

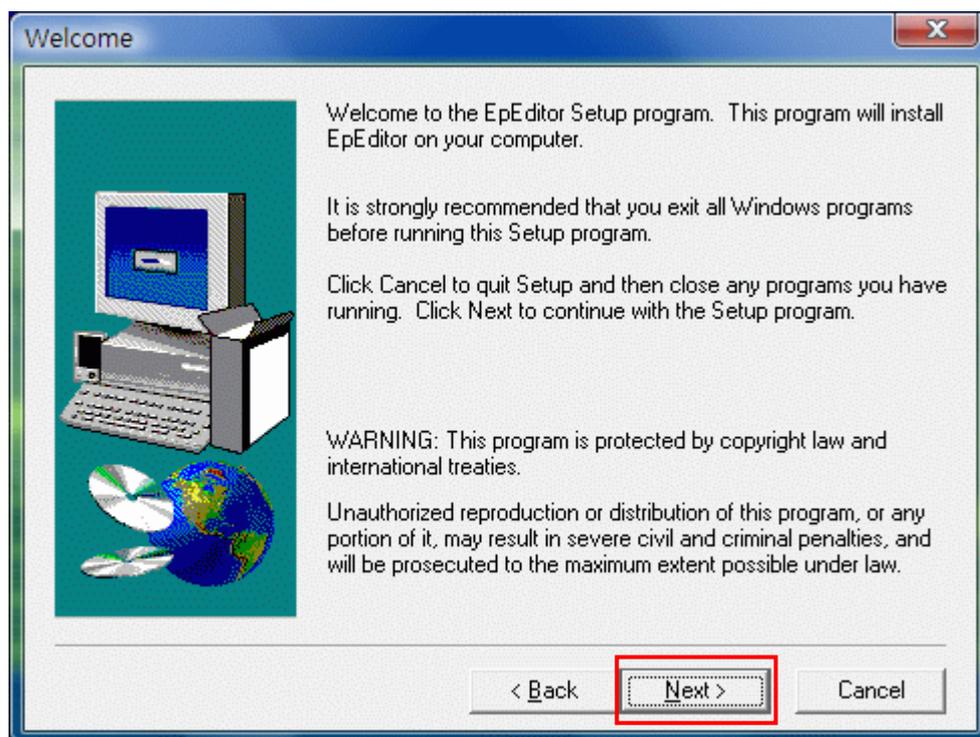
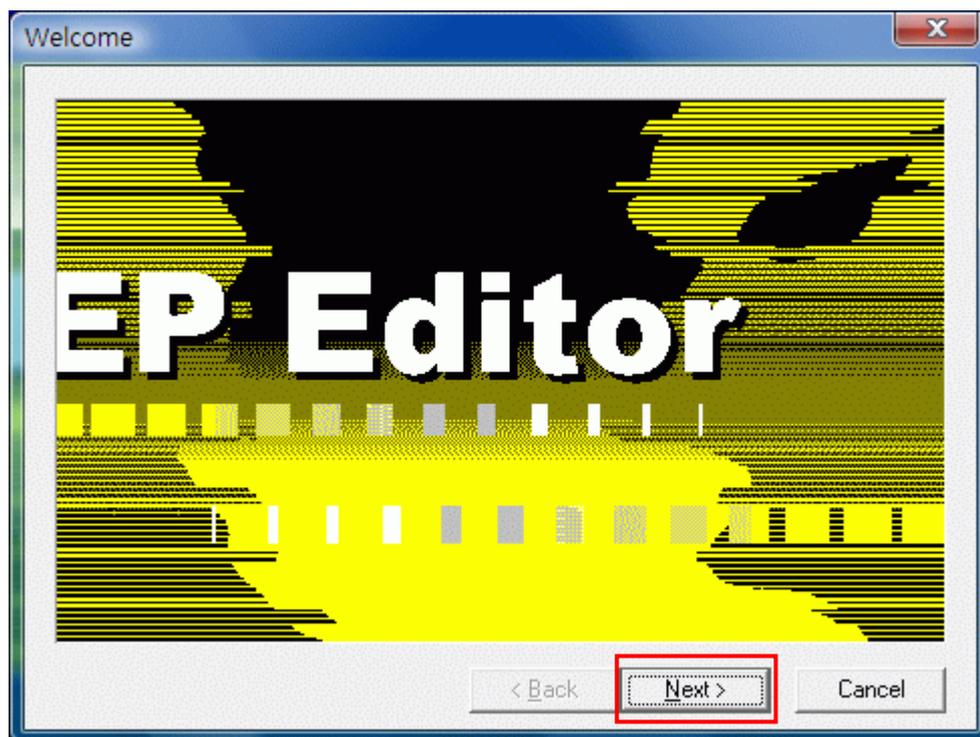
LIYAN PROGRAMMABLE LOGIC CONTROLLER

