4.4: Linking I-8xx7, I-7188EG/XG & W-8xx7 To Touch 500

Touch500 series HMI support below protocols to link to ICP DAS ISaGRAF controllers.
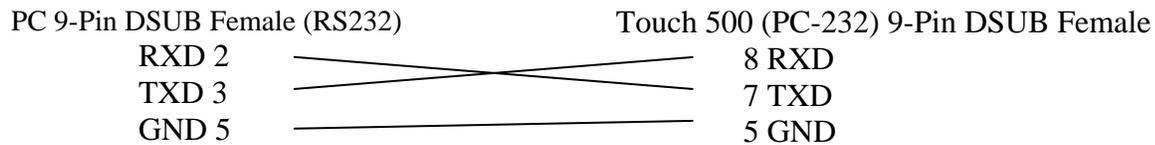
Item	Protocols
Touch-506L	Modbus RTU RS-232 , Modbus RTU RS-485
Touch-8000	Modbus RTU RS-232 , Modbus RTU RS-485 , **Modbus TCP/IP**
Touch-506T / 510T	Modbus RTU RS-232 , Modbus RTU RS-485

Please install "EasyBuilder 500" software (Ver. 2.7.1 or later version) first before you can program the Touch 506L, 506T, 510T HMI. You may download the new released software and manual from below web site
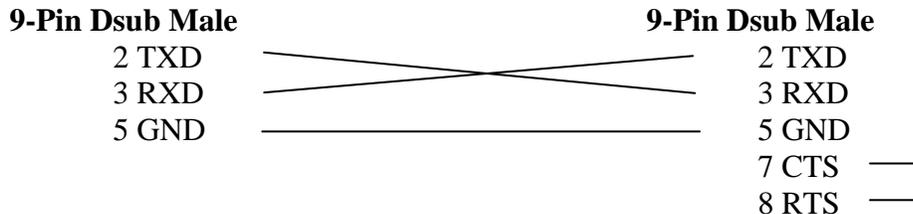   http://www.icpdas.com/download/others/touch/touch.htm   "**setup.zip**"
or run "setup.exe" at USB_CD:\napdos\touch\500series\setup\

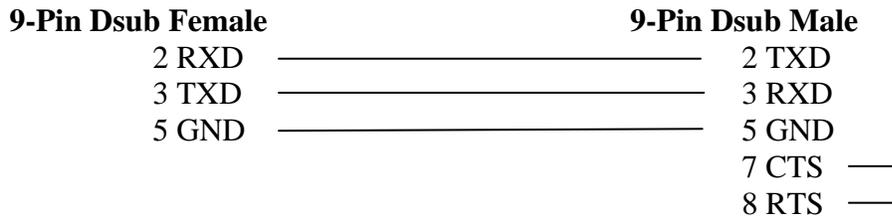RS-232 Cable Pin assignment of PC to Touch 500 series (For PC to download HMI screen).

```
PC 9-Pin DSUB Female (RS232)          Touch 500 (PC-232) 9-Pin DSUB Female
        RXD 2    _____    8 RXD
        TXD 3    _____    7 TXD
        GND 5    _____    5 GND
```

RS-232 Cable Pin assignment between controllers and Touch 500 series.

I-8000 COM1 & I-7188 COM1 (RS232)   **Touch 506T/506L/510T (PLC 232)**
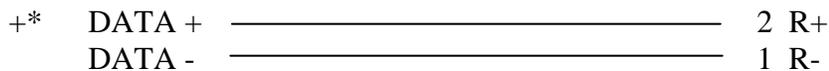
9-Pin Dsub Male   **9-Pin Dsub Male**
```
        2 TXD    _____    2 TXD
        3 RXD    _____    3 RXD
        5 GND    _____    5 GND
                                        7 CTS  ┐
                                        8 RTS  ┘
```

Wincon COM2 (RS232)   **Touch 506T/506L/510T (PLC 232)**

9-Pin Dsub Female   **9-Pin Dsub Male**
```
        2 RXD    _____    2 TXD
        3 TXD    _____    3 RXD
        5 GND    _____    5 GND
                                        7 CTS  ┐
                                        8 RTS  ┘
```
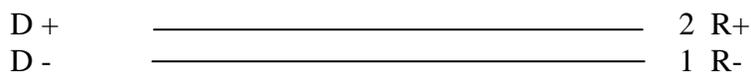
RS-485 Cable Pin assignment between controllers and Touch 500 series

I-8417/8817 COM2 (RS485)   **Touch 506T/506L/510T (PLC 485)**
```
  +*    DATA +   _____    2  R+
        DATA -   _____    1  R-
```

Wincon COM3 (RS485)   **Touch 506T/506L/510T (PLC 485)**
```
        D +      _____    2  R+
        D -      _____    1  R-
```

4.4.1: Program the I-8xx7, I-7188EG/XG & W-8xx7

To make data of the I-8xx7, I-7188EG/XG & W-8xx7 controller to be accessible to the Touch 510T, variables in the controller should be assigned a network address. Please refer to section 4.1, 4.2. If you are not familiar with the ISaGRAF programming, recommended to review Chapter 2.
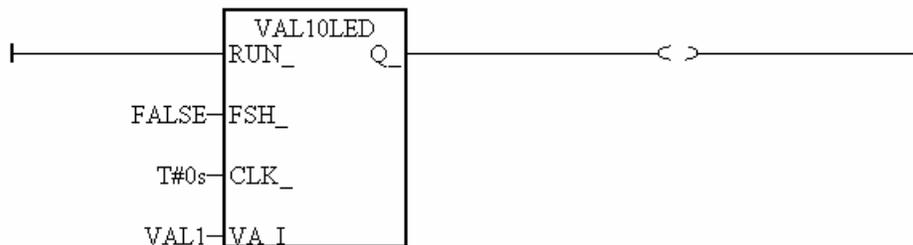
Variables used in this example.

Name	Type	Attribute	Network address	Others
OUT01	Boolean	Output	**0001**	-
OUT02	Boolean	Output	**0002**	-
VAL1	Integer	Internal	000A (10)	-

IO connection:
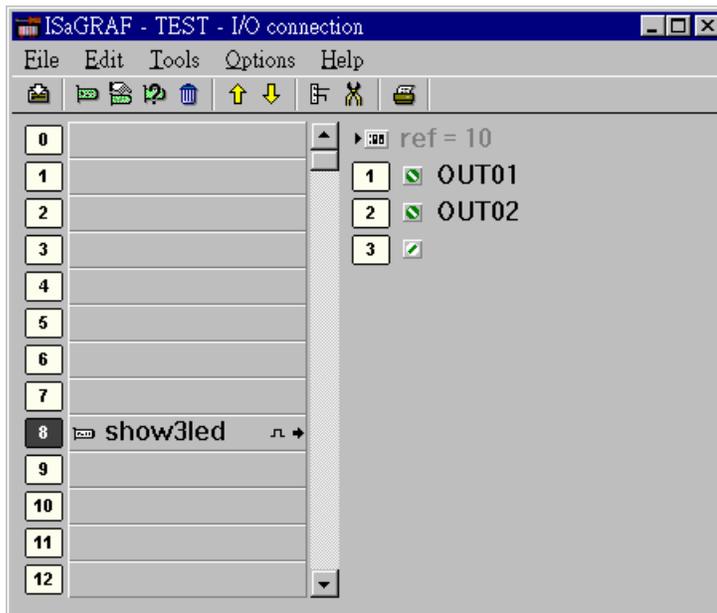
A simple LD program to show the "VAL1" to 7-segment LED:

After you finish this project, compile and download it to the I-8xx7 controller.

4.4.2: Program the Touch 510T

The "EasyBuilder 500" software can be used to designe many useful pictures for Touch 500 series. This section illustrates a simple example to program a Touch 510T. For more information about programming on the Touch series, please refer to the user manual which is provided with the "Touch" series hardware.
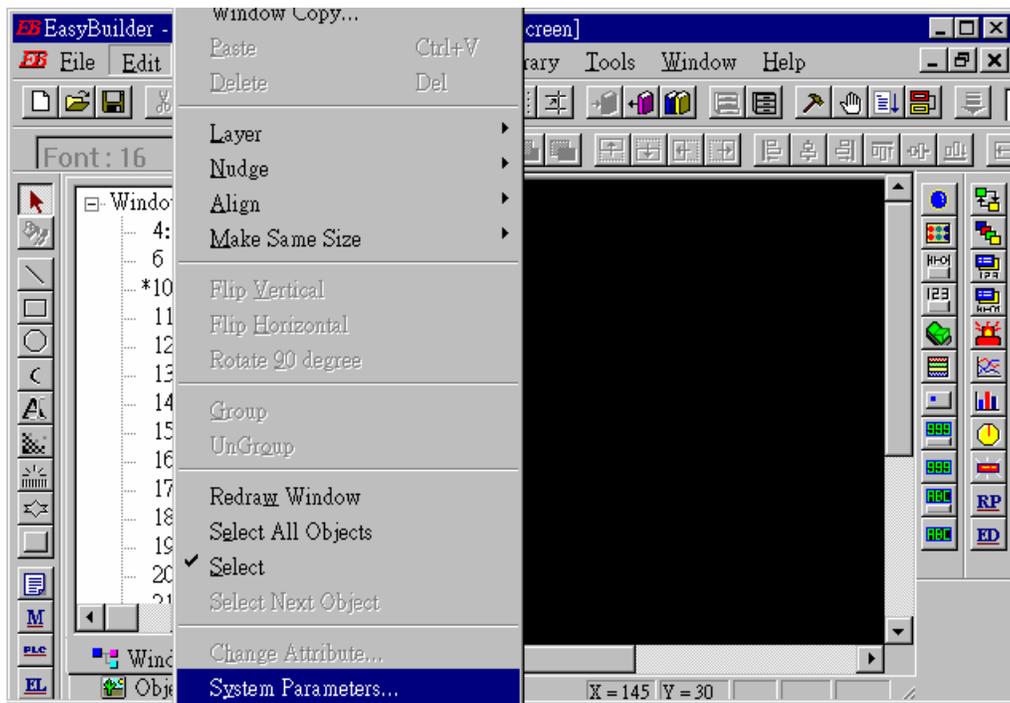
Click on the Windows "Start" button, then click on the "Program" button, then click on the "EasyBuilder" – "EasyBuilder 500" button. The following window will be displayed. Select the proper model for your application.
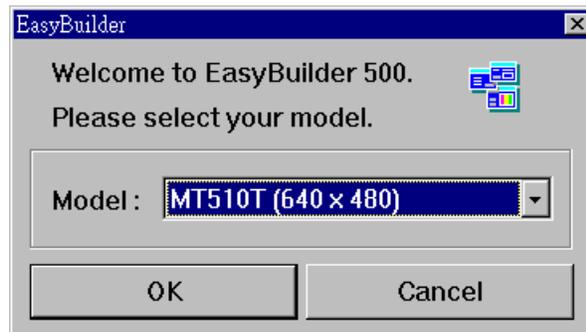
Click "File" – "New" to create a new project.
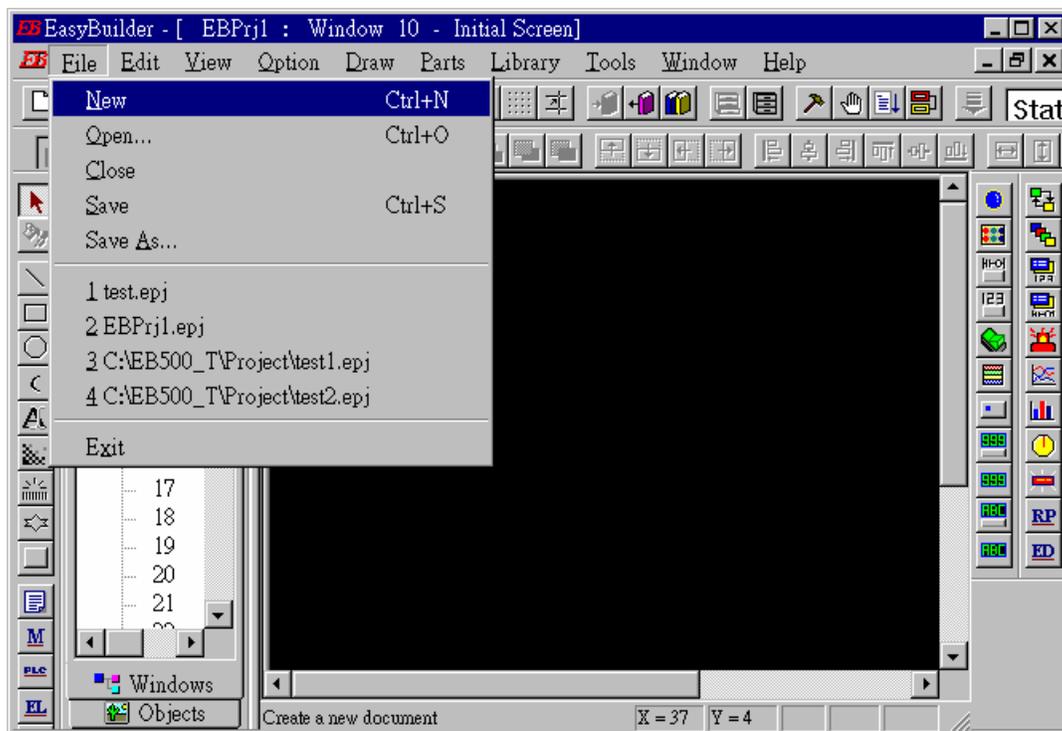
Click "Edit" – "System Parameters" to set the communication parameter between the Touch 510 and the ISaGRAF controller.

