&14
	SB_11	LB 8	Run PLC control 15&16
	SB_12	LB 9	Run PLC control 17&18
	SB_13	LB 10	Run PLC control 19&20
Word	OL_0	LW 20	Option List object
	FK_0		Run Macro ID:001
	FK_1		Run Macro ID:005
	FK_2		Run Macro ID:006
	FK_3		Run Macro ID:007
	FK_4		Run Macro ID:016
	FK_5		Run Macro ID:017