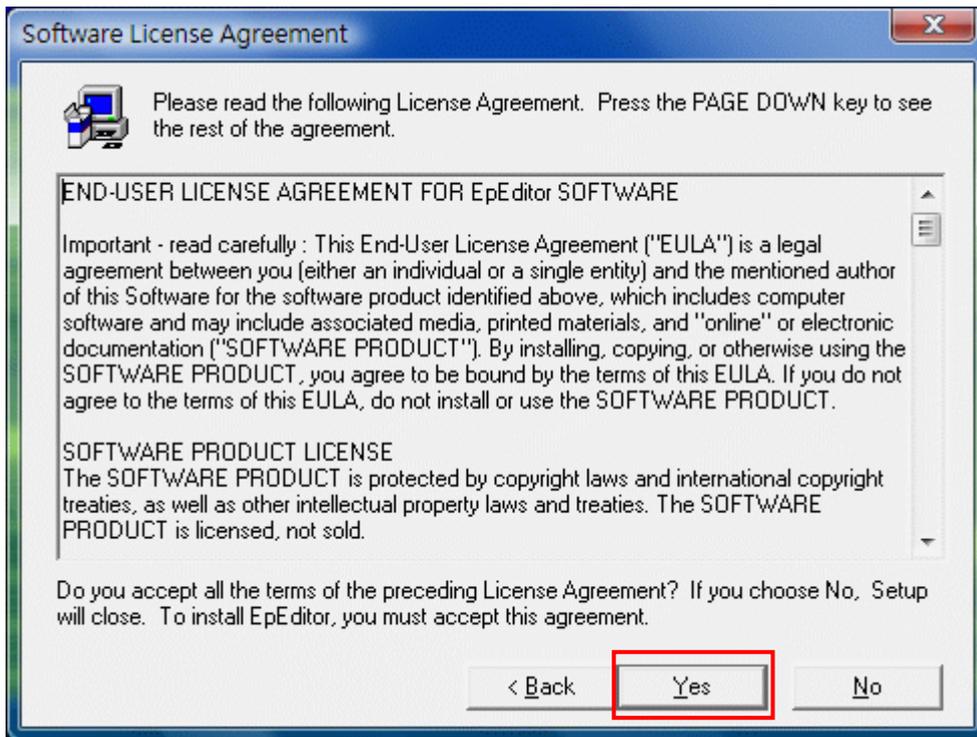
LYPLC
EPeditor

USER'S MANUAL

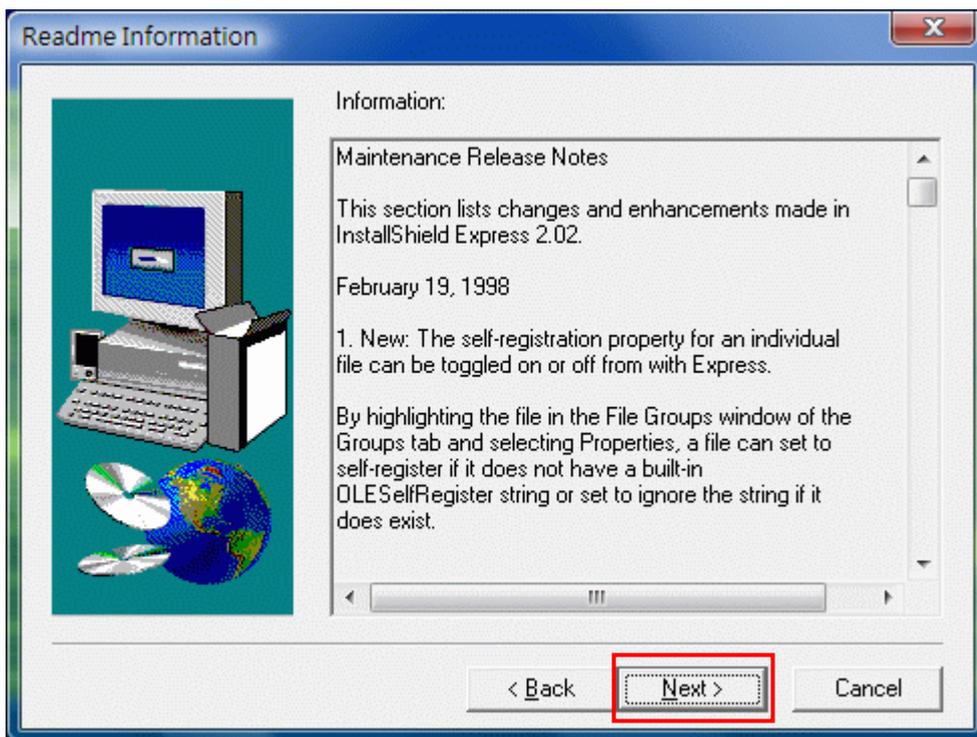
(1) Setup software

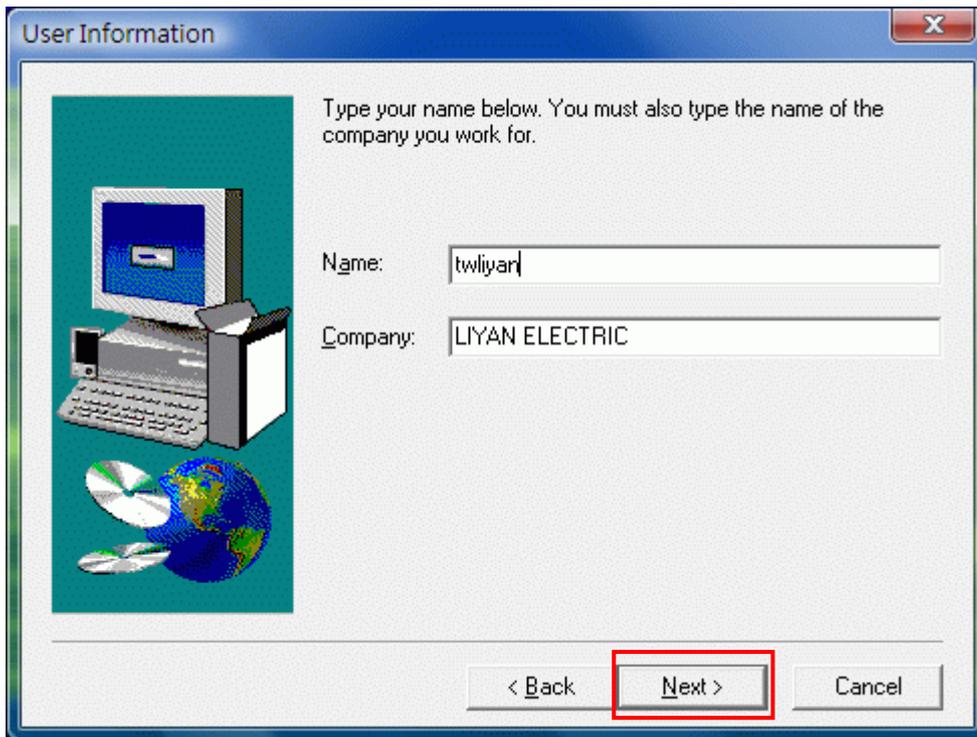
Execute EpEditor\setup.exe



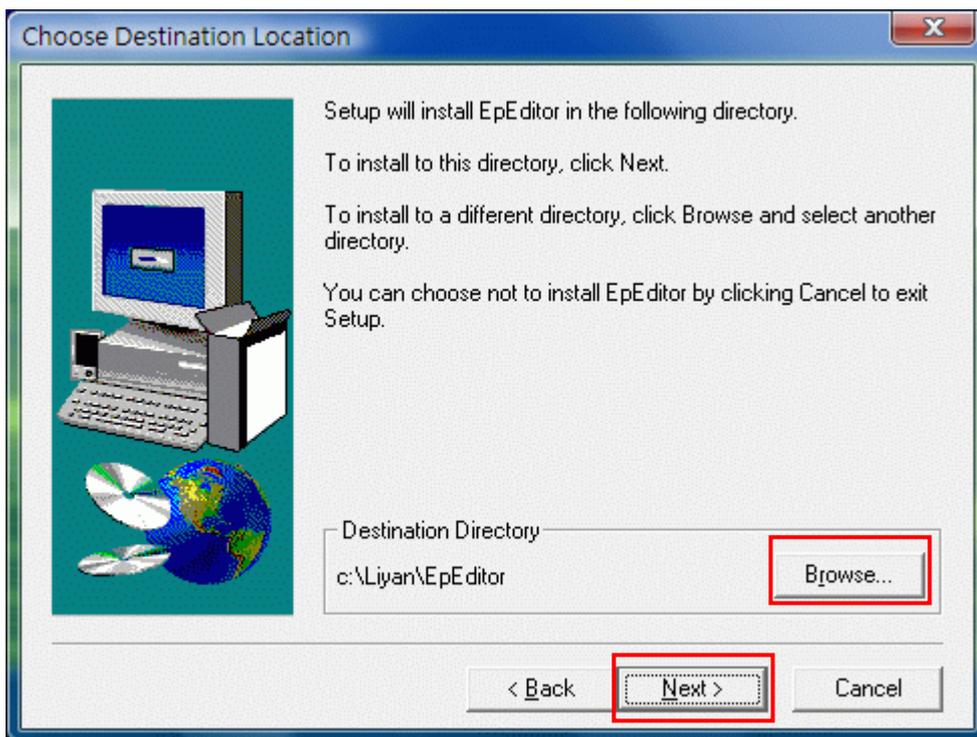


Yes: Agree this software license agreement

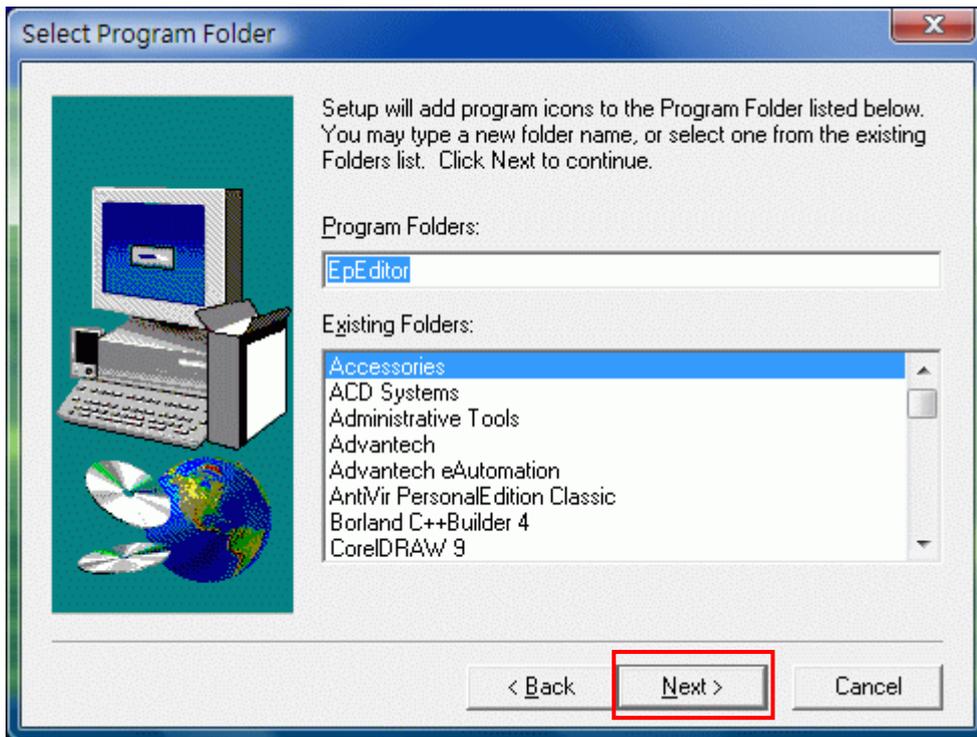




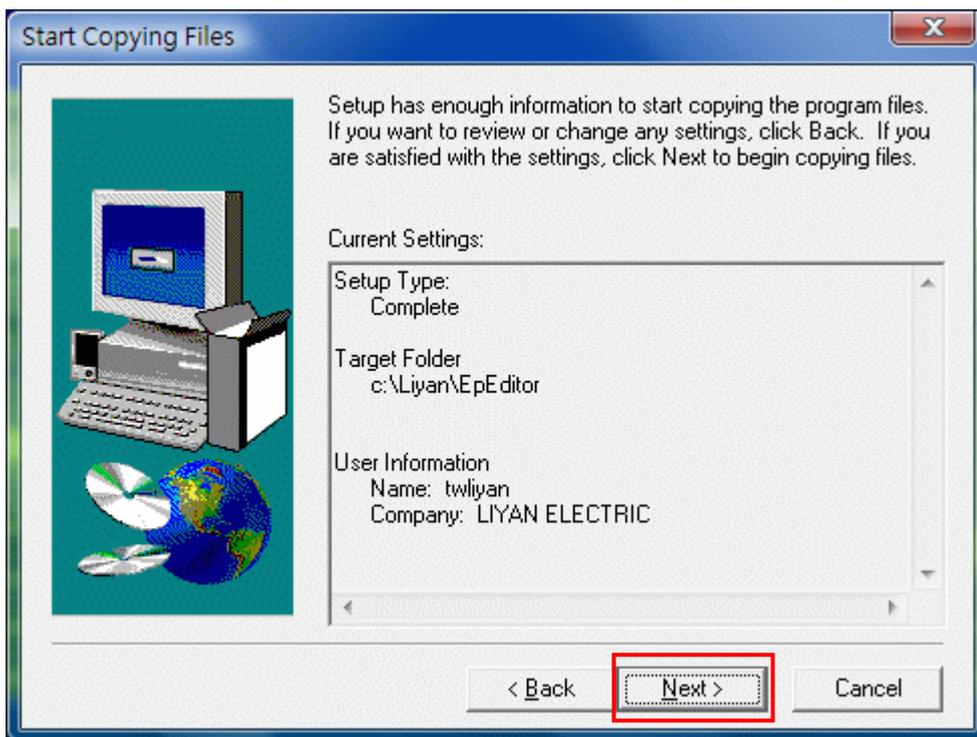
Input user's name and company



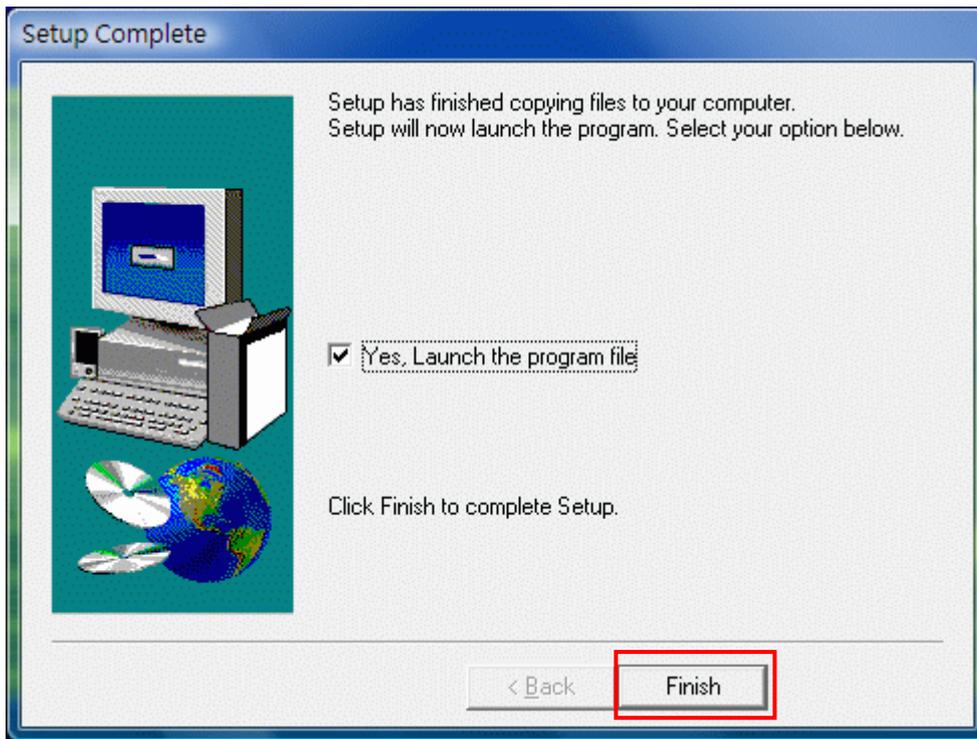
Browse: change destination directory. If not change, system will set it as C:\Liyon\EpEditor



Choose program folder or add a new one. If not change, system will build a new folder as EpEditor.

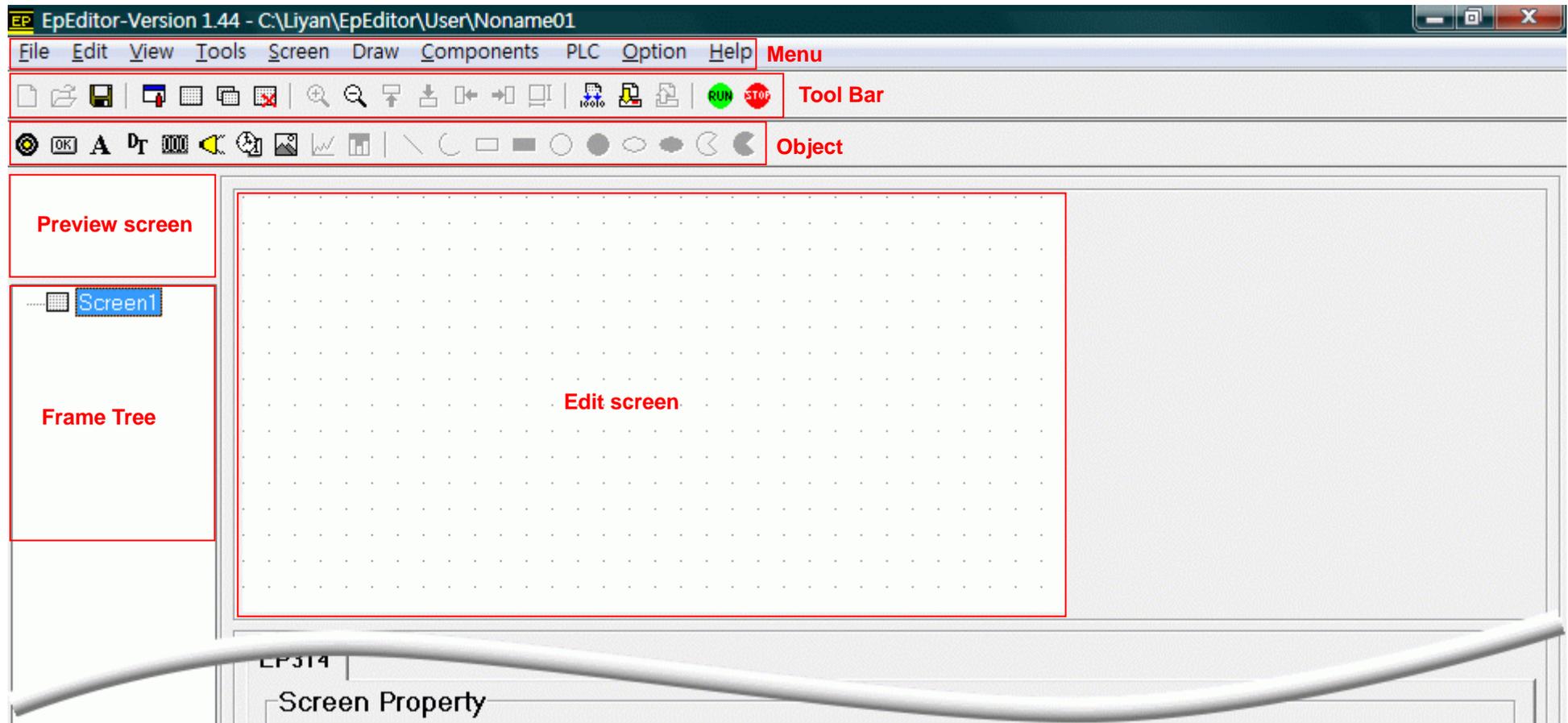


Confirm setup information. If need to change, press Back.



Setup Complete

(2) Overview



EP314

Screen Property

Screen No Starting Screen No

Description

Press Jump To Screen

Press Jump To Screen

Property setting

Status bar

X=32 ,Y=4 Screen: 400%

Object Position

EP314

Ex1n

HMI Type

PLC type

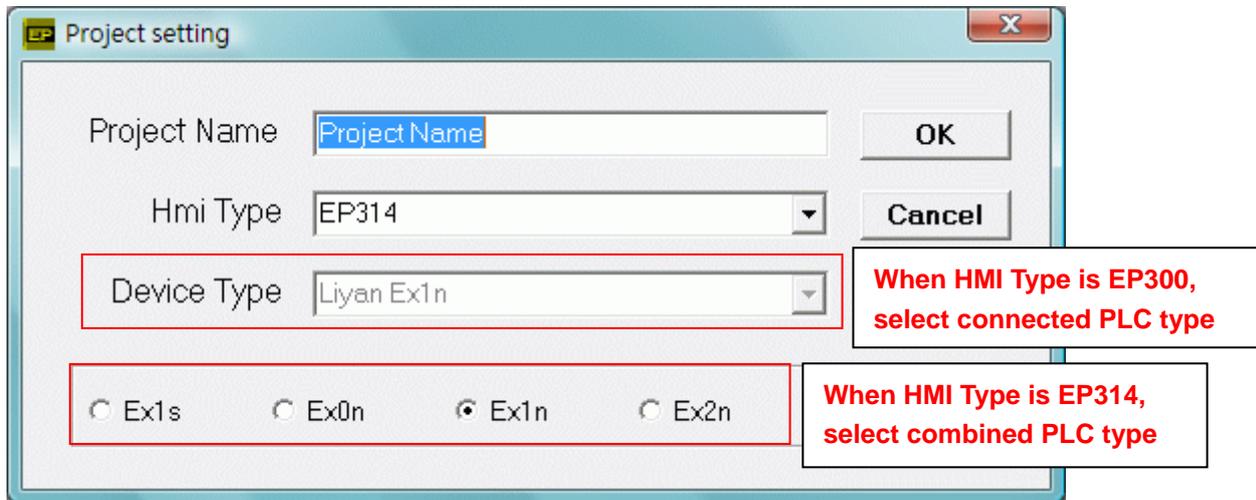
(3) Function

Button	Function
	New file
	Open file
	Save file
	System setting
	Create new screen
	Copy screen
	Delete screen
	Zoom in
	Zoom out
	Move up object
	Move down object
	Move left object
	Move right object
	Compile program
	Download program to HMI
	Indicator
	Button
	Static text
	Dynamic text
	Numeric Entry
	Buzzer
	BitMap
	PLC RUN
	PLC STOP

(4) Programming steps

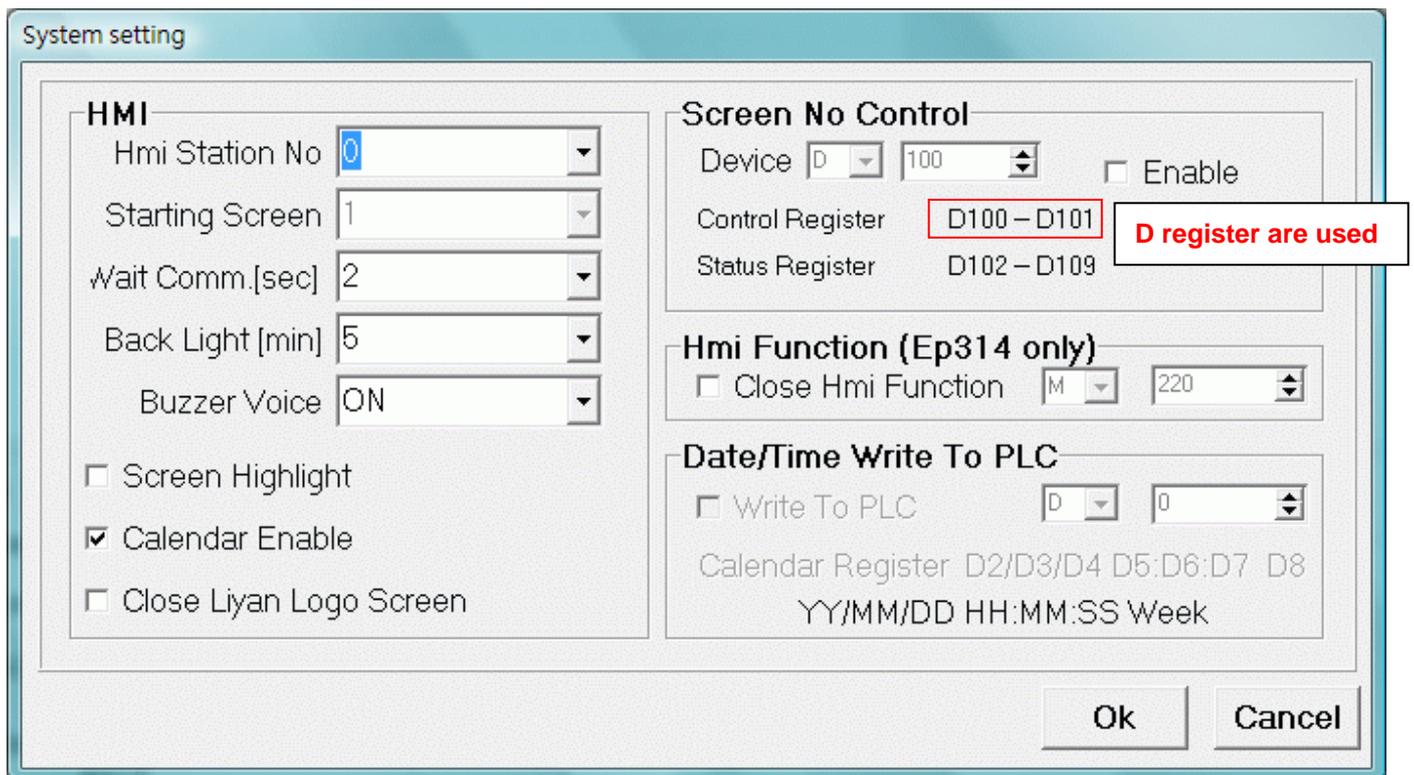
1. New file

Press  or select 「file→New」. Input project name and select HMI/PLC type.