PLC type should be set to "**MODBUS RTU**", Serial port set to "RS232", Data bits set to "8 Bits", Stop bits set to "1 Bit", Baud rate set to "19200", Parity set to "None", PLC station No. set to be equal to the Net-ID of the I-8xx7 (set to 1 in this example).
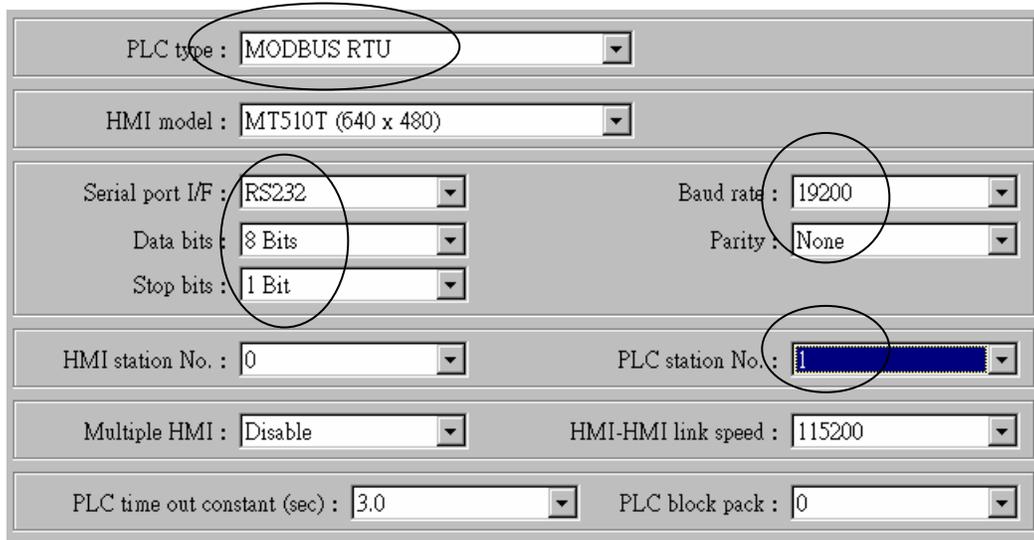

Note:
1. If using Touch 8000 's Ethernet to link to controller, please set PLC type as "MODBUS RTU TCP/IP" , PLC I/F port as "Ethernet" , Local IP address as Touch 8000 's IP, Server IP address as controller 's IP, PLC station No. as the same Net-ID No. of the controller (default is 1)
2. If the cable between the Touch 500 series and the controller is 2-wire RS-485, please set PLC type as "RS-485 2W". Other setting is the same as RS-232.