2. System setting

Press  or select 「Option→System Setting」



- ◆ Screen No. Control: Change screen by D register. If **Enable** is selected, user can change screen by D register which is set.
- ◆ Date/Time Write to PLC: it is applicable to EP300 only.
- ◆ Close HMI Function: it is applicable to EP314 V1.56 or more

3. Screen property setting

EP314 |
Screen Property

1) Screen No: 1 2) Starting Screen No: 1

3) Description:

4) Press [Up] Jump To Screen: 0
Press [Down] Jump To Screen: 0

- 1) Screen No.: Set this screen number. Screen No. is changed after input number and press ENTER key.
- 2) Starting Screen No.: Set starting screen number
- 3) Description: Describe this screen
- 4) Screen-jump setting. Press Up or Down button, screen will jump from this screen to setting screen number

4. Add components

4-1 Indicator

Press  or select 「Components→Indicator」

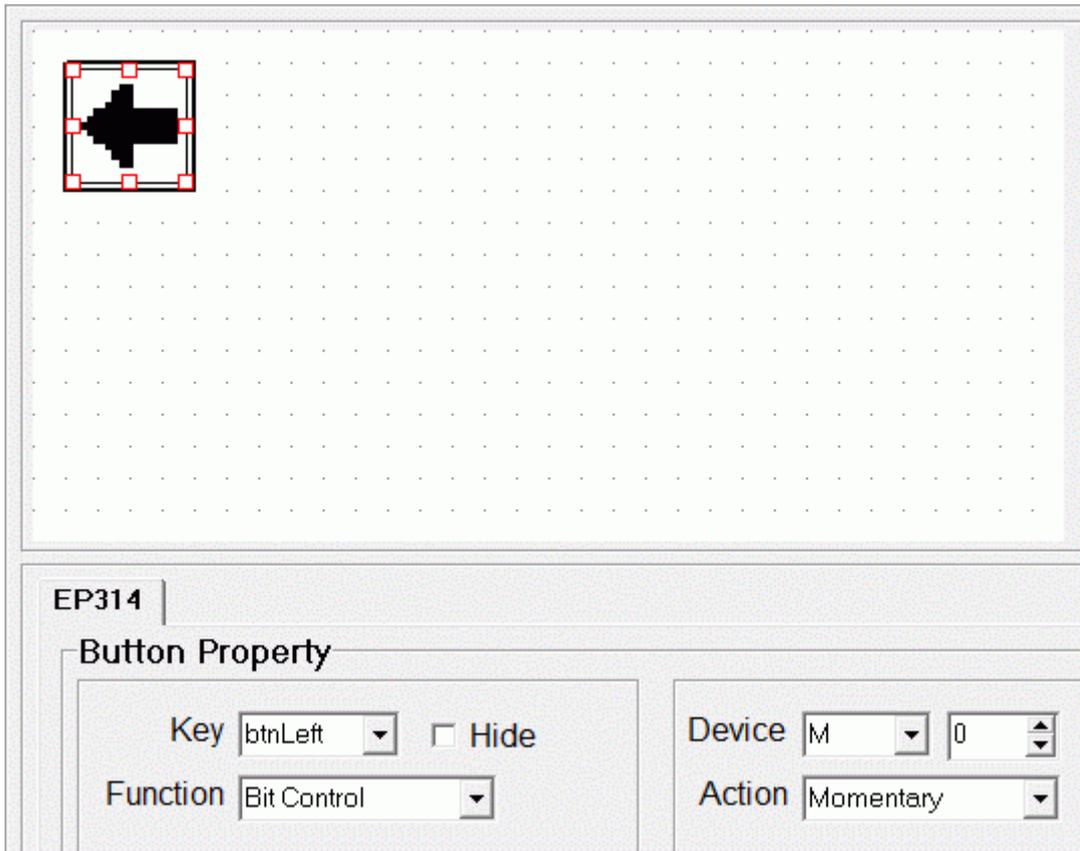
EP314 |
Indicator Property

Device: M 0 On Blinking

- ◆ Device: Set monitored device
- ◆ ON Blinking: When device is set ON and this option is selected, indicator will be blinked. If this option is not selected, indicator will be lit.

4-2 Button (Function Key)

Press  or select 「Components→Function Key」



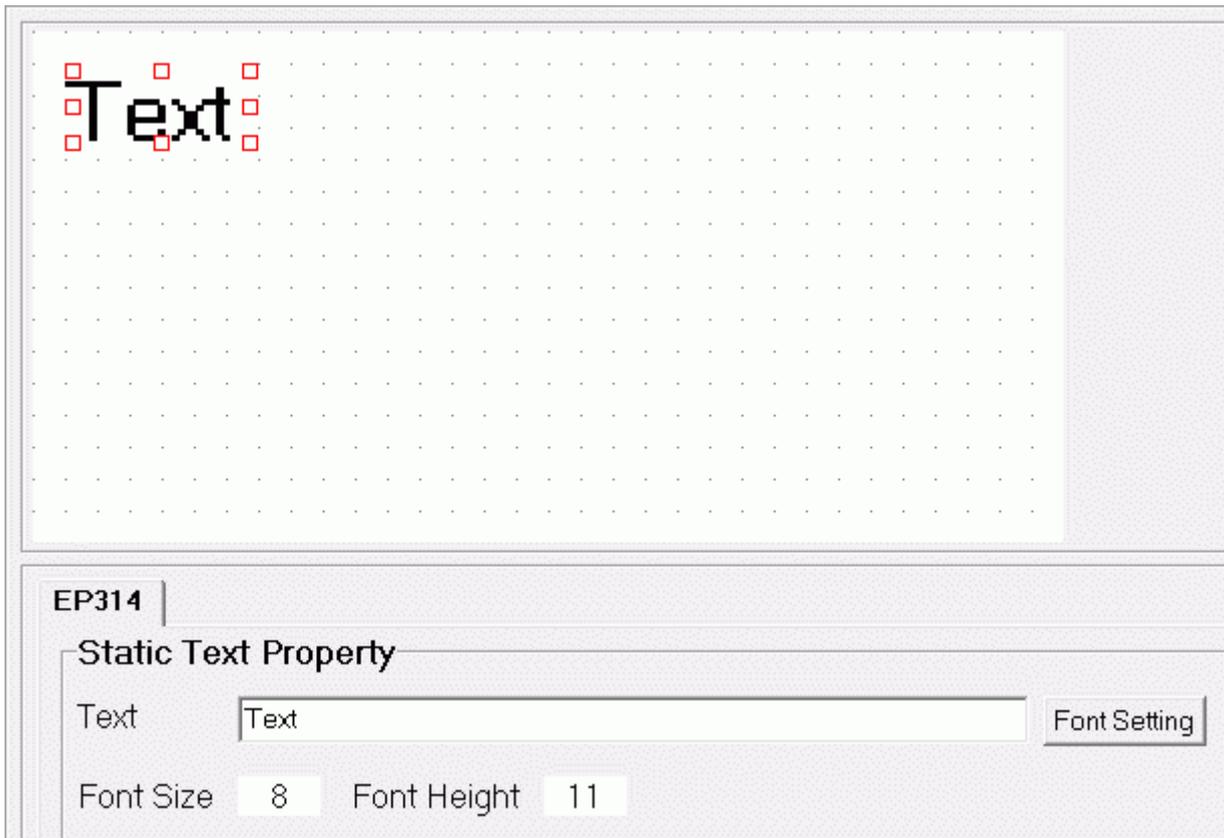
- ◆Key: choose type of Function Key
- ◆Hide: If button is set to hide, button's frame will become to blue in edit screen.
- ◆Function:
 - Bit Control:
 - Action:
 - Momentary: when button of panel is pressed, device is ON; when button is not pressed, device is OFF.
 - Set ON: press button of panel once, device is ON
 - Set OFF: press button of panel once, device is OFF
 - Toggle: when press button of panel once, device is ON, and press it once again, device is OFF.

Change Screen: jump to screen which is set.

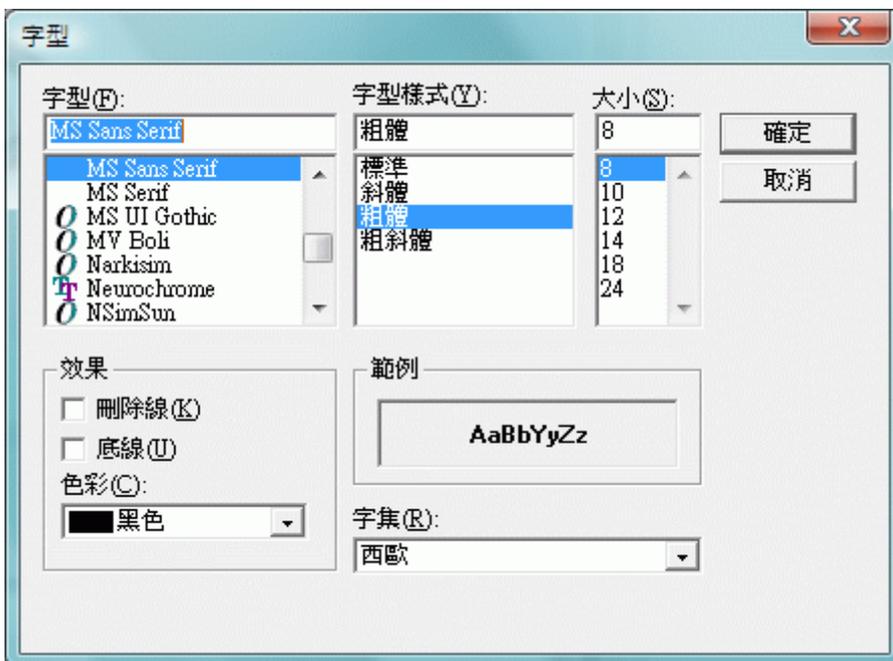
Set Constant: Write value to D register
Value length: select 16 bits or 32 bits
Value type: reserved

4-3 Static text

Press **A** or select 「Components→Static Text」



◆ Font Setting: Font size is able to be set (8 / 10 / 12 / 14 / 18 / 24)



4-4 Dynamic text

Press **D_T** or select 「Components→Dynamic Text」

EP314

Dynamic Text Property

Device **D** 0

Font Setting

Font Size **8** Height **11**

Value	Text
0	DText
1	
2	
3	
4	
5	
6	
7	

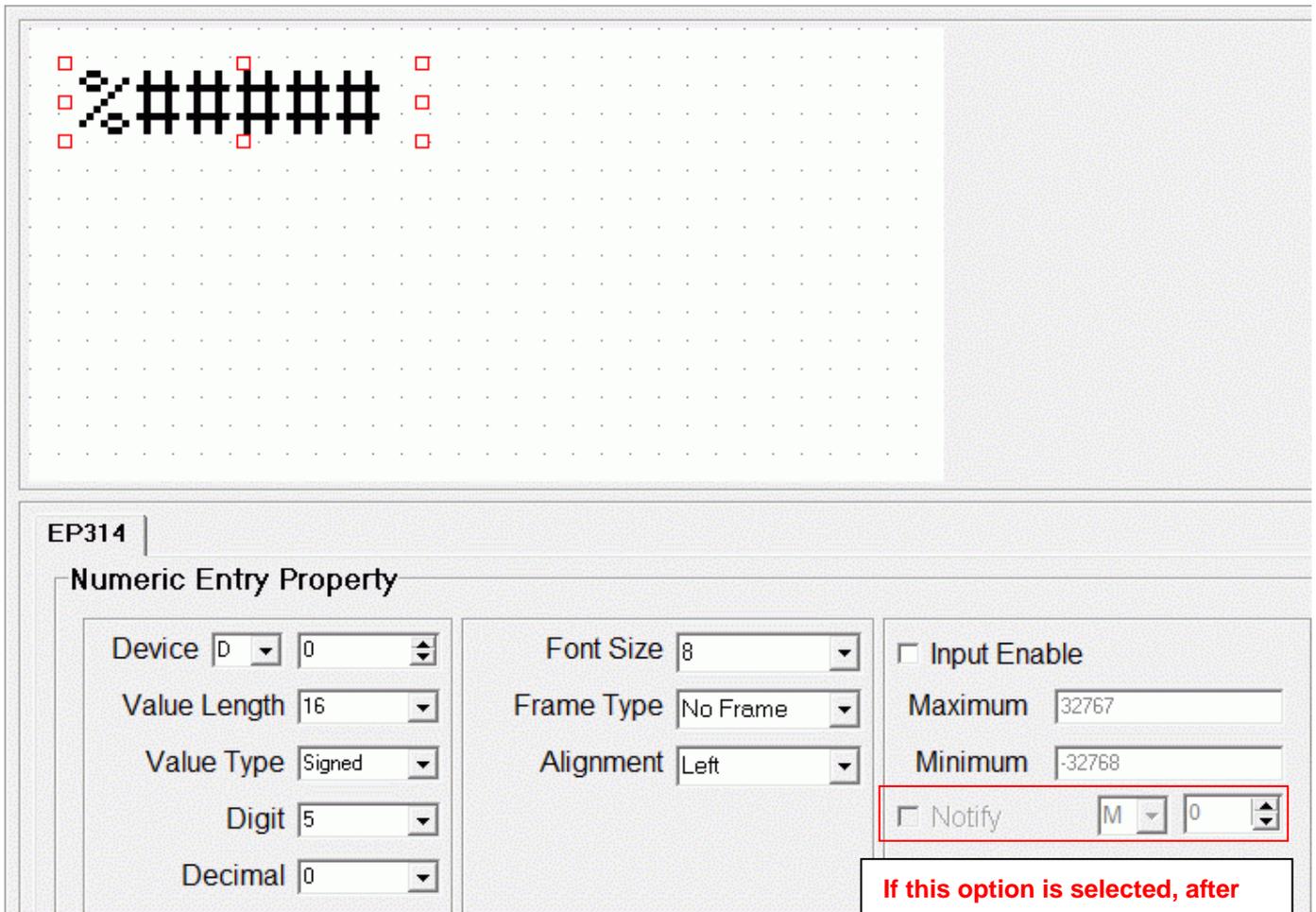
Value of device

Displayed Text

◆ Example: as this illustration, when **D0=0**, it will display **DText**.

4-5 Numeric Entry

Press  or select 「Components→Numeric Entry」



EP314

Numeric Entry Property

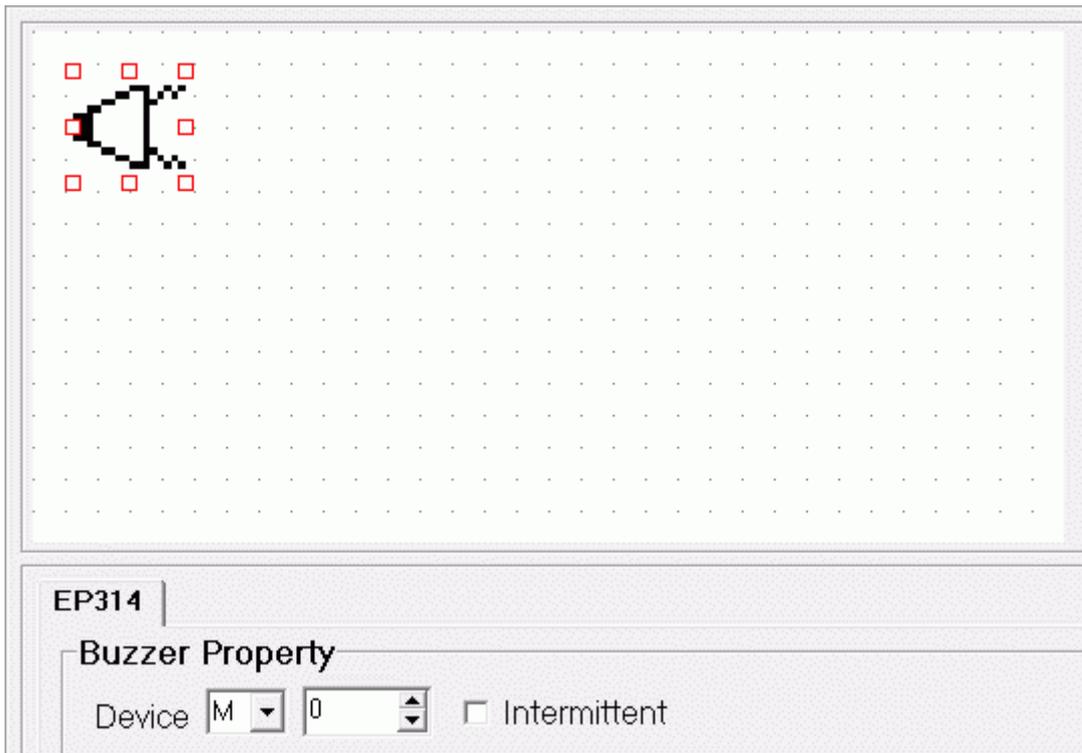
Device	D	0	Font Size	8	<input type="checkbox"/> Input Enable
Value Length	16	Frame Type	No Frame	Maximum	32767
Value Type	Signed	Alignment	Left	Minimum	-32768
Digit	5	<input type="checkbox"/> Notify	M	0	
Decimal	0				

- ◆ Value Length: 16 bits or 32 bits
- ◆ Value Type: Signed / Unsigned / HEX (hexadecimal)
- ◆ Font Size: 8 / 10 / 12 are selectable
- ◆ Input Enable: set range of value

If this option is selected, after value is input, device will be ON.

4-6 Buzzer

Press  or select 「Components→Buzzer」

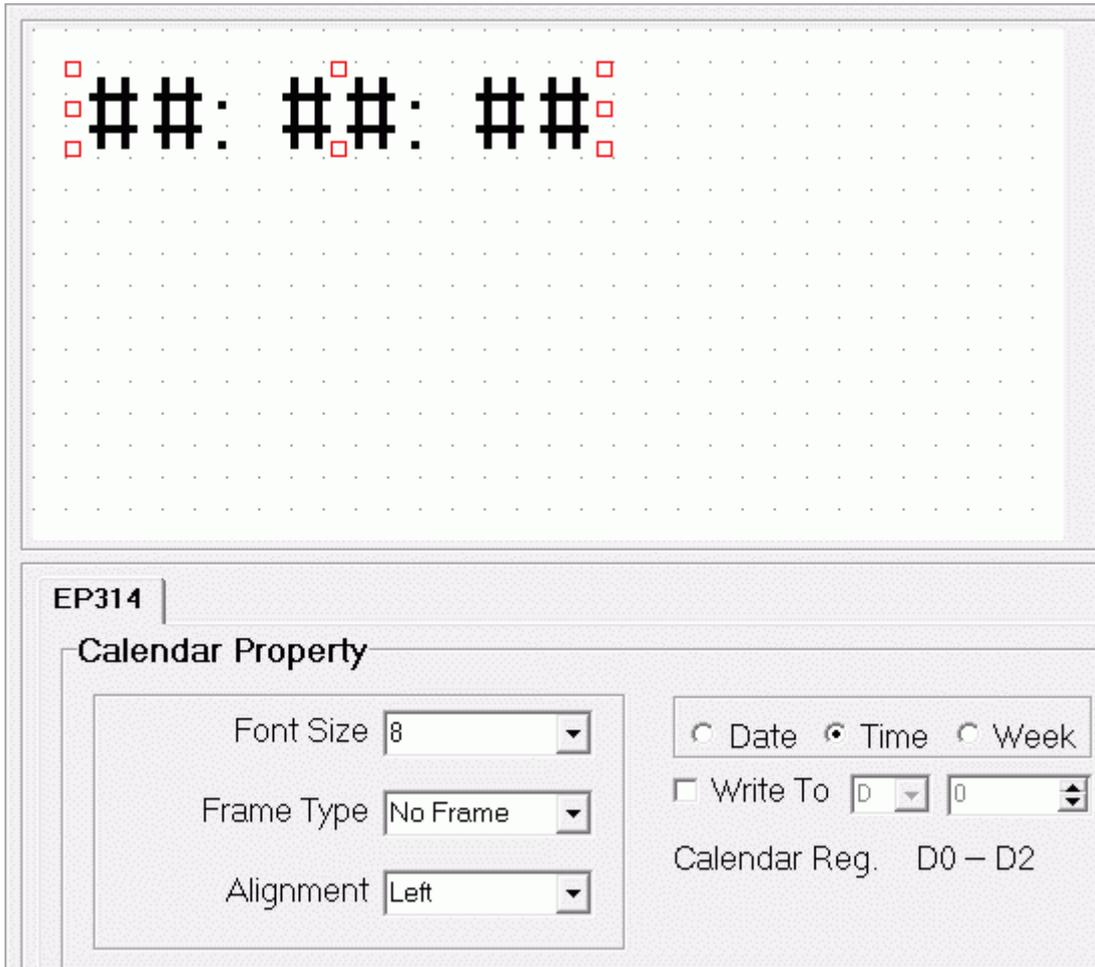


The screenshot shows a software interface for configuring a buzzer component. The top part is a grid where a buzzer icon is placed. Below the grid is a panel titled "EP314" containing a "Buzzer Property" section. In this section, the "Device" is set to "M" and "0", and the "Intermittent" checkbox is unchecked.

◆ If **Intermittent** is selected, buzzer will be ON about 0.5 sec. and be OFF about 0.5 sec.

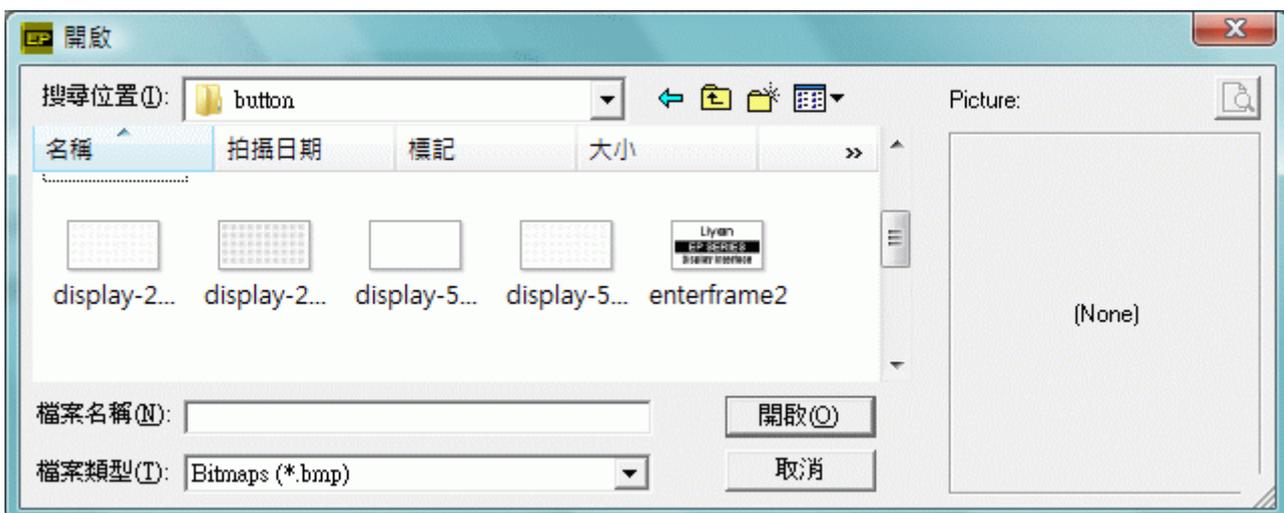
4-7 Calendar

Press  or select 「Components→Calendar display」



4-8 BitMap

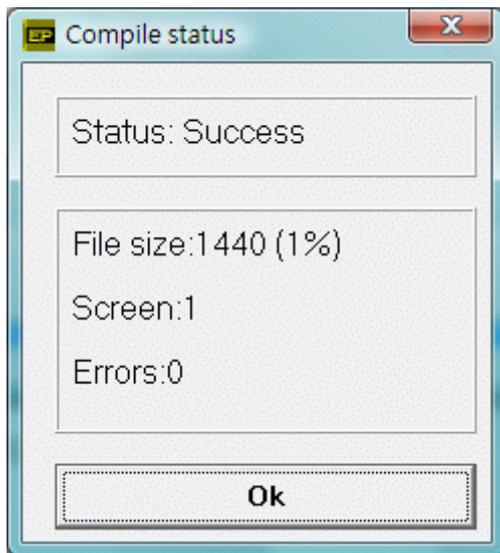
Press  or 「Components→Bitmap」



- ◆ Open BitMap which is input
- ◆ User can input self-designed BitMap file to screen
- ◆ BitMap format: 128 x 64 dots, monochrome

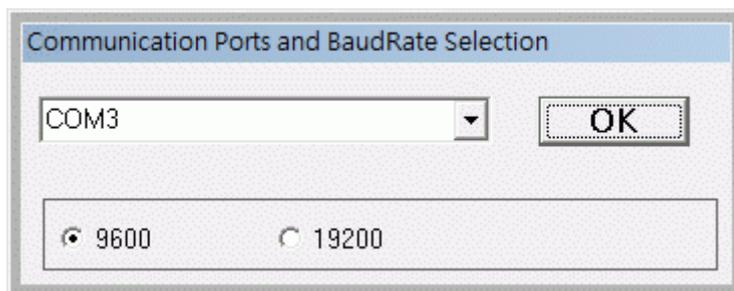
5. Compile

Press  or select 「Tools→Compile」



6. Download

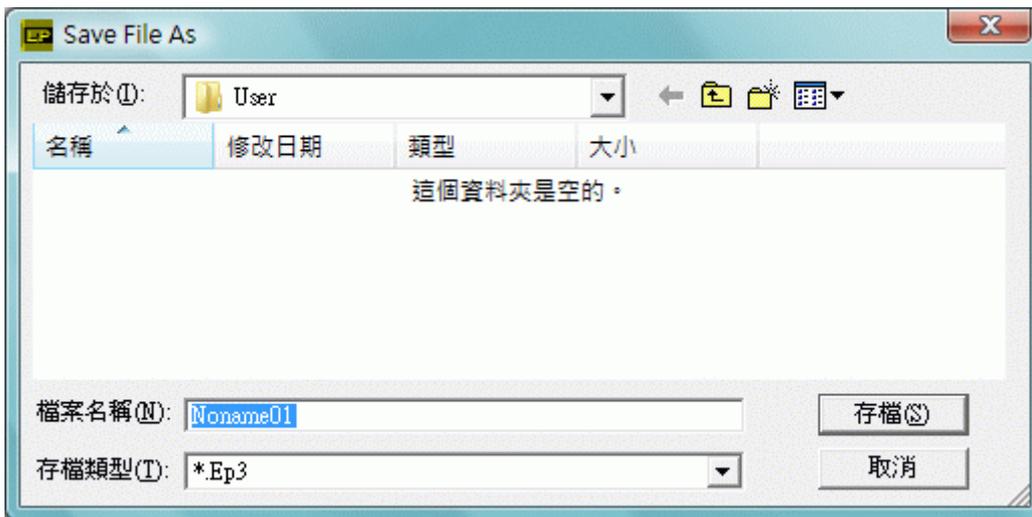
Press  or select 「Tools→Download」



◆ Set communication port and BaudReate

7. Save file

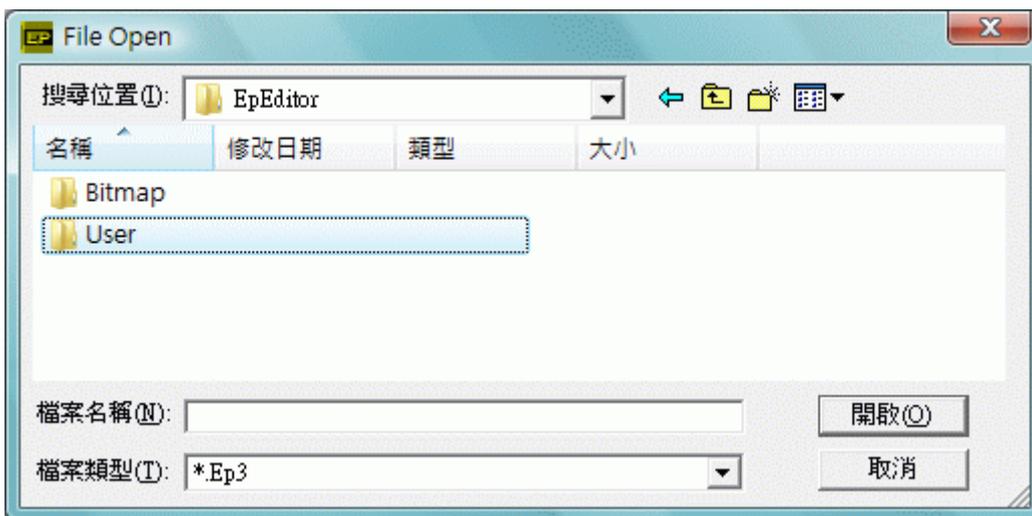
Press  or select 「File→Save」



◆ When user saves file at the first time, system will save it to C:\Liyen\EpEditor\User if user does not assign it.