Click on "Text" to add a text. Select the prefered "Color", "Font", "Align" for the text and then enter the "Content". And then place it to the proper position.
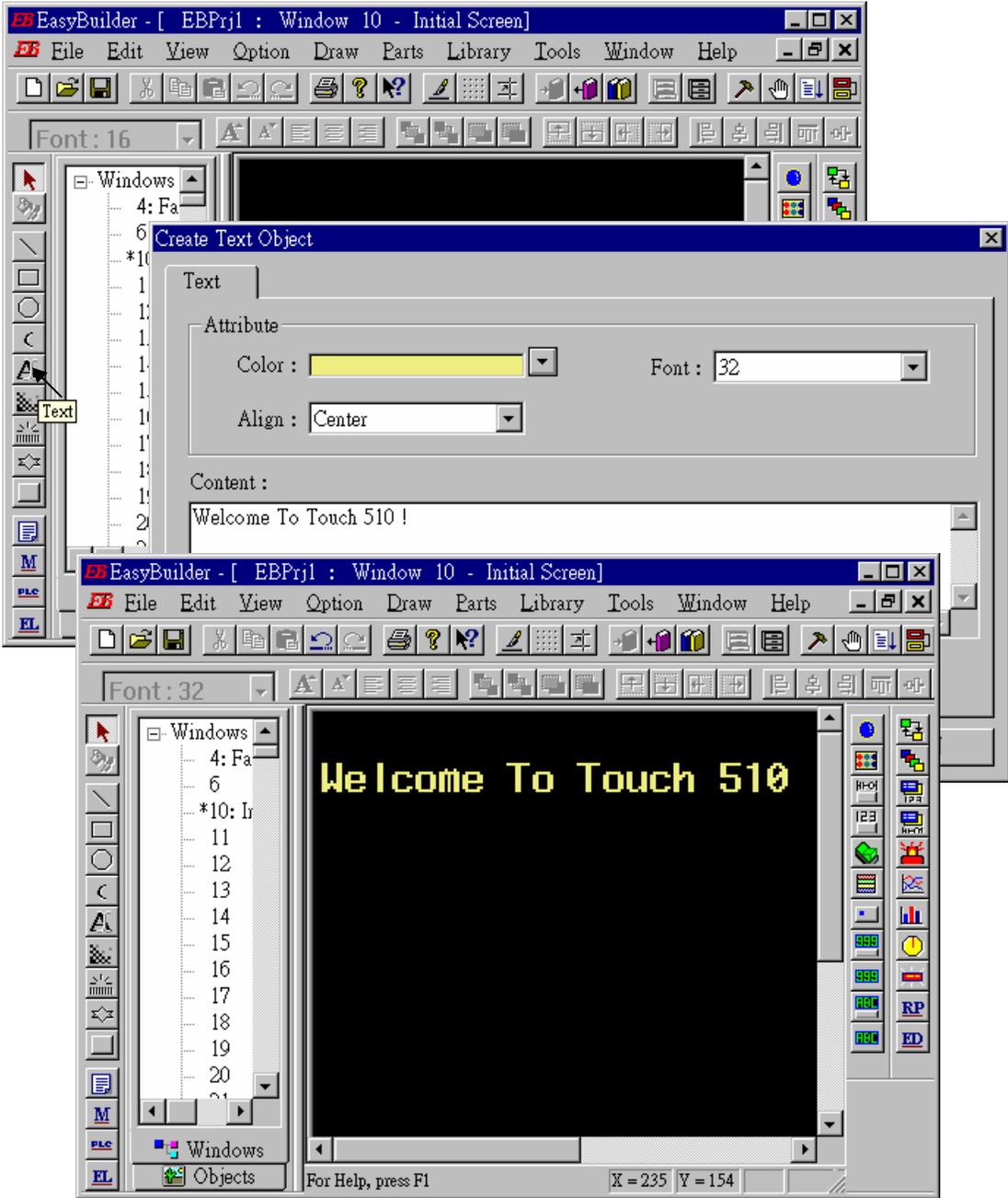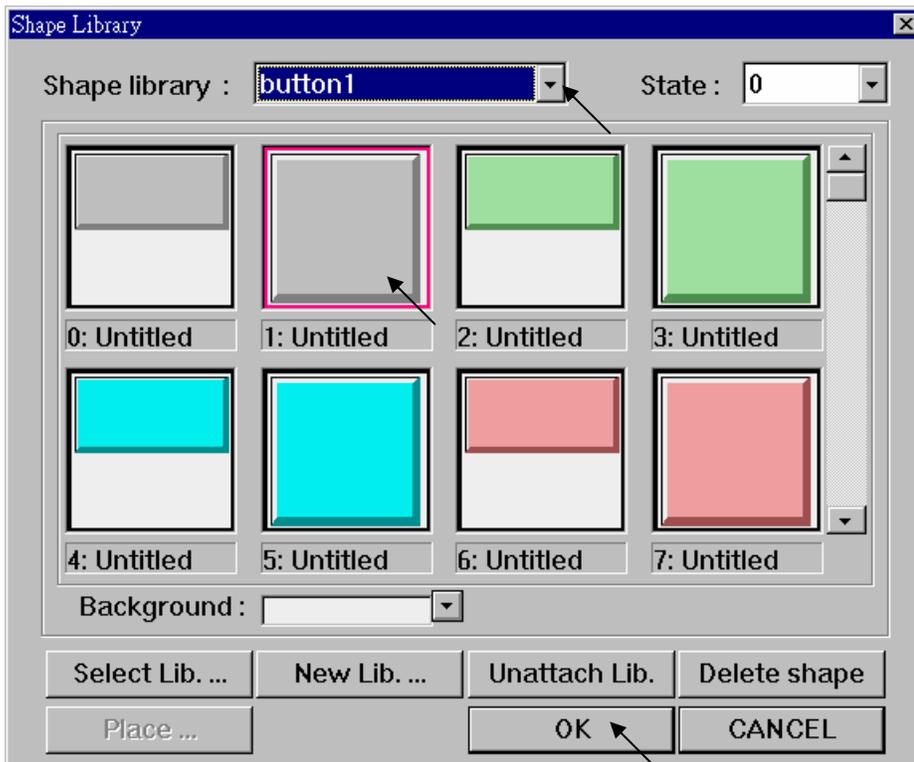
Click on "Function Key" to add a change-window button. Click on "General", then select "Change Window" and set "Window No." to 11.
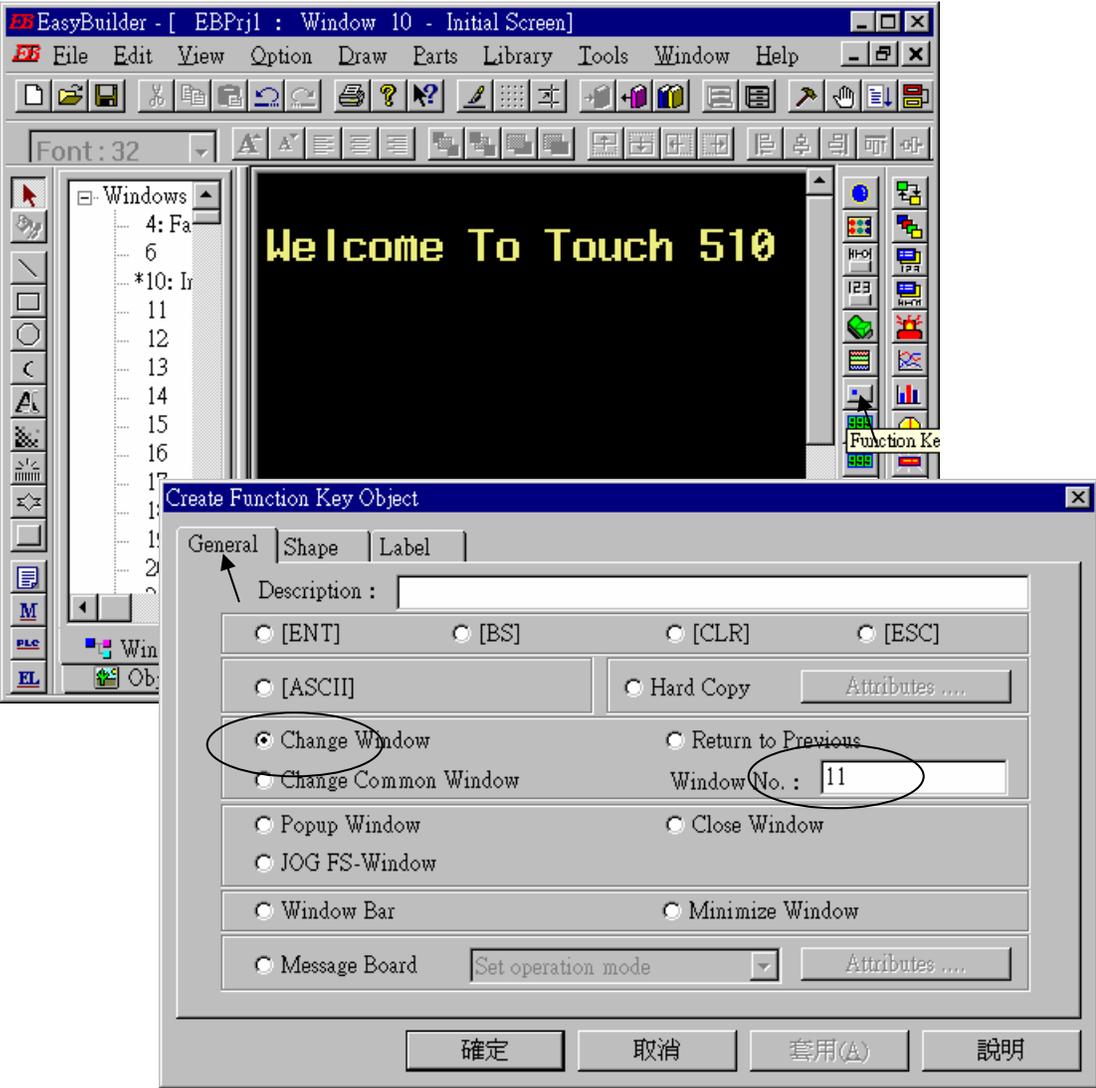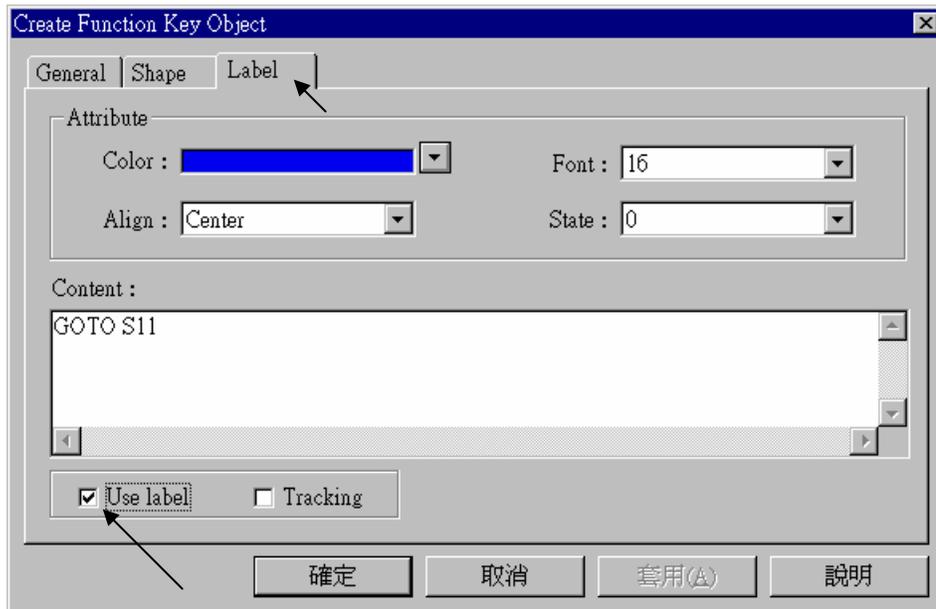
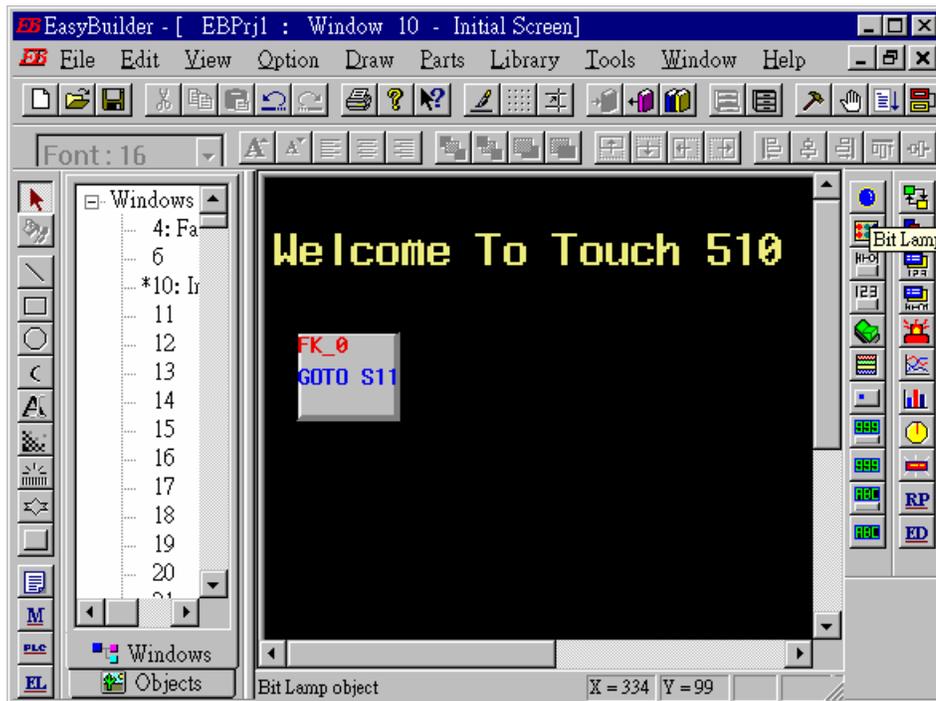Click on "Shape", then select "Use shape" and the click on "Shape library …"
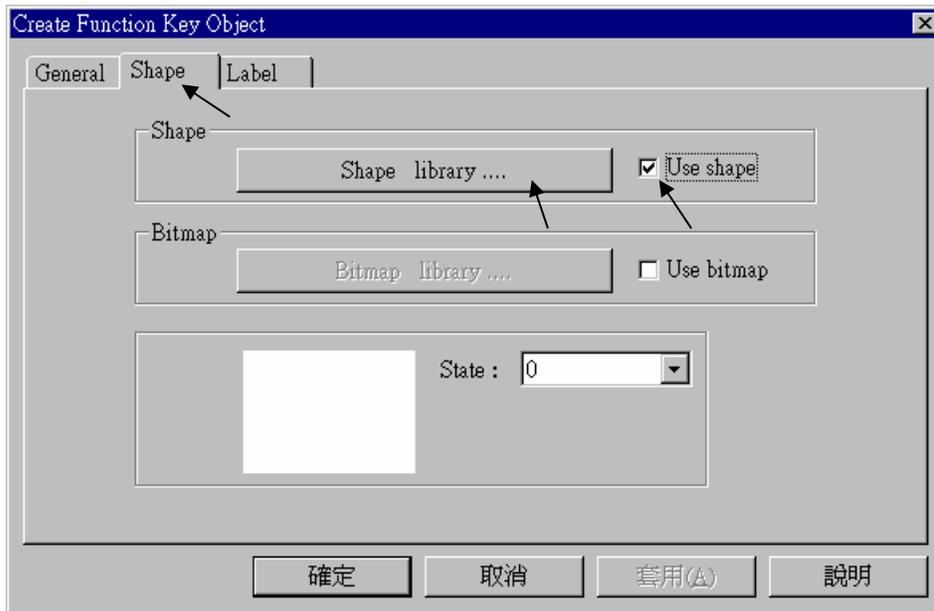
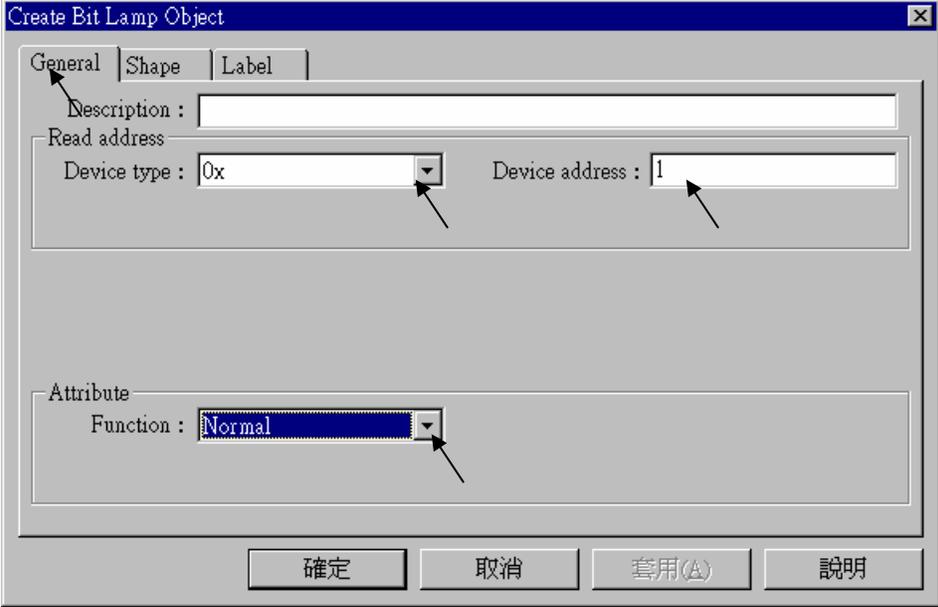Select the prefered "Shape library" and then select one item and click on "OK".