8. Open file

Press  or select 「File→Open」



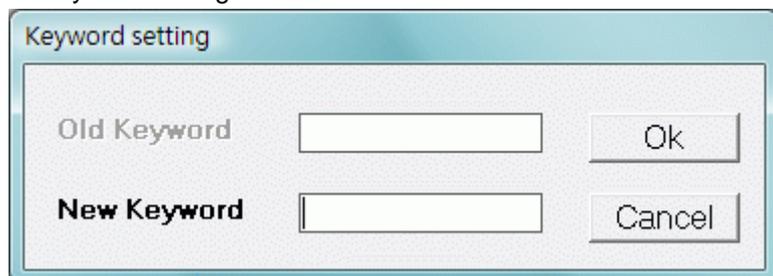
◆ File type: choose .Ep3 file

3. Change current value



- ◆ Device[D]: Input device's address of D (D0~D8255)
- ◆ Value:
 - 16bits : Set K value (Range: K-32768~K32767) or H value (Range: H0000~FFFF)
 - 32bits : Set K value (Range: K-2147483648~K2147483647) or H value (Range: H00000000~FFFFFFFF)

4. Keyword setting

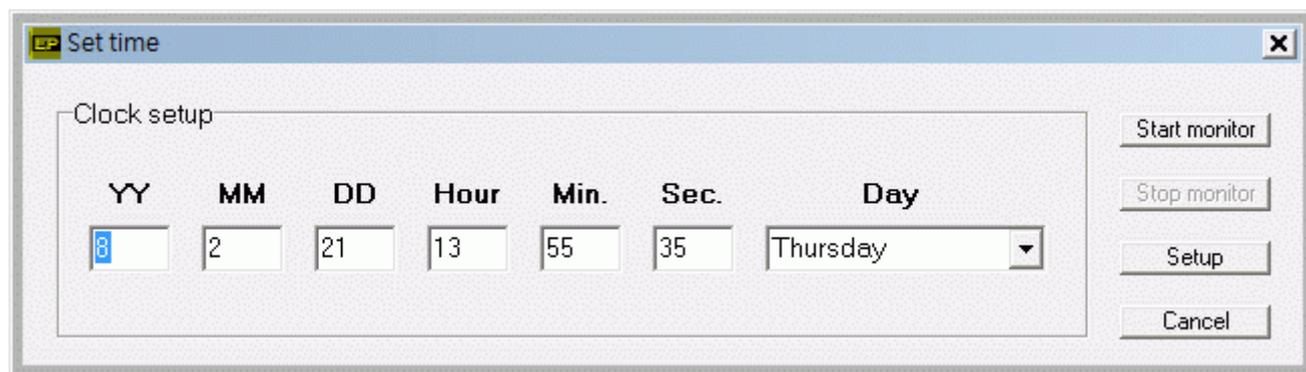


- ◆ Set password: input it in New Keyword
- ◆ Change password: input Old Keyword first, and then input New Keyword

5. Remote RUN/STOP

- ◆ Remote PLC RUN or STOP

6. Set time



- ◆ Set time: Year, Month, Date, Hour, Minute, Second, Day(week)
- ◆ Start monitor: Start to monitor time
- Stop monitor: Stop to monitor time
- Setup: Write setting time. (When Setup, user has to stop monitor first)

7. One Day Control

One Day Timer Control

Set number of control

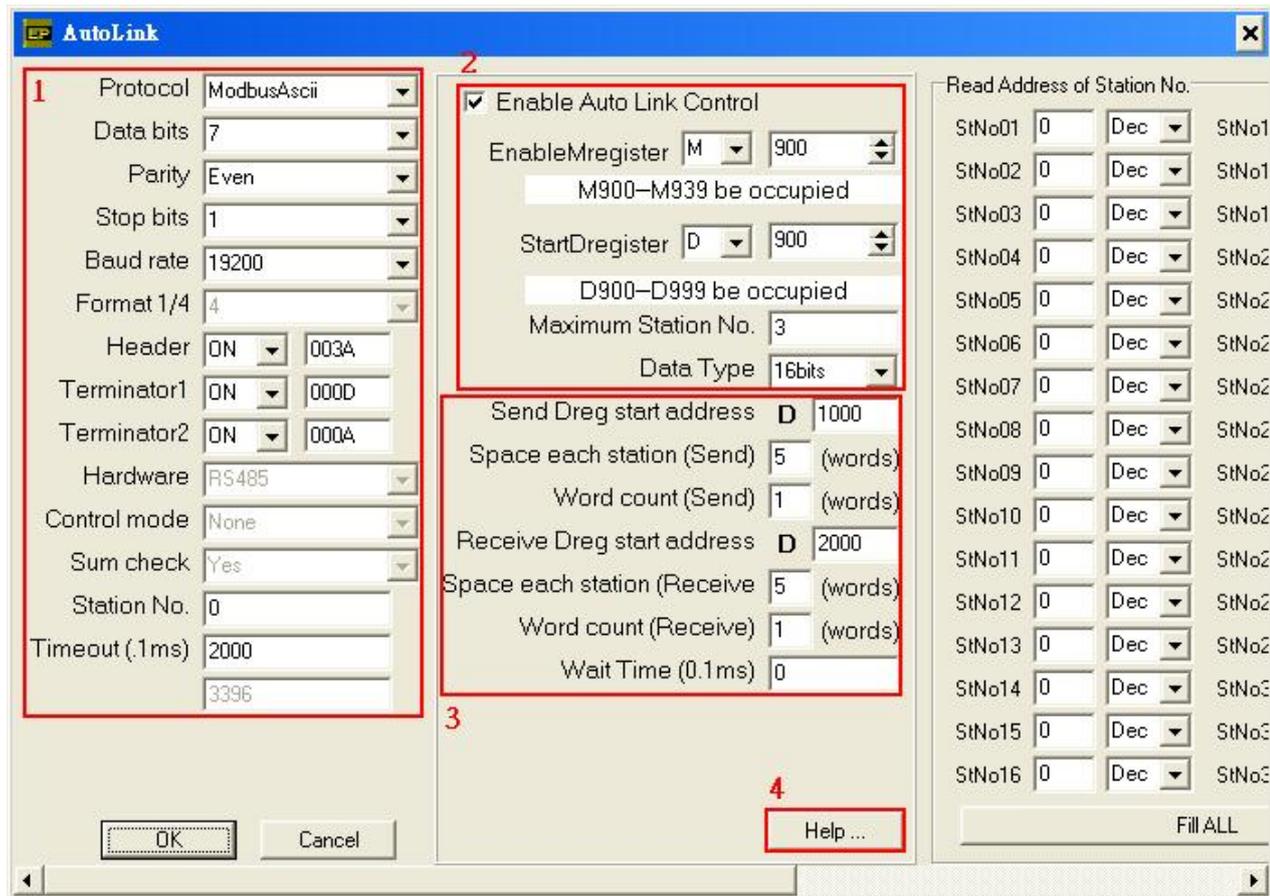
One day control Number Start Dregister Start Mregister

	Control On (HH:MM:SS)	Control Off (HH:MM:SS)	Notify
No.01	<input type="text" value="D0 : D1 : D2"/>	<input type="text" value="D3 : D4 : D5"/>	<input type="text" value="M0"/>
No.02	<input type="text" value="D6 : D7 : D8"/>	<input type="text" value="D9 : D10 : D11"/>	<input type="text" value="M1"/>
No.03	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
No.04	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
No.05	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
No.06	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
No.07	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
No.08	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Dxx : Dxx : Dxx"/>	<input type="text" value="Mxx"/>
.....			

D0 -- D11 Be Used M0 -- M1 Be Used

◆ Example: as this illustration, when time of Control On is up, M0 is ON; when time of Control Off is up, M0 is off.

8. Link Control



◆Part 1: Setting of Protocol

- Protocol : Modbus ASCII or Modbus RTU are selectable
- Data bits : Modbus ASCII is 7. Modbus RTU is 8.
- Parity : None, Odd or Even. It is defined by user. It has to be as same as setting of slave.
- Stop bits : 1 or 2. It is defined by user. It has to be as same as setting of slave.
- Baud rate : 2400, 4800, 9600, 19200, 38400, 57600, 115200. It has to be as same as setting of slave.
- Format 1/4 : Reserved
- Header : as default value
- Terminator1 : as default value
- Terminator2 : as default value
- Hardware : Reserved
- Control mode : Reserved
- Sum check : Reserved
- Station No. : as default value
- Timeout(.1ms) : Communication Time-out Time. The unit is 0.1ms

◆Part 2: Setting of Auto Link

- Enable Auto Link Control : Enable if it is selected
- EnableMregister : It is controlled from Mregister. It is occupied 40 points totally from the start.
- StartDregister : It is controlled from Dregister. It is occupied 100 points totally from the start.
- Maximum Station No. : Total connected stations, i.e., number of slaves. The maximum is 32(*1).
- Data type : 8bits or 16bits. As default value

◆Part 3: Setting of access method

Send Dreg start address : Start address of D register for send
Space each station (send) : Assigned space of each slave (for send)
Word count (send) : (*2) Number of word is sent to each slave. It can not more than “Space each station (send)”
Receive Dreg start address : Start address of D register for receive
Space each station (receive) : Assigned space of each slave (for receive)
Word count (receive) : (*3) Number of word is received from each slave. It can not more than “Space each station(receive)”
Wait Time (0.1ms) : Wait time. The unit is 0.1ms

*1 : Station number of slave has to be started from 1, and it has to be continuous.

*2 : If number of Send is 0, then it will not execute to send, and it is unable to use broadcast function.

*3 : If number of Receive is 0, then it will not execute to receive. Number of Send and Receive can not be 0 at the same time.

◆Part 4: Button of Help

Press “Help”, it will show occupied situation of Mregister and Dregister



In above

example, EnableMregister is set as M900

M900: Start/Stop flag. M900 ON, communication is started. M900 OFF, communication is stopped (*4)

M901-M932: receive finish flag (total 32 points). M901 is Slave 1, M902 is Slave 2...and so on. User has to clear it manually.

M933: flag of send broadcast signal. (*5)

M934: Broadcast busy flag

M935: Broadcast finish flag. It will be ON after complete to send broadcast signal, and user have to clear it manually.

In above example, StartDregister is set as D900

D900-D931: Parameter of auto link control

D900: Communication Format

D901: Communication Command

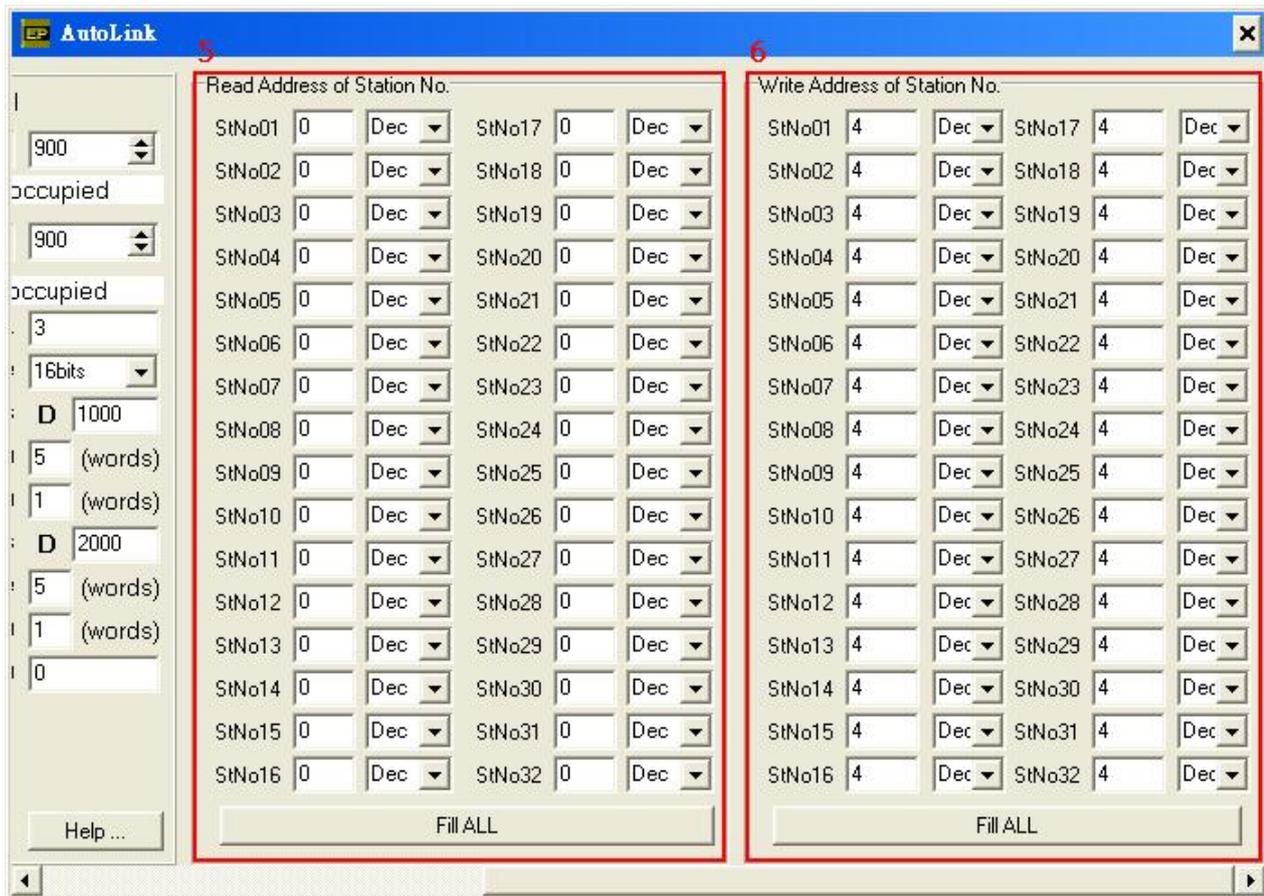
D903: Communication Timeout Timer

D918: Number of total connected stations

D919: Current station number in communication
 D920: Start address for receive data
 D922: Start address for send data
 D932-D963: address for reading from slave
 D964-D995: address for writing to slave
 D996-D999: System reserved

*4 : Communication is working by turns, i.e., it is communicated from slave 1, and then slave 2...and so on. Until to maximum station number, it will be communicated from slave 1 continuously.

*5 : It will send data to each slave at the same time through broadcast function, but each slave will not send it back.



◆ Part 5: Address for reading from slave

This column is for setting to read data to EP314 from which address of each slave.

Address of each station can be selected as decimal (DEC) or hexadecimal (HEX).

If reading addresses of each slave are the same, only fill in address to station number 1 (StNo01) and press button of "Fill ALL".

◆ Part 6: Address for writing to slave

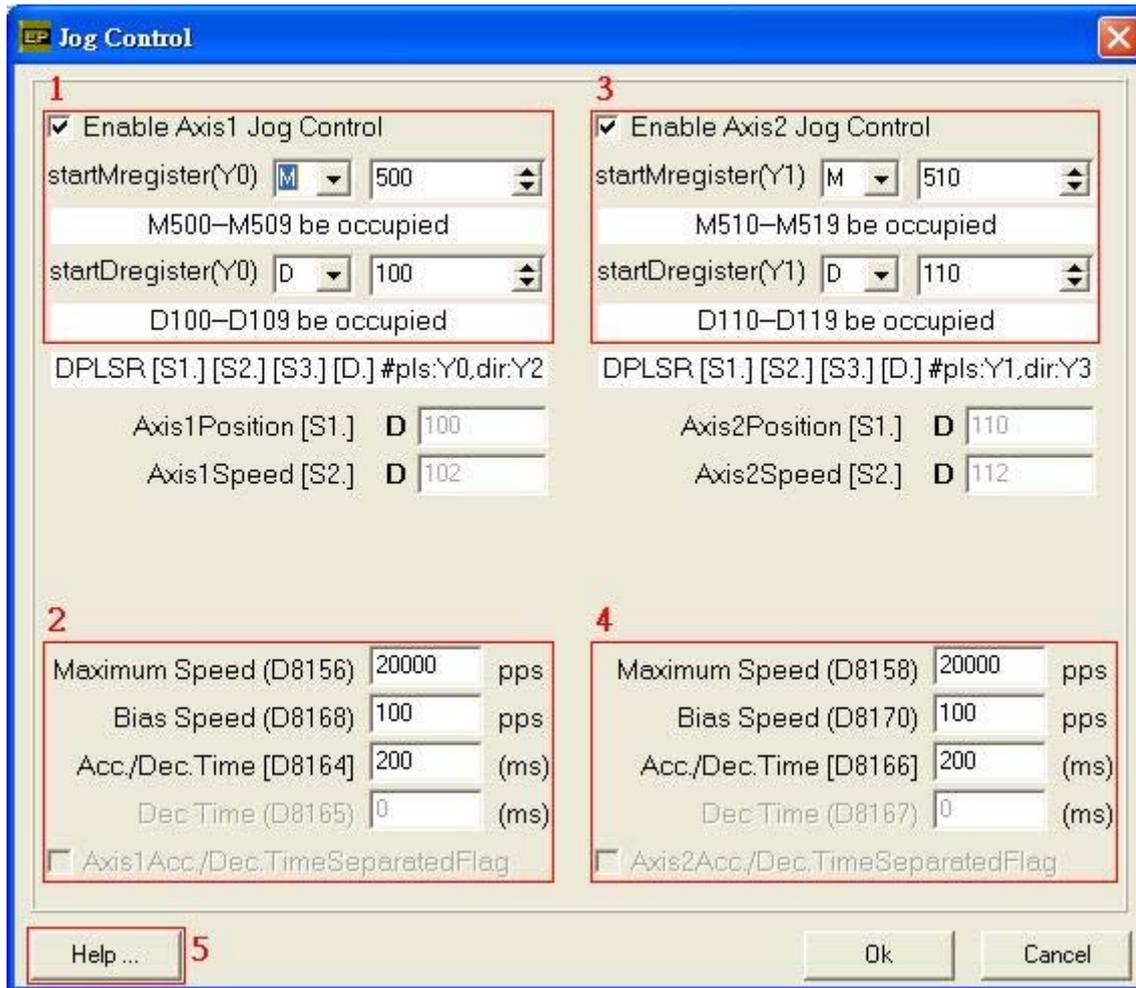
This column is for setting to write data from EP314 to which address of each slave.

Address of each station can be selected as decimal (DEC) or hexadecimal (HEX).

If writing addresses of each slave are the same, only fill in address to station number 1 (StNo01) and press button of "Fill ALL".

Note : If there is a wrong value in parameter setting, bottom color of the column will become to yellow color.

9. Axes Control
9-1 JOG control



◆ Part 1

To enable Axis1 JOG function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

◆ Part 2

Parameter of Axis1. Have to set maximum speed, bias speed, and Acceleration/deceleration time (Separate acceleration and deceleration is ineffective).

◆ Part 3

To enable Axis2 JOG function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

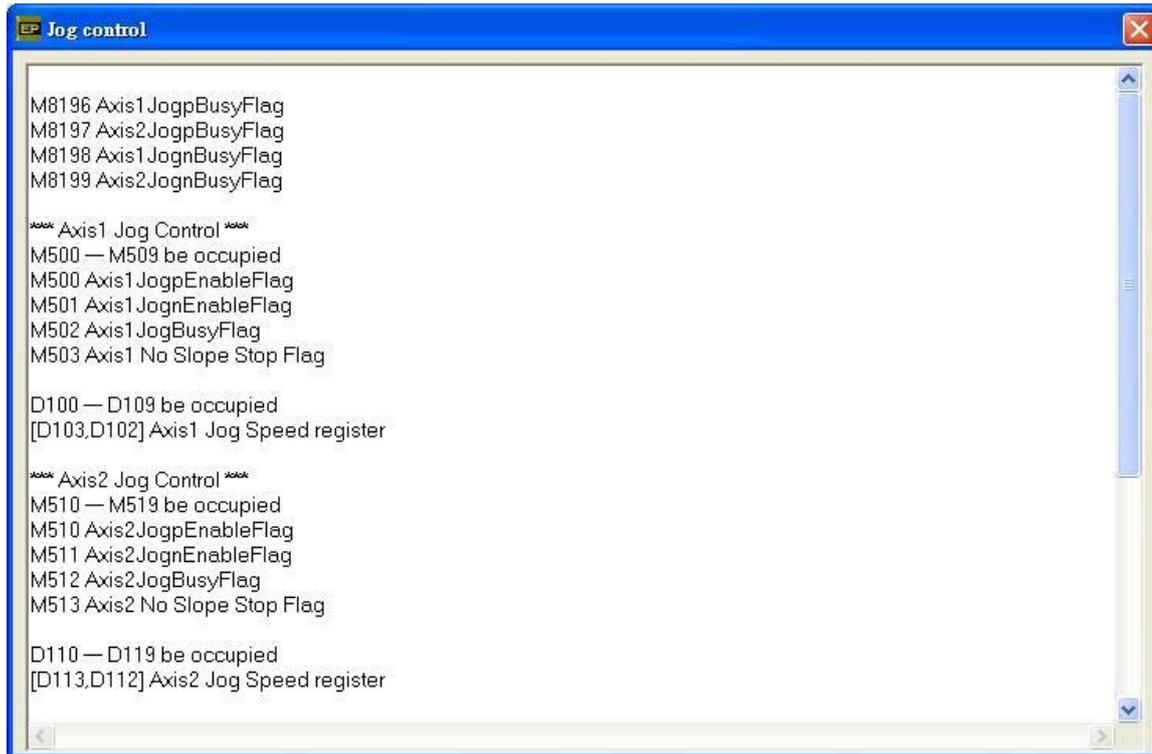
◆ Part 4

Parameter of Axis2. To set maximum speed, bias speed, and Acceleration/deceleration time (Separate acceleration and deceleration is ineffective).

◆ Part 5

Help button. Help frame will be appeared if press button once. It will show occupied situation of registers and special function registers which are related to axes control.

<Occupied situation of M register and D register>



- M8196: Axis1 JOG forward busy flag
- M8197: Axis2 JOG forward busy flag
- M8198: Axis1 JOG reverse busy flag
- M8199: Axis2 JOG reverse busy flag

Axis1(Y0) occupies M500-M509 and D100-D109

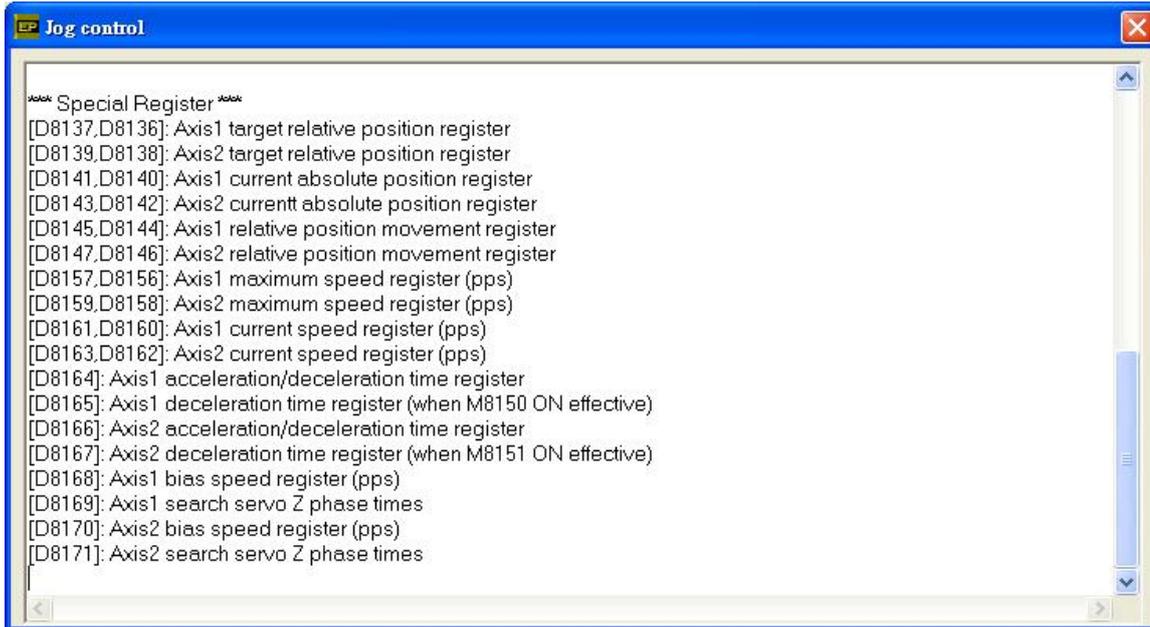
- M500: Axis1 forward enable flag
- M501: Axis1 reverse enable flag (forward flag and reverse flag can not be ON at the same time)
- M502: Axis1 busy flag. When it is ON, it means Axis1 is operating.
- M503: Axis1 without slope stop flag
- [D103, D102]: Axis1 output frequency. It is ineffective to change value during operation.
Bias speed \leq Output frequency \leq Maximum speed

Axis2(Y1) occupies M510-M519 and D110-D119

- M510: Axis2 forward enable flag
- M511: Axis2 reverse enable flag (forward flag and reverse flag can not be ON at the same time)
- M512: Axis2 busy flag. When it is ON, it means Axis2 is operating
- M513: Axis2 without slope stop flag
- [D113, D112]: output frequency. It is ineffective to change value during operation.
Bias speed \leq Output frequency \leq Maximum speed

Except the above-mentioned registers, others are reserved in the occupied M and D registers, please do not use.

<Special function register are related to axes control>



[D8137, D8136] : Axis1 target relative position
[D8139, D8138] : Axis2 target relative position
[D8141, D8140] : Axis1 current absolute position
[D8143, D8142] : Axis2 current absolute position
[D8145, D8144] : Axis1 relative position movement
[D8147, D8146] : Axis2 relative position movement
[D8157, D8156] : Axis1 maximum speed (pps)
[D8159, D8158] : Axis2 maximum speed (pps)
[D8161, D8160] : Axis1 current speed (pps)
[D8163, D8162] : Axis2 current speed (pps)
[D8164] : Axis1 acceleration/deceleration time (ms)
[D8165] : Axis1 deceleration time (ms). It is effective when M8150 ON.
[D8166] : Axis2 acceleration/deceleration time (ms)
[D8167] : Axis2 deceleration time (ms). It is effective when M8151 ON.
[D8168] : Axis1 bias speed (pps)
[D8169] : the number of times of search servo Z phase for Axis1
[D8170] : Axis2 bias speed (pps)
[D8171] : the number of times of search servo Z phase for Axis2

◆ Others : Instruction format and occupied registers

pls:Y0 means Y0 is pulse output point

dir:Y2 means Y2 is direction output point

Axis1 Position D 100 : number of output pulses (This parameter is ineffective to JOG function)

Axis1 Speed D 102(32bit) : output frequency. It is ineffective to change value during operation. Bias speed \leq Output frequency \leq Maximum speed

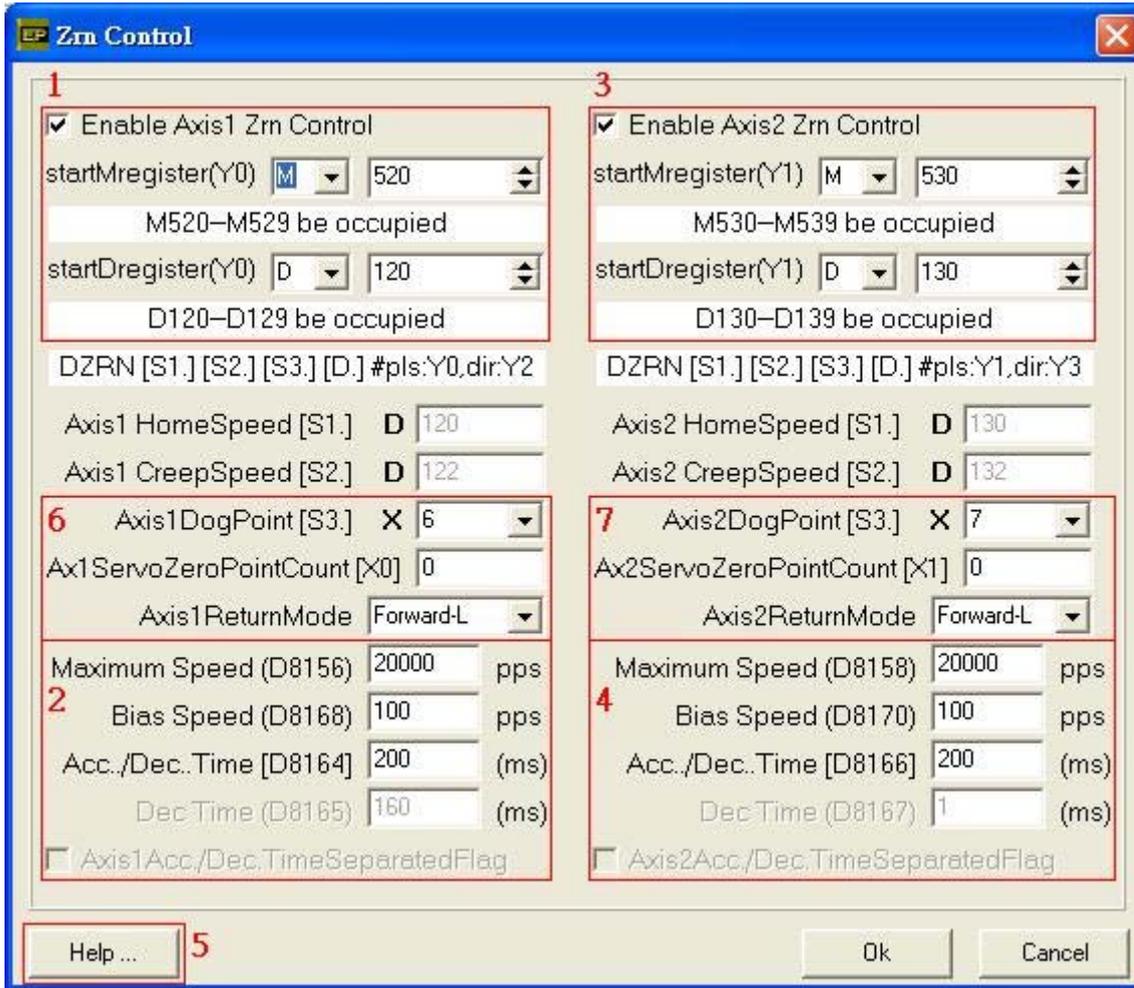
pls:Y1 means Y1 is pulse output point

dir:Y3 means Y3 is direction output point

Axis2 Position D 110 : number of output pulses (This parameter is ineffective to JOG function)

Axis2 Speed D 112(32bit) : output frequency. It is ineffective to change value during operation. Bias speed \leq Output frequency \leq Maximum speed

9-2 ZRN control



◆Part 1

To enable Axis1 Zrn Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

◆Part 2

Parameter of Axis1. Have to set maximum speed, bias speed, and Acceleration/deceleration time (Separate acceleration and deceleration is ineffective).

◆Part 3

To enable Axis2 Zrn Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

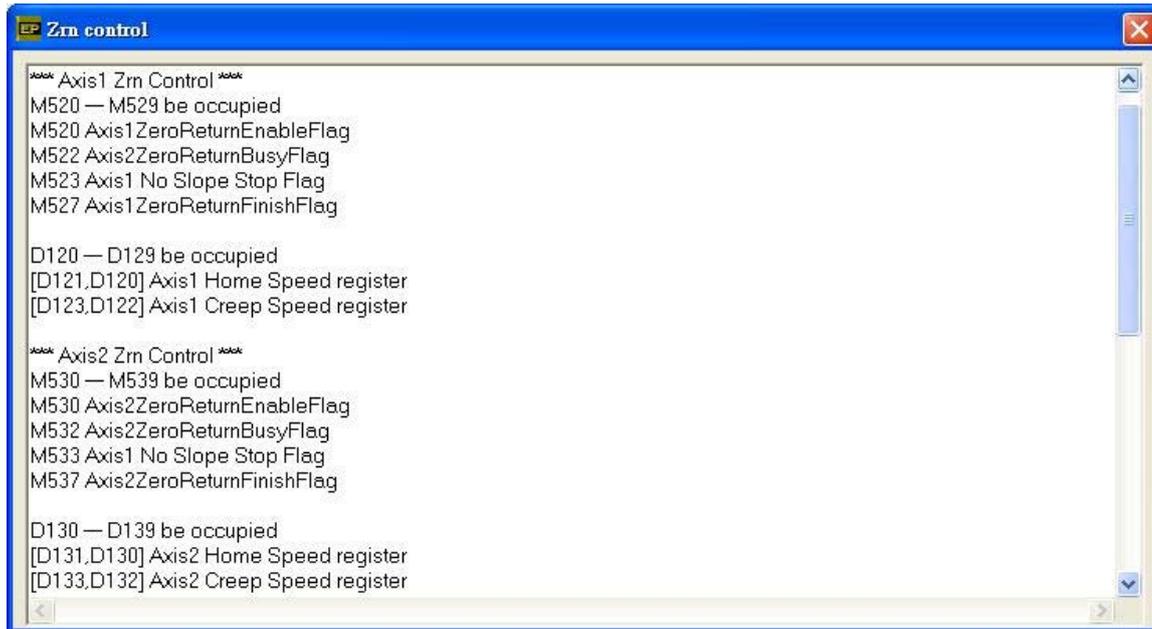
◆Part 4

Parameter of Axis2. Have to set maximum speed, bias speed, and Acceleration/deceleration time (Separate acceleration and deceleration is ineffective).