Click on "Label", then select the prefered "Color", "Font", "Align" and set "Content" to "GOTO S11", and **make sure "Use label" is selected**.
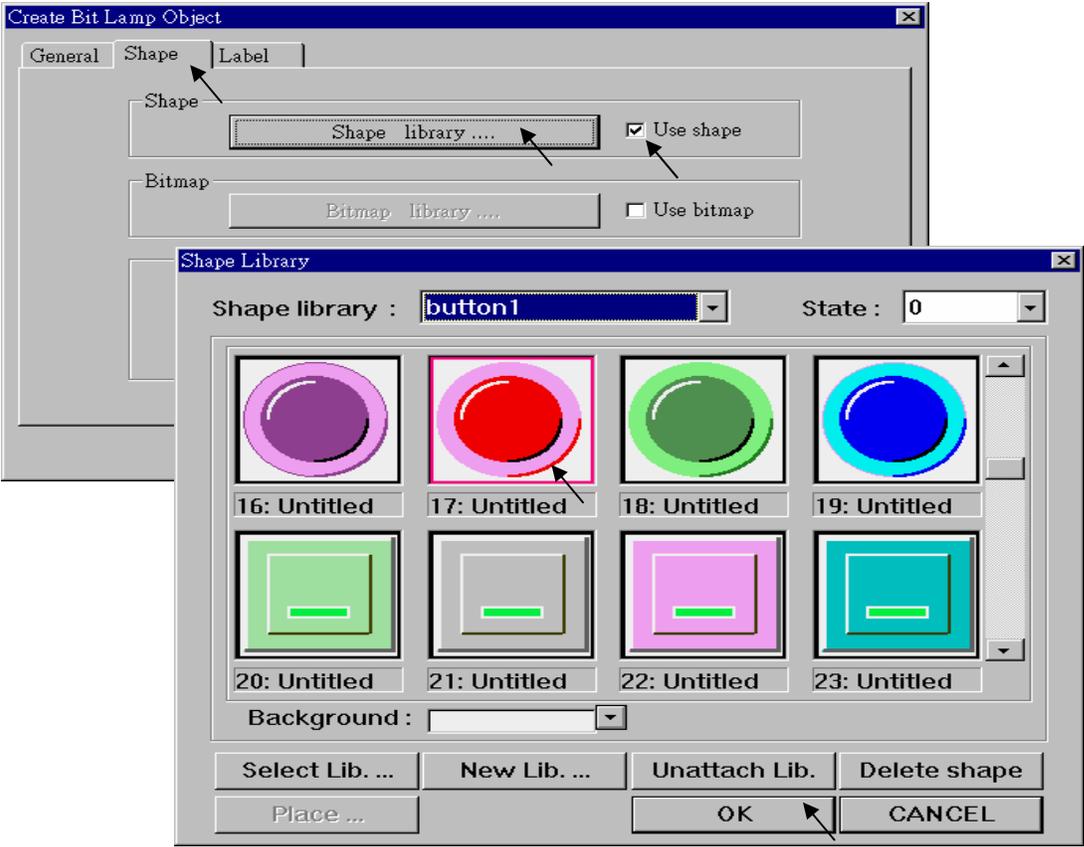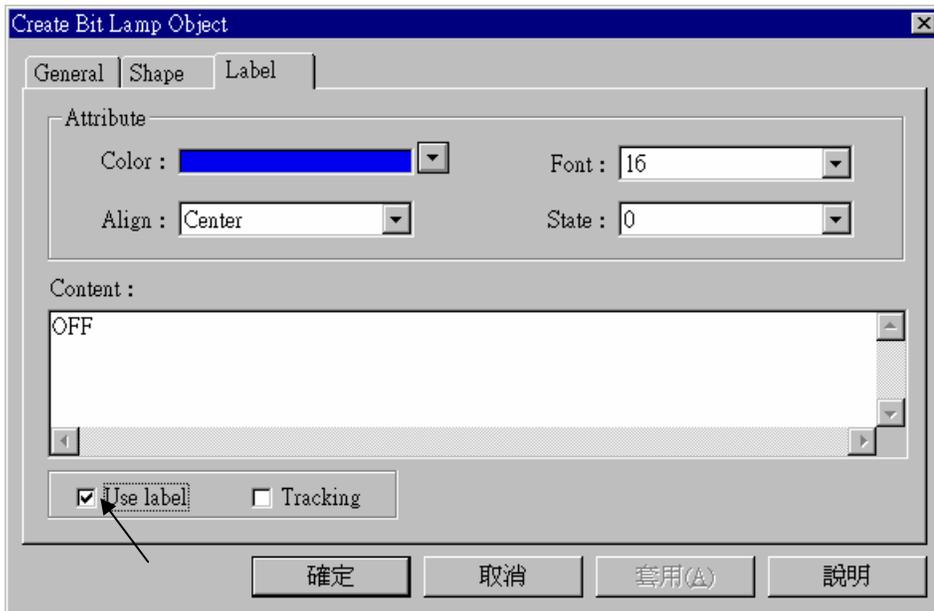

Click on "Bit Lamp"

Click on "General", then select "Device type" to "**0x**" (**0x is for boolean variables**), then set "Device address" to 1 (this value is associated with the network address value of the variable in the I-8xx7). And then set "Function" to "Normal".
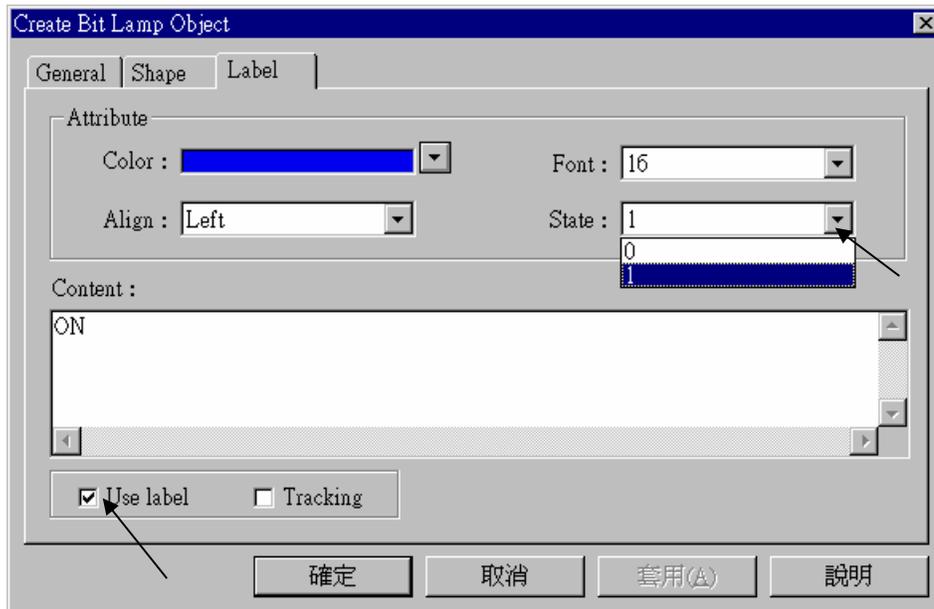

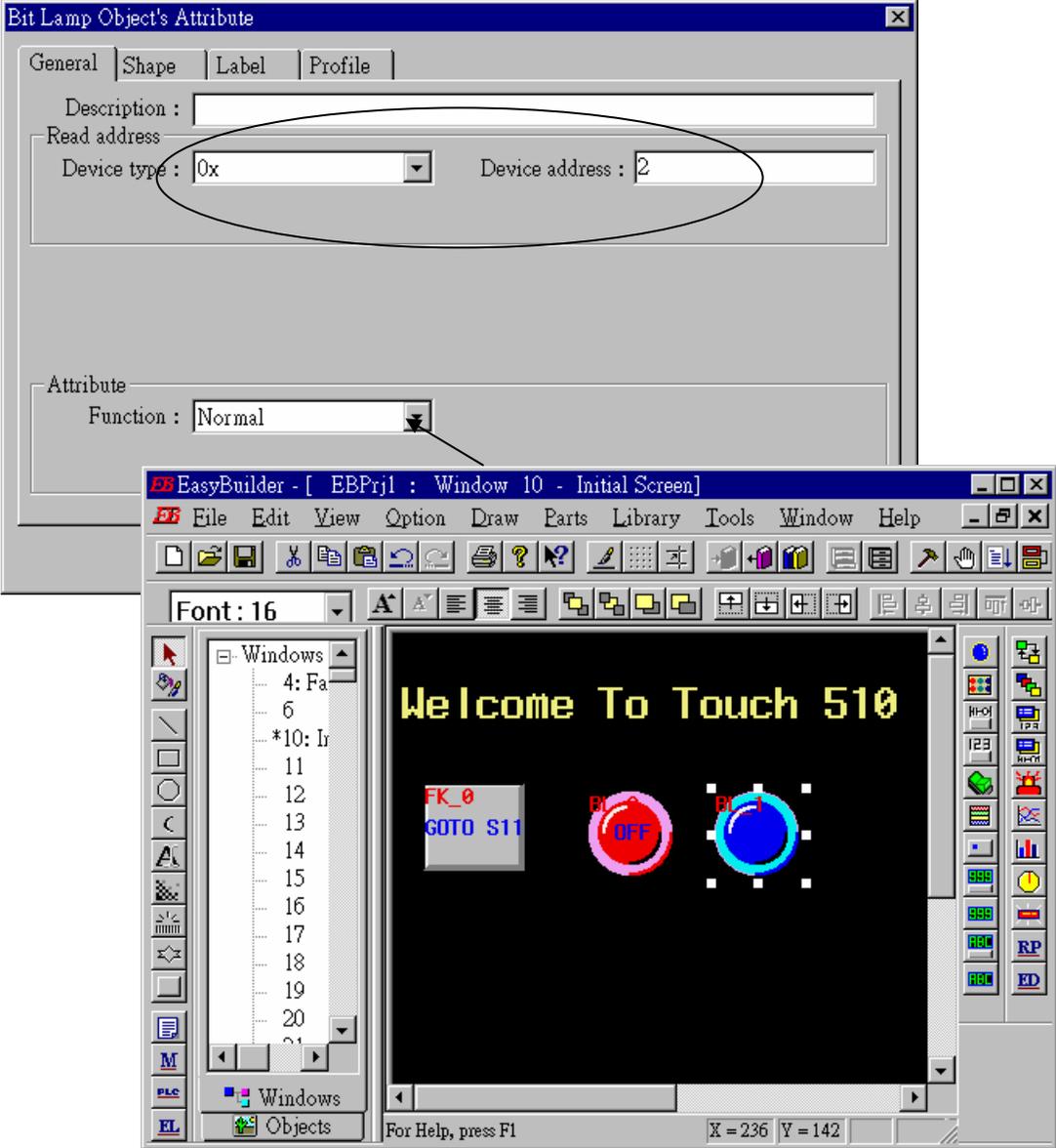
By the same way as former, select prefered "Shap library".

And then select "Label", given a "OFF" to "Content" for "State : 0". **Make sure "Use label" is choosed**.
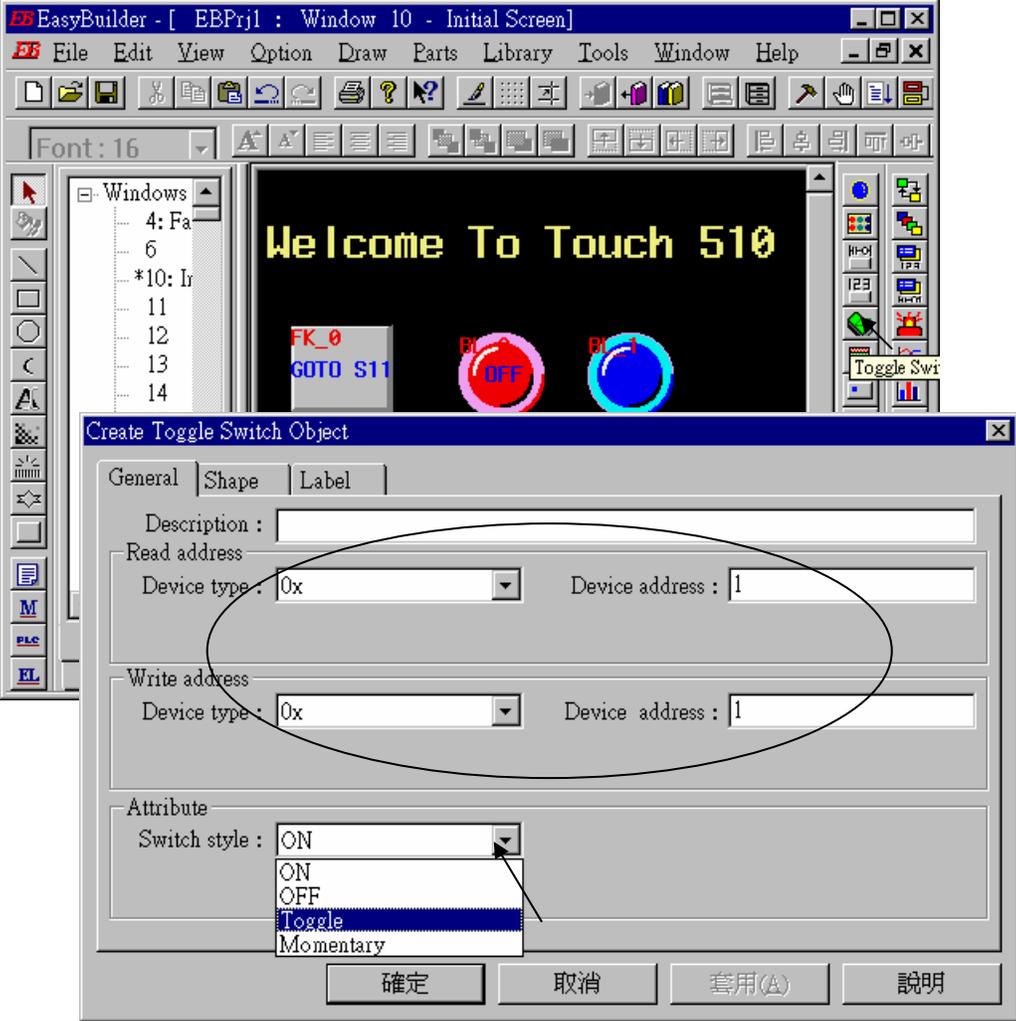

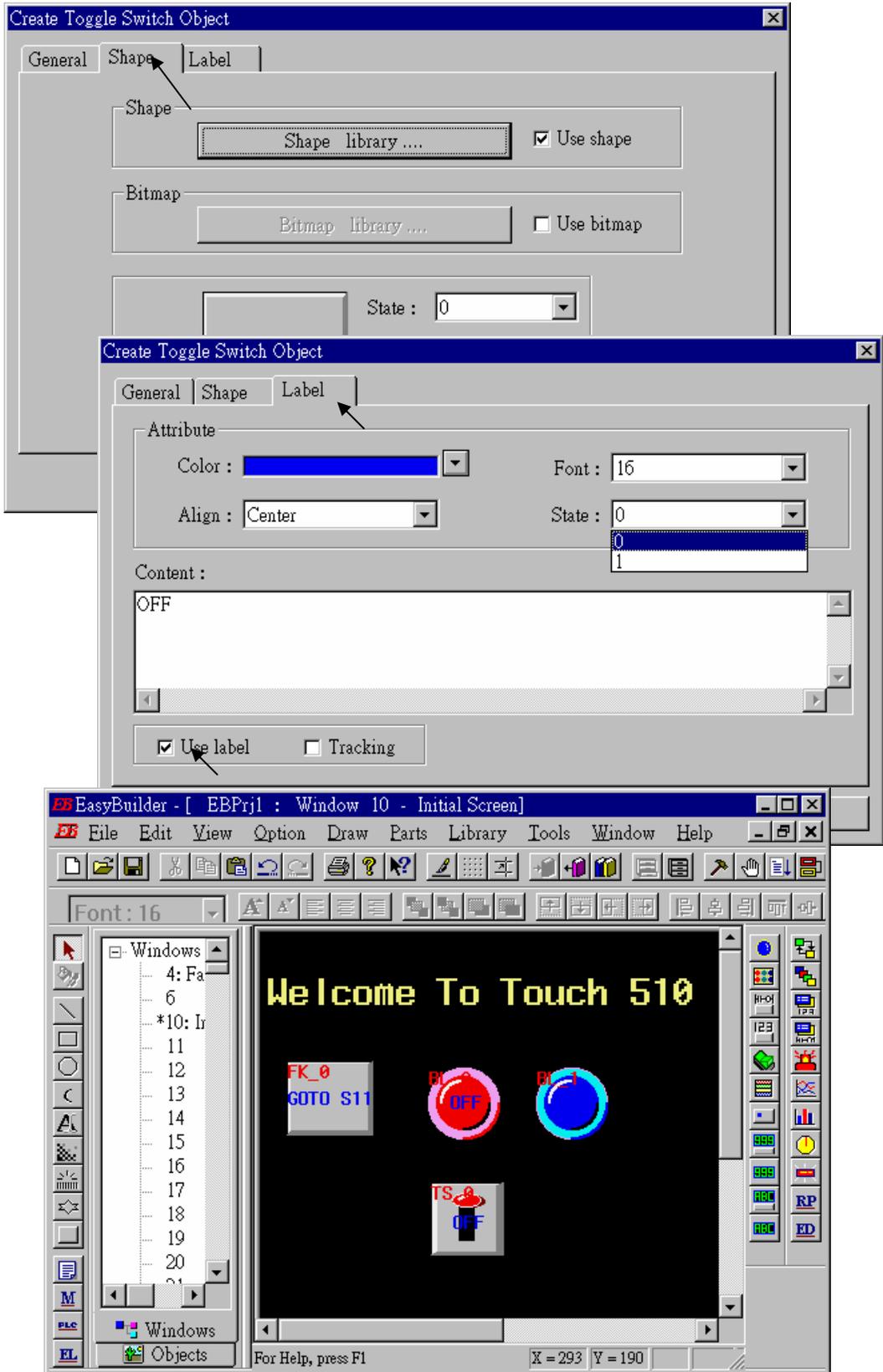And then change "State" to 1, and given a "ON" to "Content". **Make sure "Use label" is choosed.**