◆Part 5

Help button. Help frame will be appeared if press button once. It will show occupied situation of registers and special function registers which are related to axes control.

<Occupied situation of M register and D register>



Axis1(Y0) occupies M520-M529 and D120-D129

M520 : Axis1 Zero-Return enable flag

M522 : Axis1 Zero-Return busy flag

M523 : Axis1 without slope stop flag

M527 : Axis1 Zero-Return finish flag

[D121, D120] : search Home Speed. It is ineffective to change value during operation.

Bias speed \leq Home speed \leq Maximum speed

[D123, D122] : search Creep Speed. It is ineffective to change value during operation.

Bias speed \leq Creep Speed \leq 32767 pps

Axis2(Y1) occupies M530-M539 and D130-D139

M530 : Axis2 Zero-Return enable flag

M532 : Axis2 Zero-Return busy flag

M533 : Axis2 without slope stop flag

M537 : Axis2 Zero-Return finish flag

[D131, D130] : search Home Speed. It is ineffective to change value during operation.

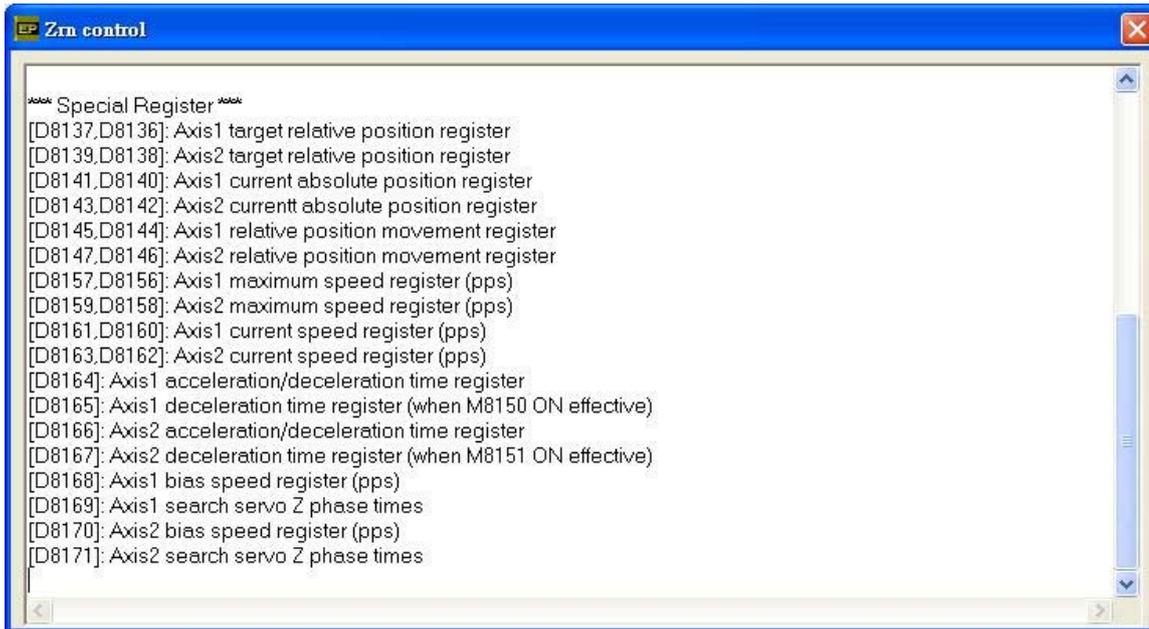
Bias speed \leq Home speed \leq Maximum speed

[D133, D132] : search Creep Speed. It is ineffective to change value during operation.

Bias speed \leq Creep speed \leq 32767 pps

Except the above-mentioned registers, others are reserved in the occupied M and D registers, please do not use.

<Special function register are related to axes control>



- [D8137, D8136] : Axis1 target relative position
- [D8139, D8138] : Axis2 target relative position
- [D8141, D8140] : Axis1 current absolute position
- [D8143, D8142] : Axis2 current absolute position
- [D8145, D8144] : Axis1 relative position movement
- [D8147, D8146] : Axis2 relative position movement
- [D8157, D8156] : Axis1 maximum speed (pps)
- [D8159, D8158] : Axis2 maximum speed (pps)
- [D8161, D8160] : Axis1 current speed (pps)
- [D8163, D8162] : Axis2 current speed (pps)
- [D8164] : Axis1 acceleration/deceleration time (ms)
- [D8165] : Axis1 deceleration time (ms). It is effective when M8150 ON.
- [D8166] : Axis2 acceleration/deceleration time (ms)
- [D8167] : Axis2 deceleration time (ms). It is effective when M8151 ON.
- [D8168] : Axis1 bias speed (pps)
- [D8169] : the number of times of search servo Z phase for Axis1
- [D8170] : Axis2 bias speed (pps)
- [D8171] : the number of times of search servo Z phase for Axis2

◆ Part 6

To set input point of DogPoint, number of times of search servo Z phase, and return mode (refer to next page) for Axis1 Zrn Control function. X0 is Z phase input point for Axis1. It can set one point of X2~X7 for input point of DogPoint, but it can not set same point as Axis2.

◆ Part 7

To set input point of DogPoint, number of times of search servo Z phase, and return mode (refer to next page) for Axis 2 Zrn Control function. X1 is Z phase input point for Axis2. It can set one point of X2~X7 for input point of DogPoint, but it can not set same point as Axis1.

◆Others : Instruction format and occupied registers

pls:Y0 means Y0 is pulse output point

dir:Y2 means Y2 is direction output point

Axis1 HomeSpeed D 120(32bit) : search Home speed. Bias speed ≤ Home speed ≤ Maximum speed

Axis1 CreepSpeed D 122(32bit) : search Creep speed. Bias speed ≤ Creep speed ≤ 32767 pps

pls:Y1 means Y1 is pulse output point

dir:Y3 means Y3 is direction output point

Axis2 HomeSpeed D 130(32bit) : search Home speed. Bias speed ≤ Home speed ≤ Maximum speed

Axis2 CreepSpeed D 132(32bit) : search Creep speed. Bias speed ≤ Creep speed ≤ 32767 pps

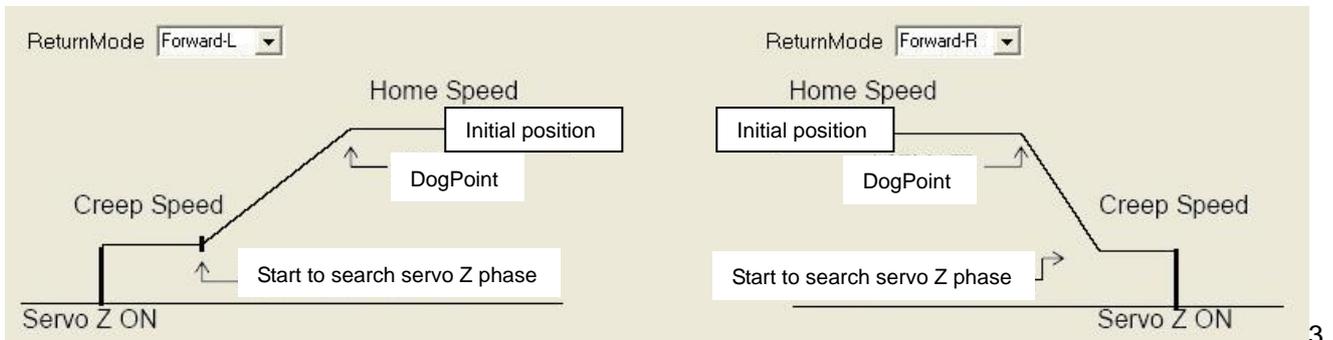
◆Note : Return mode

If number of times of search servo Z phase is set to 0, then it will not search Z phase.

<Forward mode>

Forward-L : initial operation direction : reverse

Forward-R : initial operation direction : forward



In forward mode, if it meets DogPoint, then it will decelerate to CreepSpeed and start to search Z phase. If number of times of Z phase is 0, it will stop.

<Reverse mode>

Reverse-L : initial operation direction : reverse

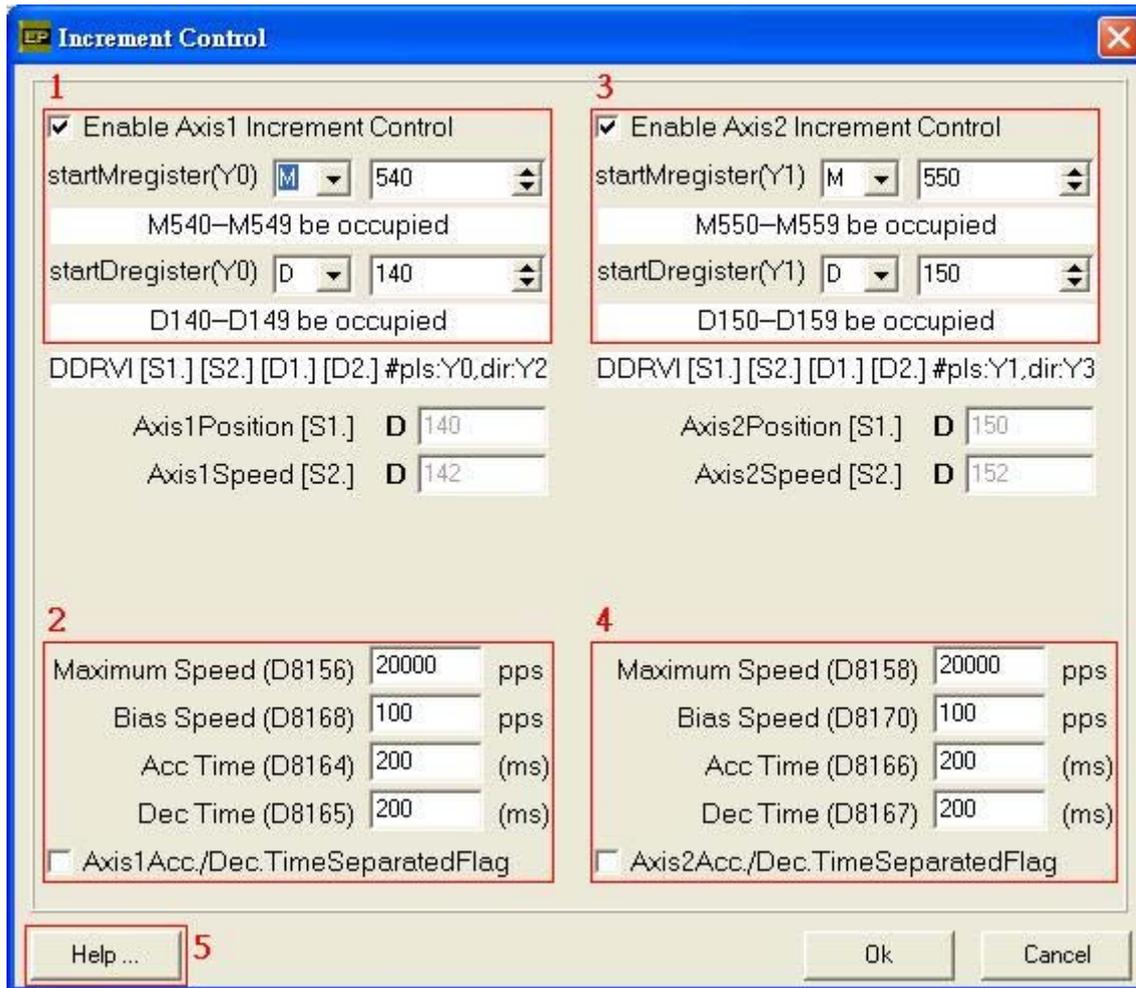
Reverse-R : initial operation direction : forward



Reverse mode – forward : When it meets DogPoint at the first time, it decelerates to CreepSpeed and then reverse. When it meets DogPoint at the second time, it starts to search Z phase. If number of times of Z phase is 0, it will stop.

Reverse mode – reverse : When it meets DogPoint at the first time, it decelerates to CreepSpeed and then forward. When it meets DogPoint at the second time, it keeps as CreepSpeed and then reverse. When it meets DogPoint at the third time, it starts to search Z phase. If number of times of Z phase is 0, it will stop.

9-3 Increment control



◆Part 1

To enable Axis1 Increment Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

◆Part 2

Parameter of Axis1. Have to set maximum speed, bias speed, acceleration time and deceleration time.

◆Part 3

To enable Axis2 Increment Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

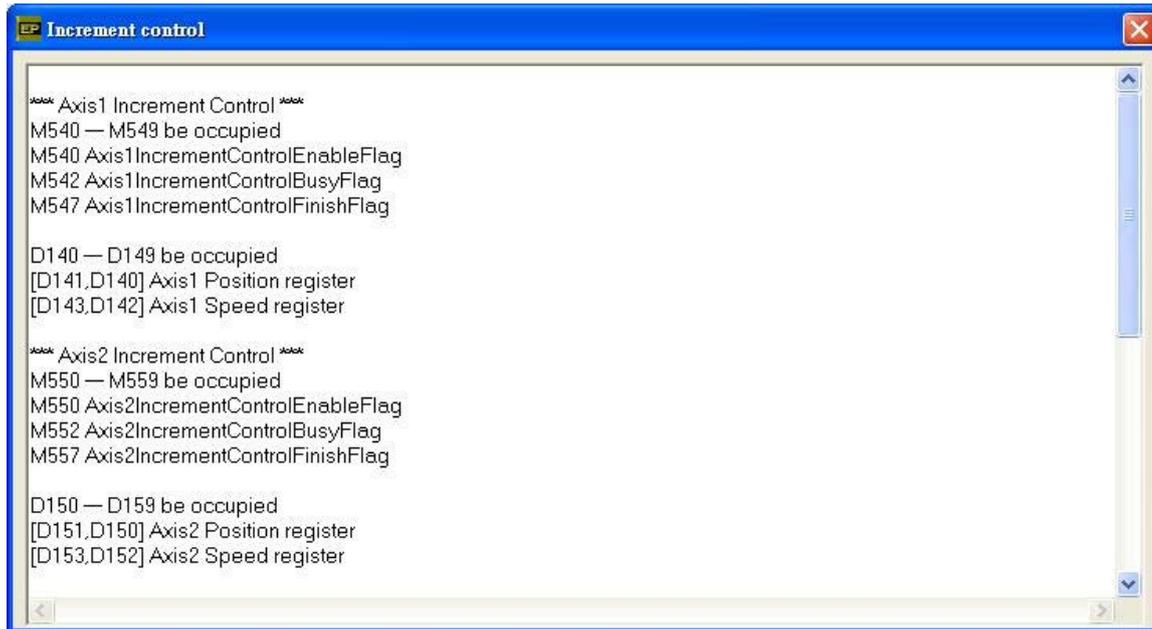
◆Part 4

Parameter of Axis2. Have to set maximum speed, bias speed, acceleration time and deceleration time.