By the same way as former, create one another Bit Lamp with a "Device address" = 2.
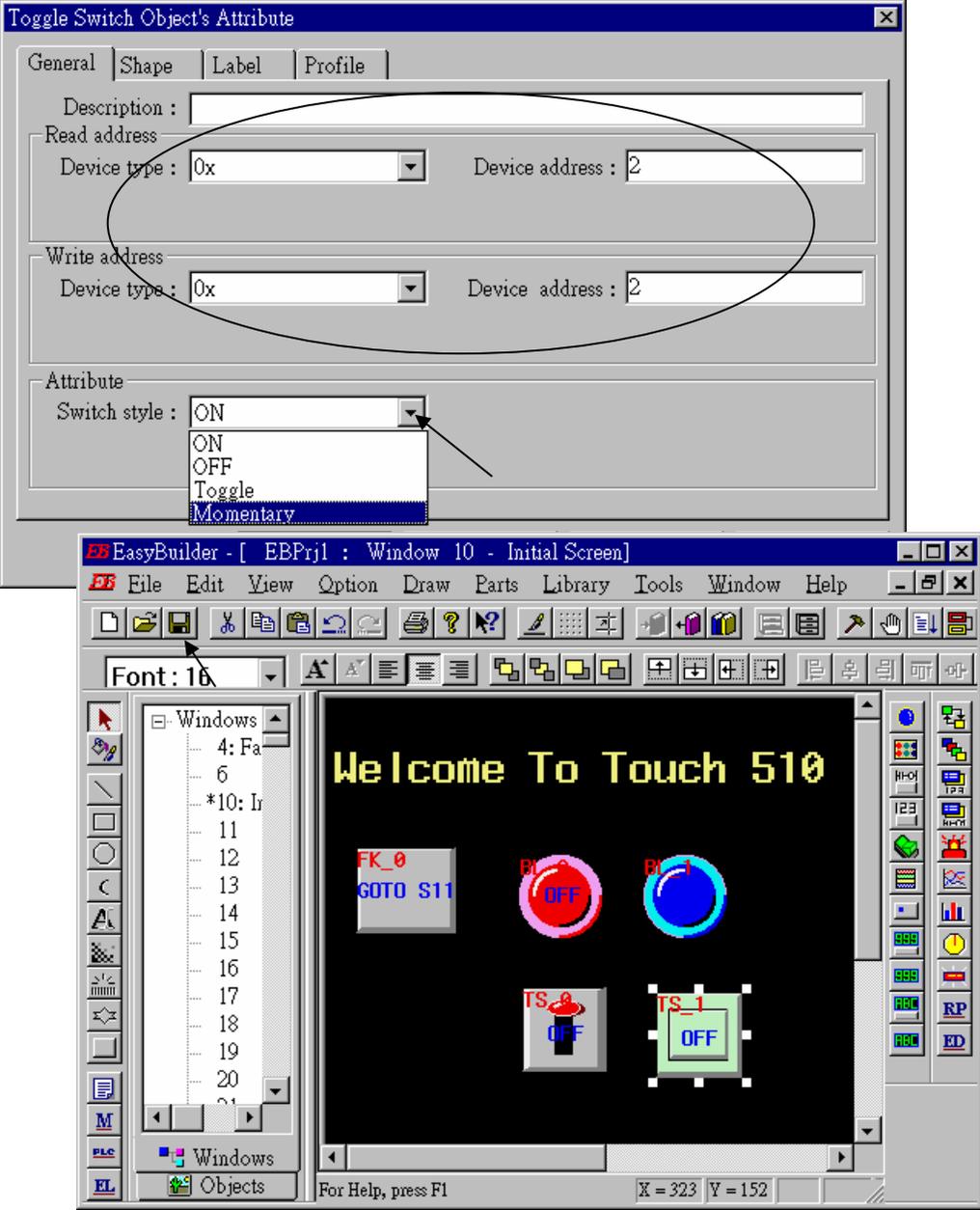
Click on "Toggle Switch", then set all "Device Type" to "**0x**", all "Device address" to 1 and select "Switch Type " to "Toggle".
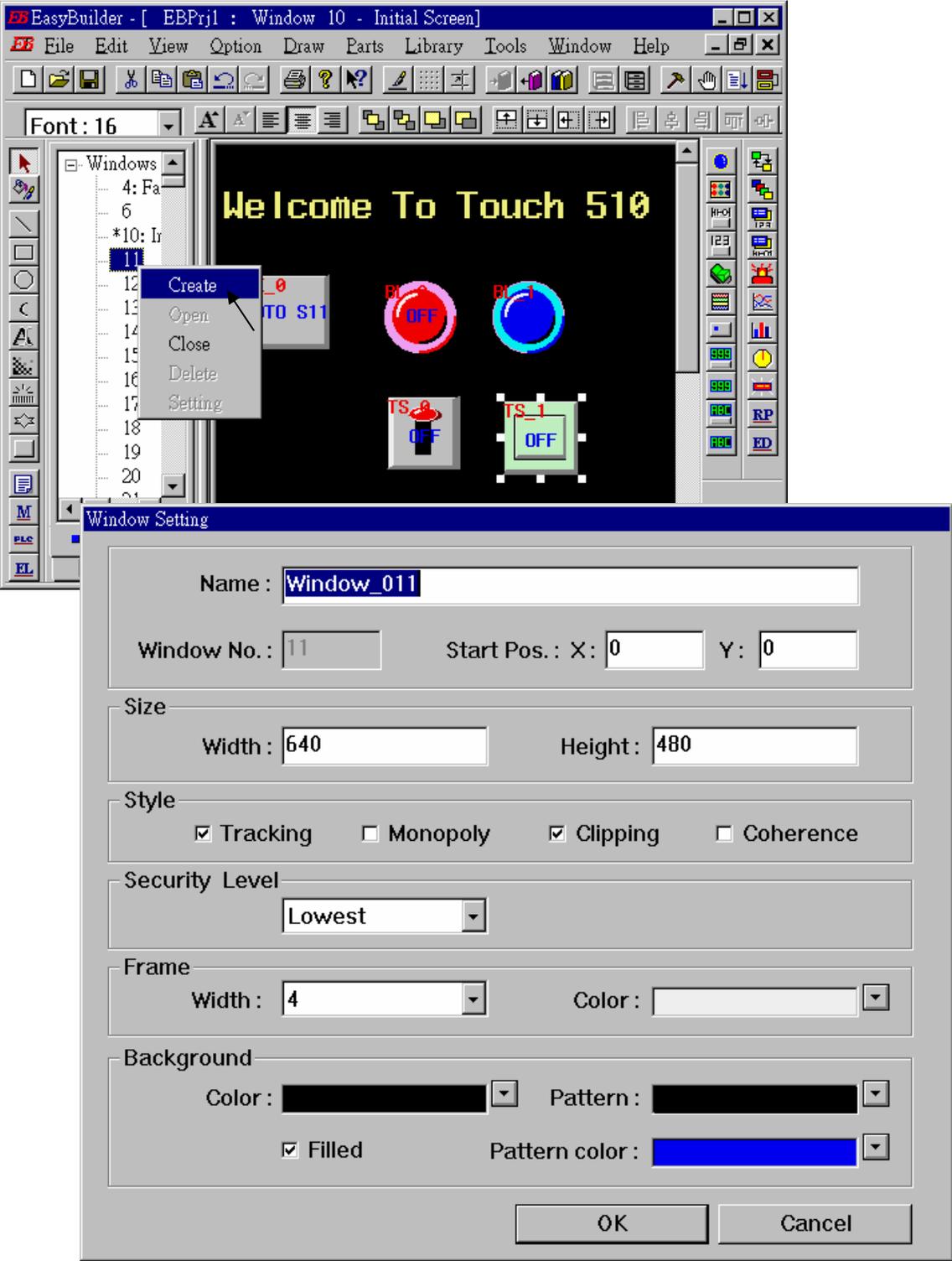
By the same way as former to choose a prefered "shape" and "label".

By the same way as former, create one another "Toggle Switch" however set all "Device address" to 2 and "Switch style" to "Momentary". Click on "save" to save the project.
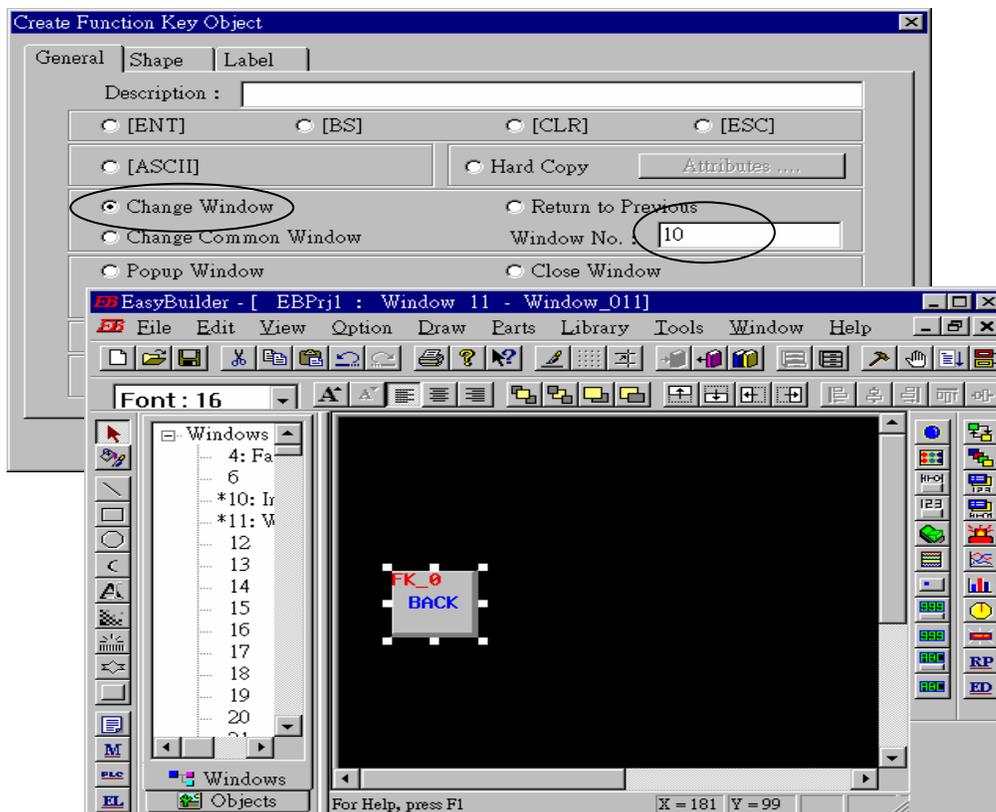
We are going to design another window. Click on "Windows" – "11", then click and hold on the right button of the mouse and drag to "Create".
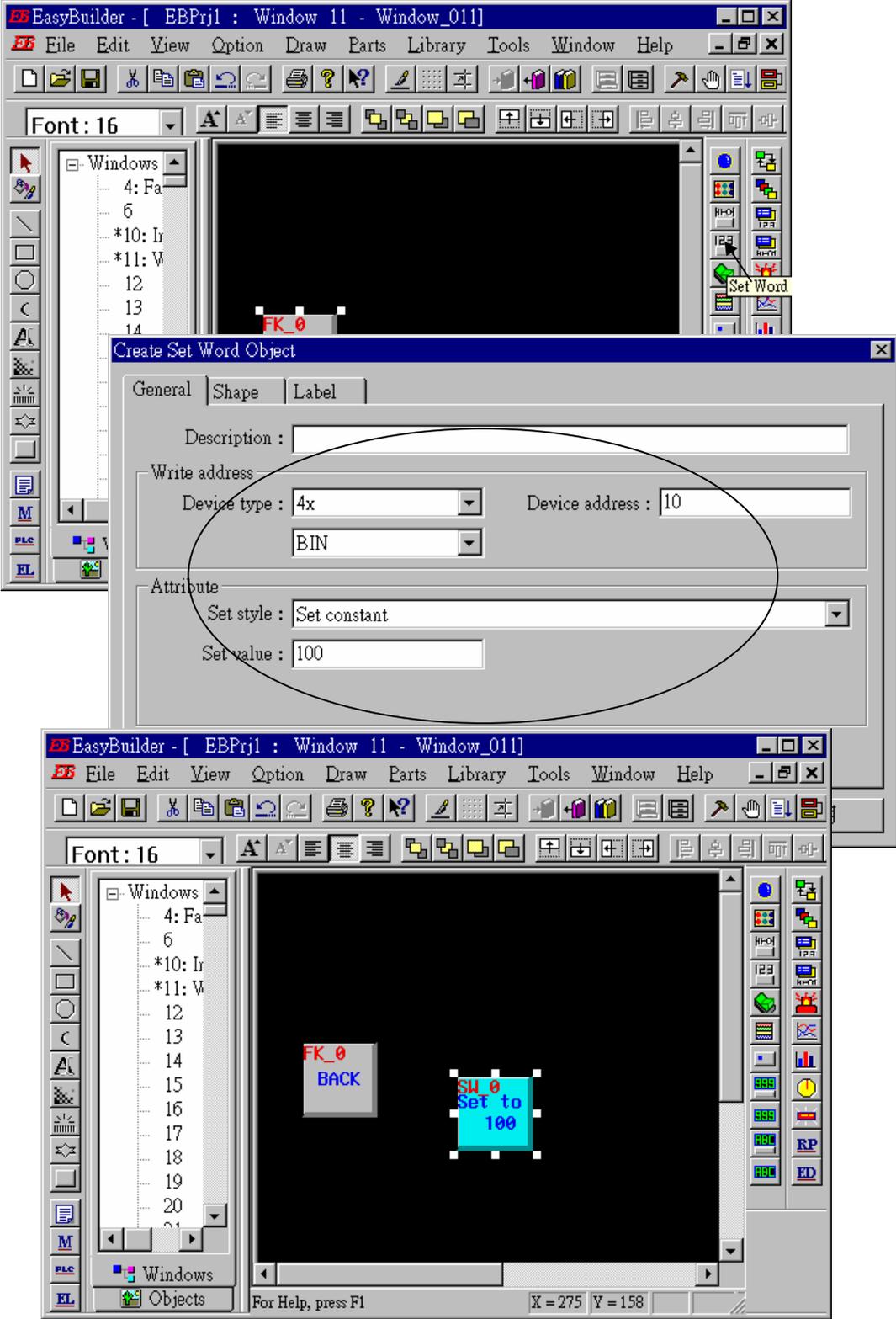
Double click on "Window_011".
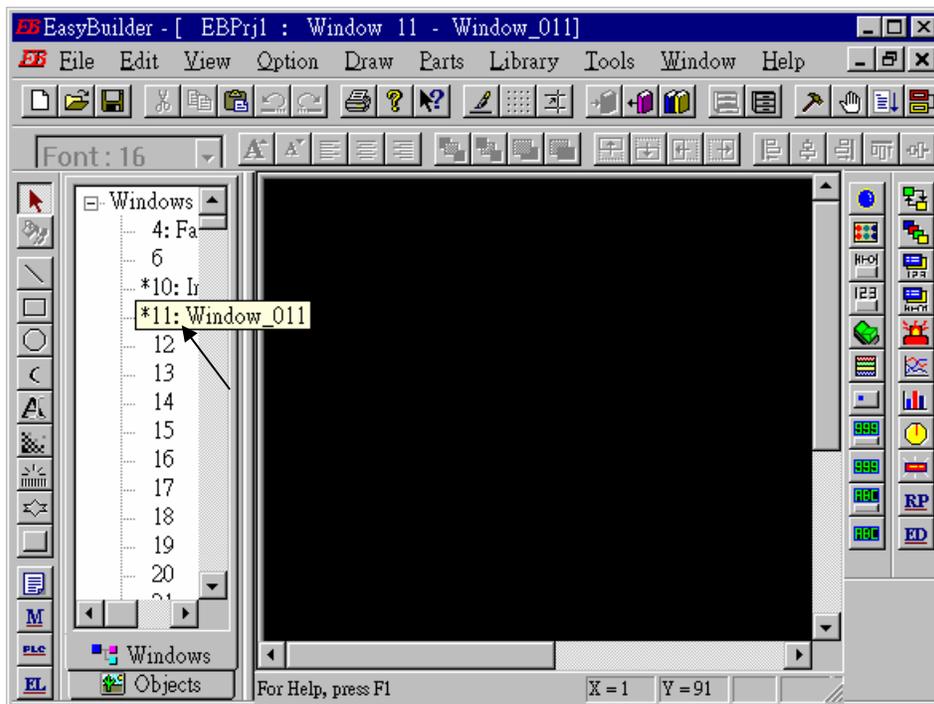
Create a change-window "Function Key" as former method to change to "Window No." = 10, and Labeled as "BACK".

Click on "Set Word", then set "Device Type" as "**4x**" (**4x is for short integer, 4L is for long integer**),
set "Device address" to 10, "BIN", and "Set style" to "Set Constant", and "Set value" = 100. And then
select the prefered "shape", and set "label" to "Set to 100".

Click on "Numerical Data", set "Device Type" to "4x" (**4x is for short integer, 4L is for long integer**), "Device address" to 10, "BIN", "Number of words" to 1, "No. above Dec" to 7, "No. below Decimal" to 0, "Input low" to –32768, "Input high" to +32767. And then select the prefered shape.
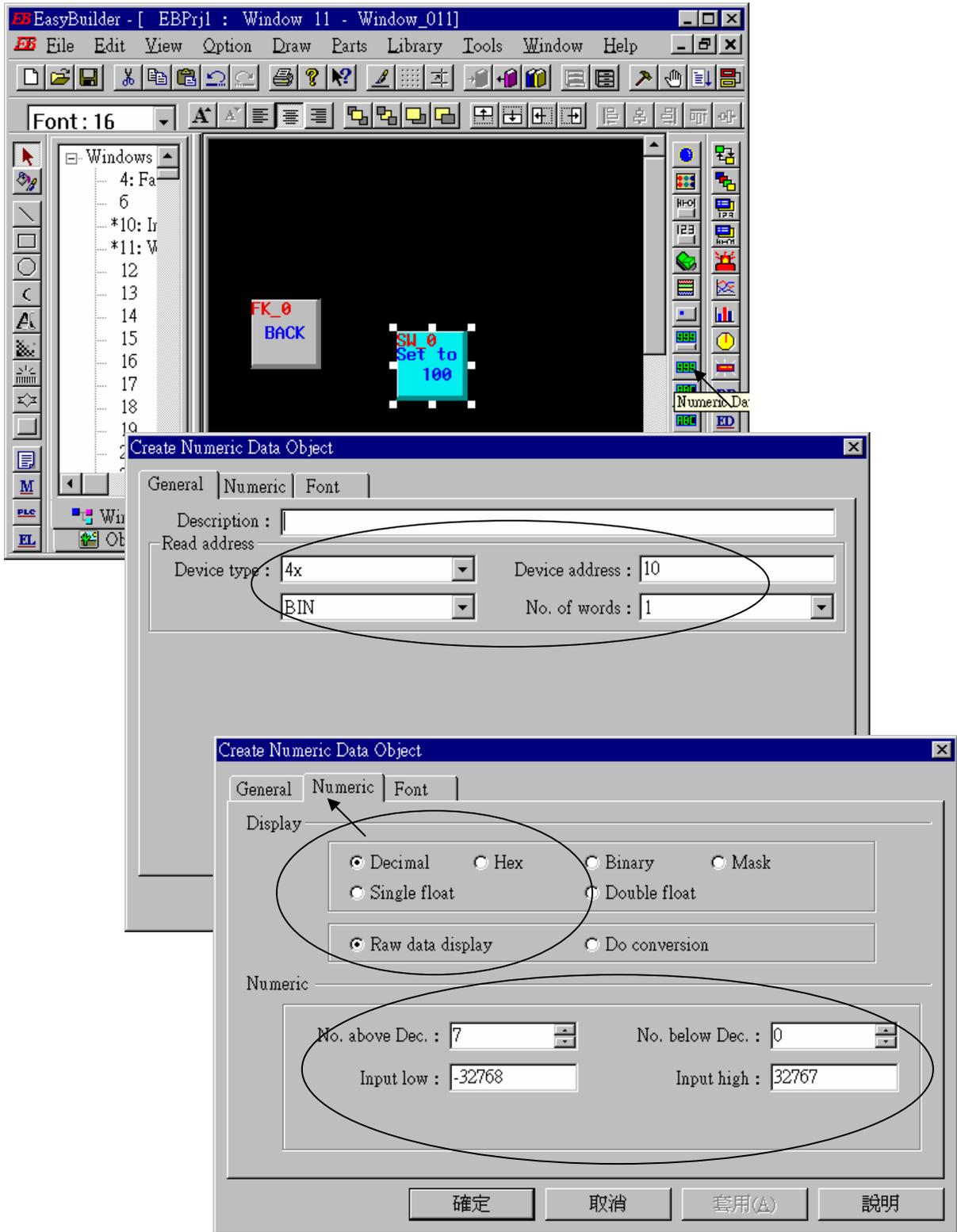
Now we are going to add one another "Numerical Data" with **conversion**.
Click on "Numerical Data", set "Device Type" to "4x" , "Device address" to 10, "BIN", "Number of words" to 1, "No. above Dec" to 5, "No. below Decimal" to 0, "Input low" to –32768, "Input high" to +32767, check "Do conversion", set "engineering low" to –10, "engineering high" to +10 (**Convert [-32768,+32767] to [-10,+10]**). And then select the prefered font.
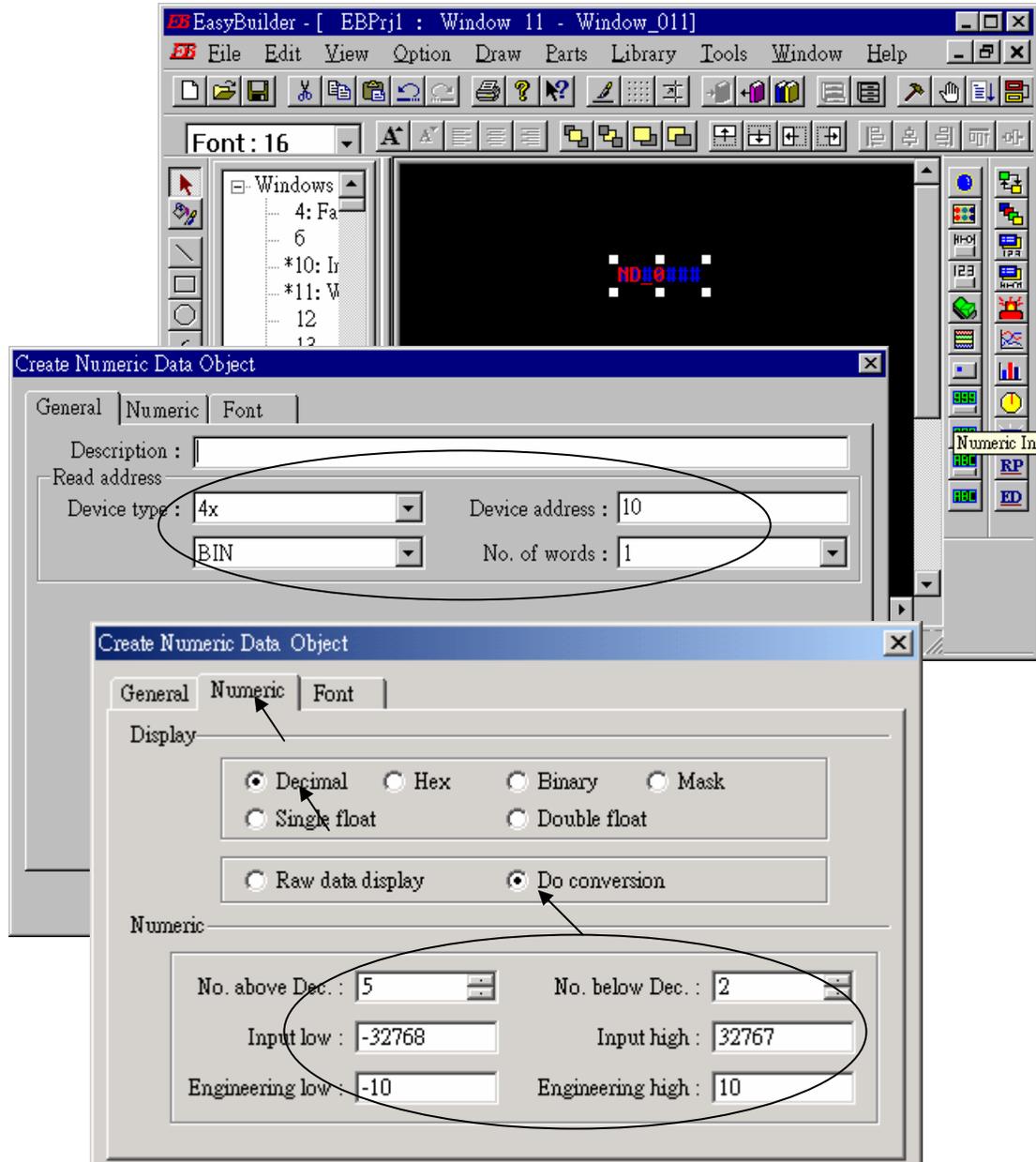