◆Part 5

Help button. Help frame will be appeared if press button once. It will show occupied situation of registers and special function registers which are related to axes control.

<Occupied situation of M register and D register>



Axis1(Y0) occupies M540-M549 and D140-D149

M540 : Axis1 Increment position enable flag

M542 : Axis1 busy flag

M547 : Axis1 Increment position finish flag

[D141, D140] : number of Axis1 output pulses. It is ineffective to change value during operation. If value is positive, then it outputs forward pulse. If value is negative, then it outputs reverse pulse.

[D143, D142] : Axis1 output frequency. It is ineffective to change value during operation. ◦ Bias speed \leq Output frequency \leq Maximum speed

Axis2(Y1) occupies M550-M559 and D150-D159

M550 : Axis2 Increment position enable flag

M552 : Axis2 busy flag

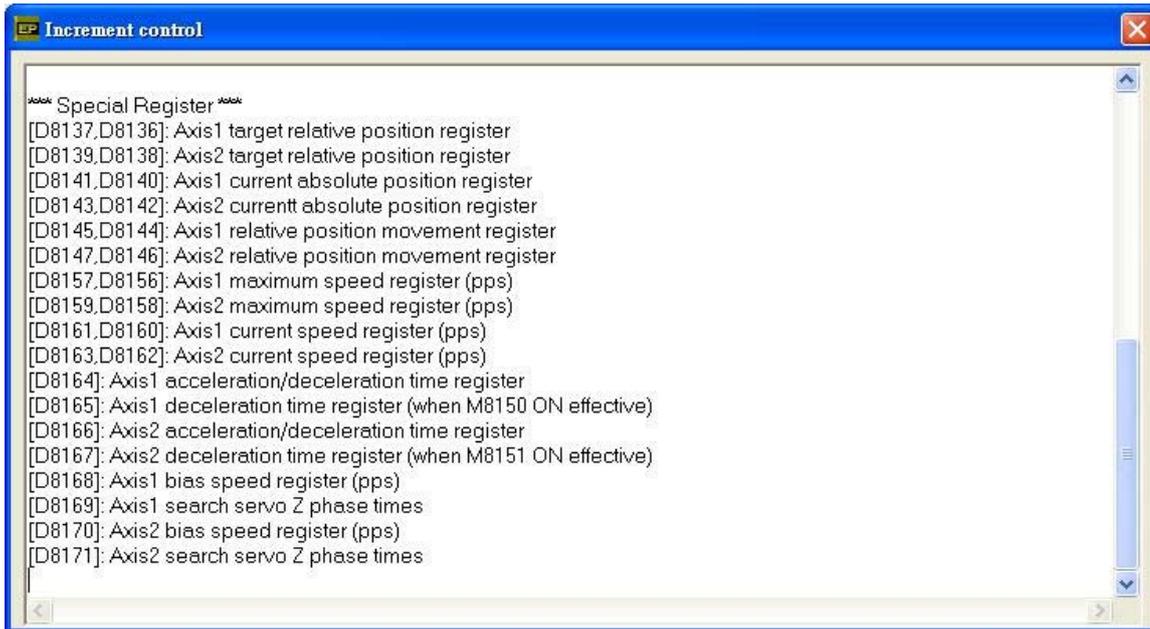
M557 : Axis2 Increment position finish flag

[D151, D150] : number of Axis2 output pulses. It is ineffective to change value during operation. If value is positive, then it outputs forward pulse. If value is negative, then it outputs reverse pulse.

[D153, D152] : Axis2 output frequency. It is ineffective to change value during operation. ◦ Bias speed \leq Output frequency \leq Maximum speed

Except the above-mentioned registers, others are reserved in the occupied M and D registers, please do not use.

<Special function register are related to axes control>



- [D8137, D8136] : Axis1 target relative position
- [D8139, D8138] : Axis2 target relative position
- [D8141, D8140] : Axis1 current absolute position
- [D8143, D8142] : Axis2 current absolute position
- [D8145, D8144] : Axis1 relative position movement
- [D8147, D8146] : Axis2 relative position movement
- [D8157, D8156] : Axis1 maximum speed (pps)
- [D8159, D8158] : Axis2 maximum speed (pps)
- [D8161, D8160] : Axis1 current speed (pps)
- [D8163, D8162] : Axis2 current speed (pps)
- [D8164] : Axis1 acceleration/deceleration time (ms)
- [D8165] : Axis1 deceleration time (ms). It is effective when M8150 ON.
- [D8166] : Axis2 acceleration/deceleration time (ms)
- [D8167] : Axis2 deceleration time (ms). It is effective when M8151 ON.
- [D8168] : Axis1 bias speed (pps)
- [D8169] : the number of times of search servo Z phase for Axis1
- [D8170] : Axis2 bias speed (pps)
- [D8171] : the number of times of search servo Z phase for Axis2

◆Others : Instruction format and occupied registers

pls:Y0 means Y0 is pulse output point

dir:Y2 means Y2 is direction output point

Axis1 Position D140(32bit) : number of output pluses. It is ineffective to change value during operation. If value is positive, then it outputs forward pulse. If value is negative, then it outputs reverse pulse.

Axis1 Speed D 142(32bit) : output frequency. It is ineffective to change value during operation. Bias speed \leq Output frequency \leq Maximum speed

pls:Y1 means Y1 is pulse output point

dir:Y3 means Y3 is direction output point

Axis2 Position D 150(32bit) : number of output pluses. It is ineffective to change value during operation. If value is positive, then it outputs forward pulse. If value is negative, then it outputs reverse pulse.

Axis2 Speed D 152(32bit) : output frequency. It is ineffective to change value during operation. Bias speed \leq Output frequency \leq Maximum speed

9-4 Absolute control

The screenshot shows the 'Absolute Control' dialog box with the following settings:

- Part 1 (Axis1):**
 - Enable Axis1 Absolute Control
 - startMregister(Y0) M 560 (M560–M569 be occupied)
 - startDregister(Y0) D 160 (D160–D169 be occupied)
 - DDRVA [s1.] [s2.] [d1.] [d2.] #pls:Y0,dir:Y2
 - Axis1Position [S1.] D 160
 - Axis1Speed [S2.] D 162
- Part 2 (Axis1 Parameters):**
 - Maximum Speed (D8156) 20000 pps
 - Bias Speed (D8168) 100 pps
 - Acc Time (D8164) 200 (ms)
 - Dec Time (D8165) 200 (ms)
 - Axis1Acc./Dec.TimeSeparatedFlag
- Part 3 (Axis2):**
 - Enable Axis2 Absolute Control
 - startMregister(Y1) M 570 (M570–M579 be occupied)
 - startDregister(Y1) D 170 (D170–D179 be occupied)
 - DDRVA [s1.] [s2.] [d1.] [d2.] #pls:Y1,dir:Y3
 - Axis2Position [S1.] D 170
 - Axis2Speed [S2.] D 172
- Part 4 (Axis2 Parameters):**
 - Maximum Speed (D8158) 20000 pps
 - Bias Speed (D8170) 100 pps
 - Acc Time (D8166) 200 (ms)
 - Dec Time (D8167) 200 (ms)
 - Axis2Acc./Dec.TimeSeparatedFlag
- Part 5:** Help ... button

◆Part 1

To enable Axis1 Absolute Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

◆Part 2

Parameter of Axis1. Have to set maximum speed, bias speed, acceleration time and deceleration time.

◆Part 3

To enable Axis2 Absolute Control function (enable if it is selected) and to set start number of controlled registers. To press Help button is able to check occupied situation of registers if user change start number ◦

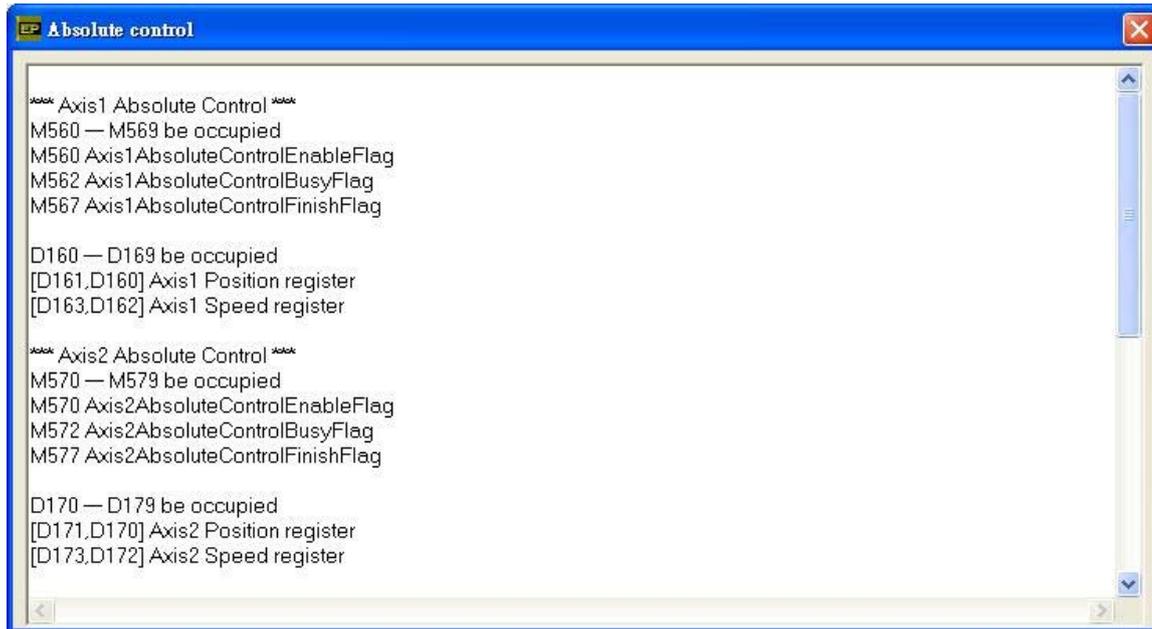
◆Part 4

Parameter of Axis2. Have to set maximum speed, bias speed, acceleration time and deceleration time.

◆Part 5

Help button. Help frame will be appeared if press button once. It will show occupied situation of registers and special function registers which are related to axes control.

<Occupied situation of M register and D register>



Axis1(Y0) occupies M560-M569 and D160-D169

M560 : Axis1 absolute position enable flag

M562 : Axis1 busy flag

M567 : Axis1 absolute position finish flag

[D161, D160] : Axis1 target position. It is ineffective to change value during operation.

[D163, D162] : Axis1 output frequency. It is ineffective to change value during operation. ◦ Bias speed \leq Output frequency \leq Maximum speed

Axis2(Y1) occupies M570-M579 and D170-D179

M570 : Axis2 absolute position enable flag

M572 : Axis2 busy flag

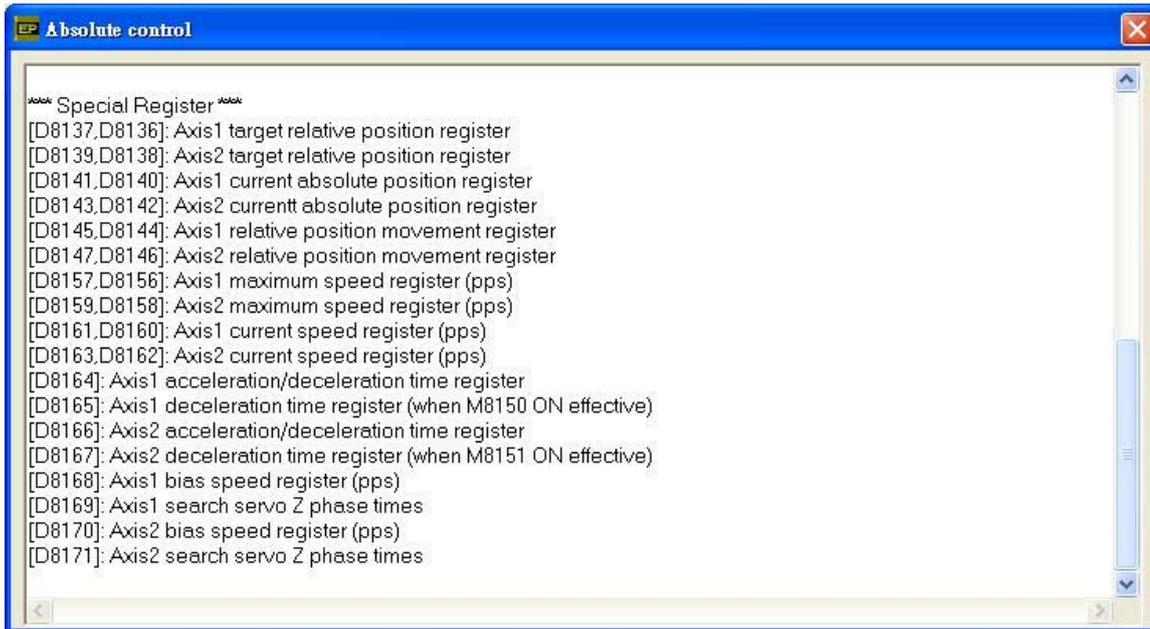
M577 : Axis2 absolute position finish flag

[D171, D170] : Axis2 target position. It is ineffective to change value during operation.

[D173, D172] : Axis2 output frequency. It is ineffective to change value during operation. ◦ Bias speed \leq Output frequency \leq Maximum speed

Except the above-mentioned registers, others are reserved in the occupied M and D registers, please do not use.

<Special function register are related to axes control>



- [D8137, D8136] : Axis1 target relative position
- [D8139, D8138] : Axis2 target relative position
- [D8141, D8140] : Axis1 current absolute position
- [D8143, D8142] : Axis2 current absolute position
- [D8145, D8144] : Axis1 relative position movement
- [D8147, D8146] : Axis2 relative position movement
- [D8157, D8156] : Axis1 maximum speed (pps)
- [D8159, D8158] : Axis2 maximum speed (pps)
- [D8161, D8160] : Axis1 current speed (pps)
- [D8163, D8162] : Axis2 current speed(pps)
- [D8164] : Axis1 acceleration/deceleration time (ms)
- [D8165] : Axis1 deceleration time (ms). It is effective when M8150 ON.
- [D8166] : Axis2 acceleration/deceleration time (ms)
- [D8167] : Axis2 deceleration time (ms). It is effective when M8151 ON.
- [D8168] : Axis1 bias speed (pps)
- [D8169] : the number of times of search servo Z phase for Axis1
- [D8170] : Axis2 bias speed (pps)
- [D8171] : the number of times of search servo Z phase for Axis2

◆ Others : Instruction format and occupied registers

pls:Y0 means Y0 is pulse output point

dir:Y2 means Y2 is direction output point

Axis1 Position D 160(32bit) : target position. It is ineffective to change value during operation.

Axis1 Speed D 162(32bit) : output frequency. It is ineffective to change value during operation. °Bias speed ≤ Output frequency ≤ Maximum speed

pls:Y1 means Y1 is pulse output point

dir:Y3 means Y3 is direction output point

Axis2 Position D 170(32bit) : target position. It is ineffective to change value during operation.

Axis2 Speed D 172(32bit) : output frequency. It is ineffective to change value during operation. °Bias speed ≤ Output frequency ≤ Maximum speed

LIYAN PROGRAMMABLE LOGIC CONTROLLER

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