Click on "Numerical Input", set "Device Type" to "4x", "Device address" to 10, "BIN", "Number of words" to 1, **"Trigger Device Type" to "LB", "Trigger Device address" to "9000",** "No. above Dec" to 7, "No. below Decimal" to 0, "Input low" to –32768, "Input high" to +32767. And then select the prefered shape.
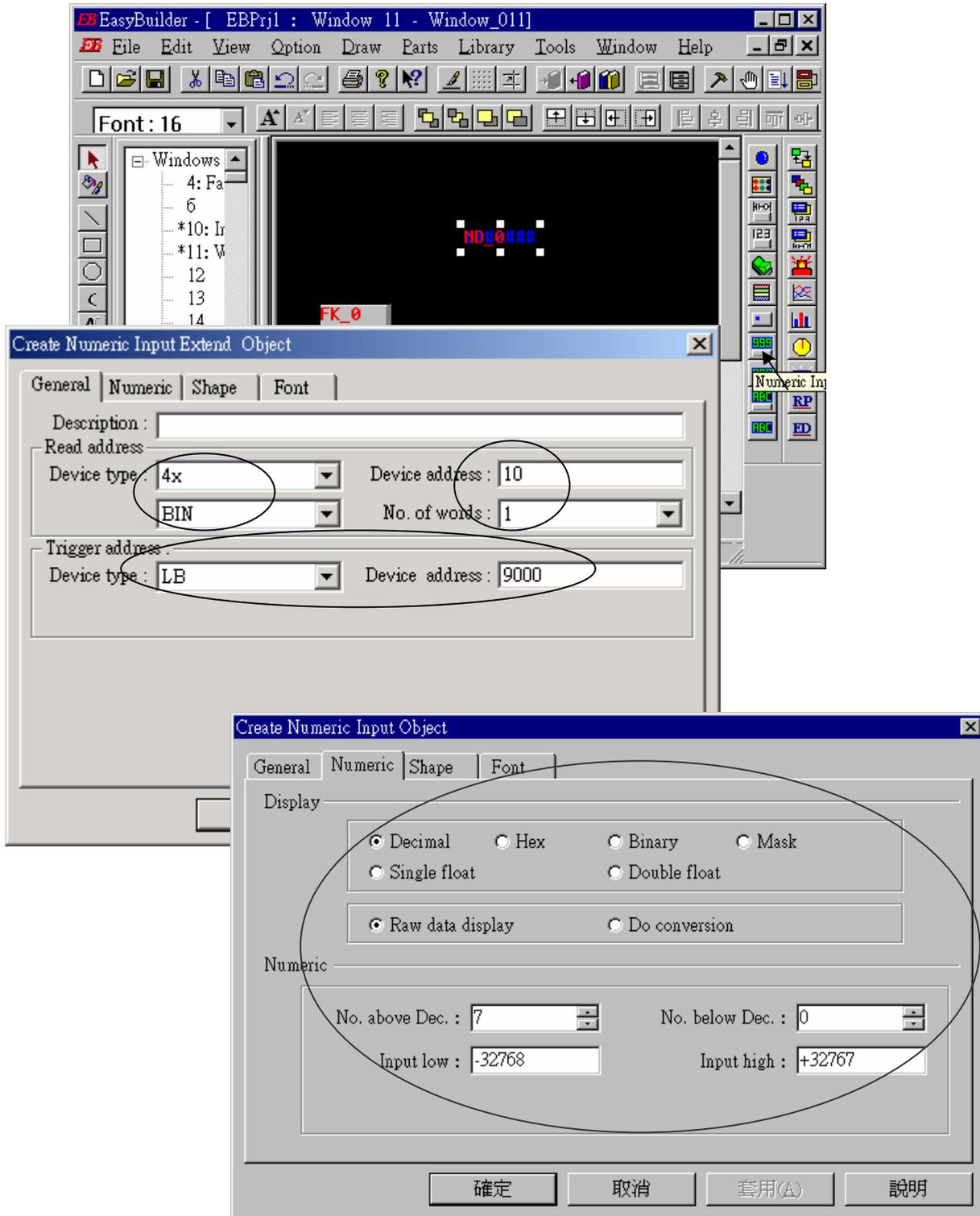
Click "Tools" – "Compile …" to compile this project.
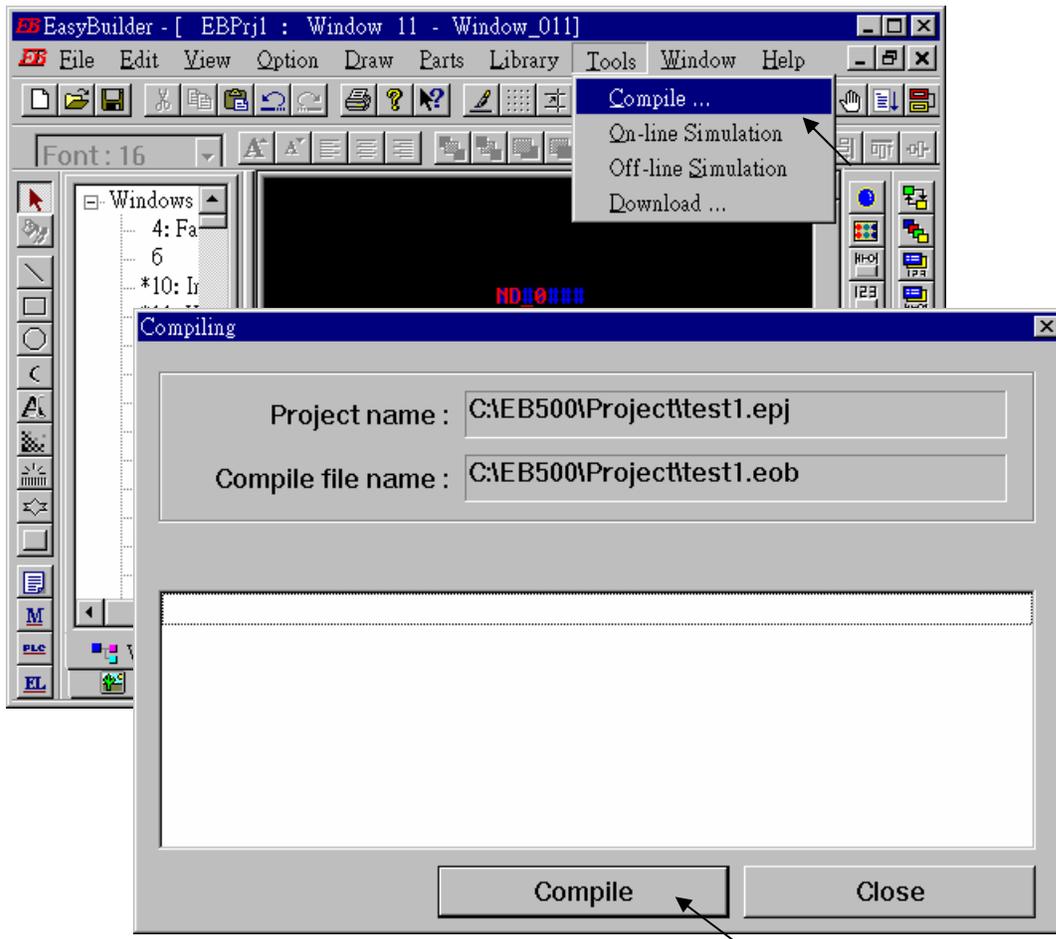
To download the project to the Touch 510, click on the Windows "Start" button, then click on the "Program" button, then click on the "EasyBuilder" – "EasyManager" button. The following window will be displayed. Choose the correct COM No. on your PC (Normally is COM1), "115200 bps".

Connect the RS232 download cable (refer to section 4.4) between PC and Touch 500.
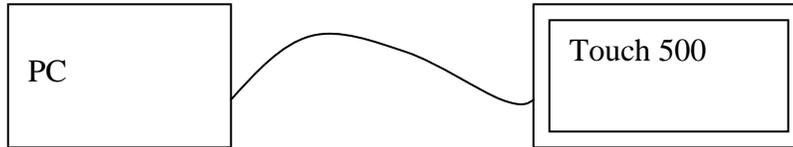
Click on "Jump To RDS" first, if OK., you can see the screen of the Touch 500 will change and wait for project download. Click on "Download" to start to download the MMI picture to the Touch 500.
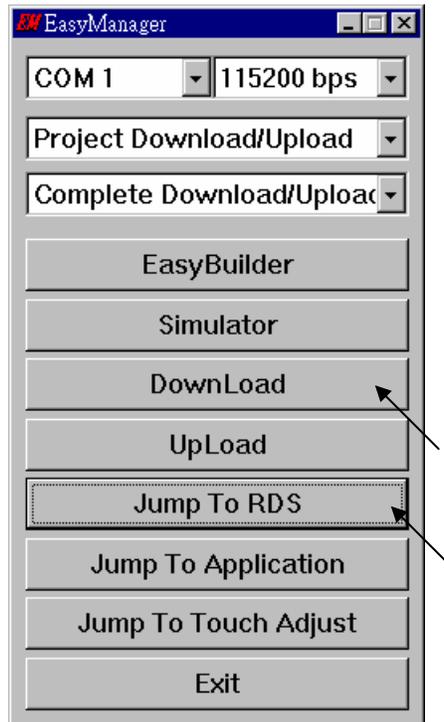
If downloading is OK, You may choose to click on "Jump To Application" or reset the Touch 510T , and then connect another RS232 cable between Touch 510 and the I-8xx7 (refer to section 4.4).

Now, you may touch each icon on the Touch 510 to test. Have a good luck !