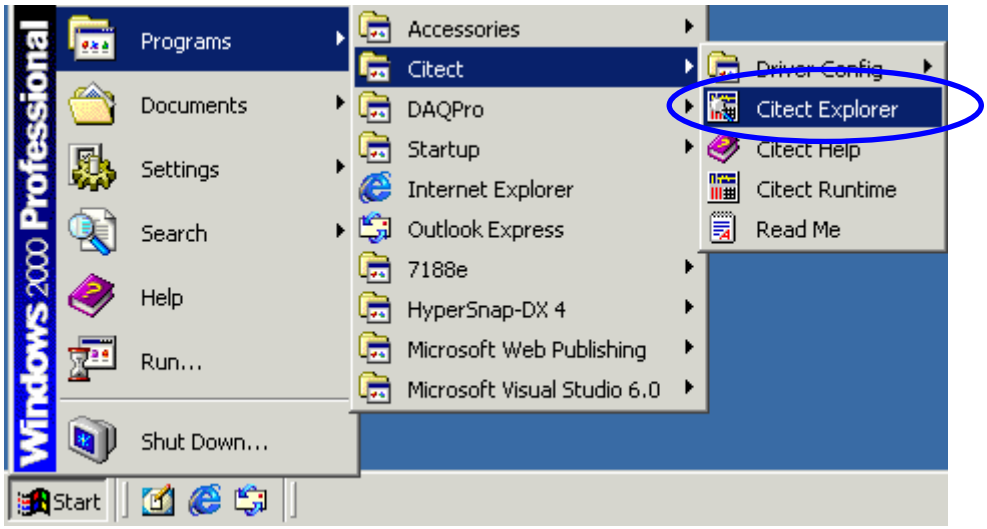
The connection solution of Citect with ET-7000 series modules by using Modbus-TCP protocol

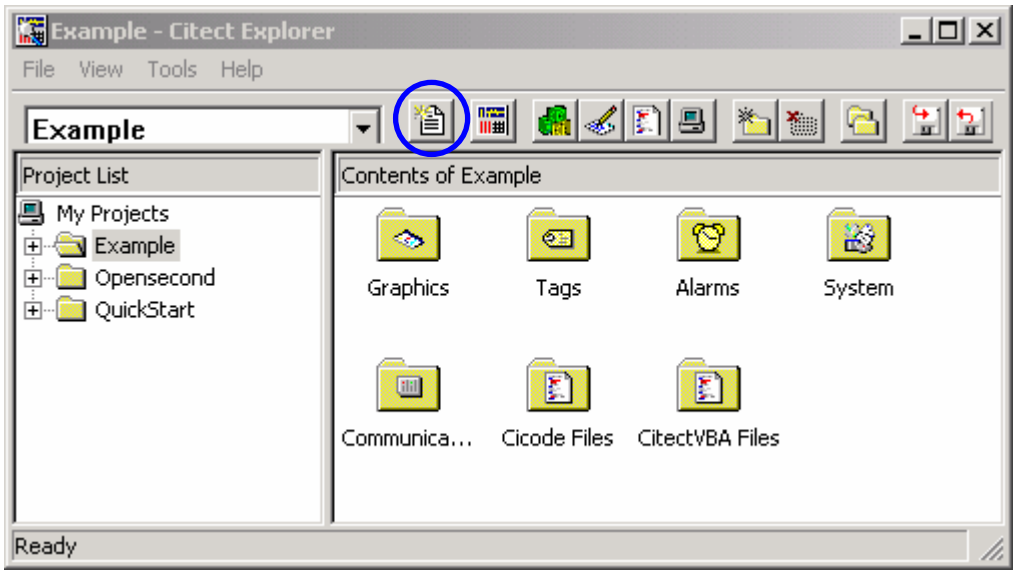
In this document, the Citect solution with ET7000 series via the Modbus/TCP protocol will be presented step by step. Here, we use the Citect vision 5.40 with service pack C and modnet driver version 2.5.1.8 to do this demo. So, please check the software required first.

Step1: Start up the Citect

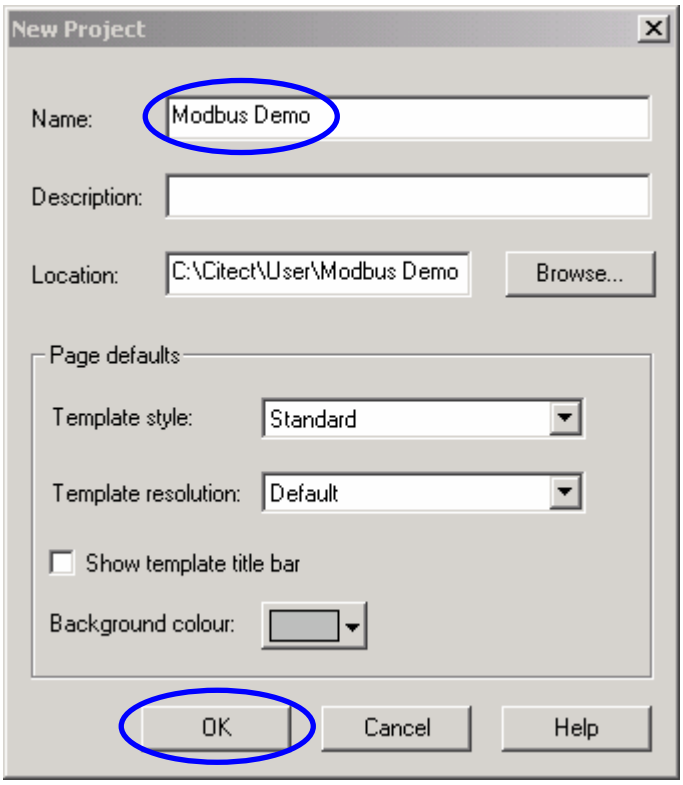


Step2: Click  button to create a new project

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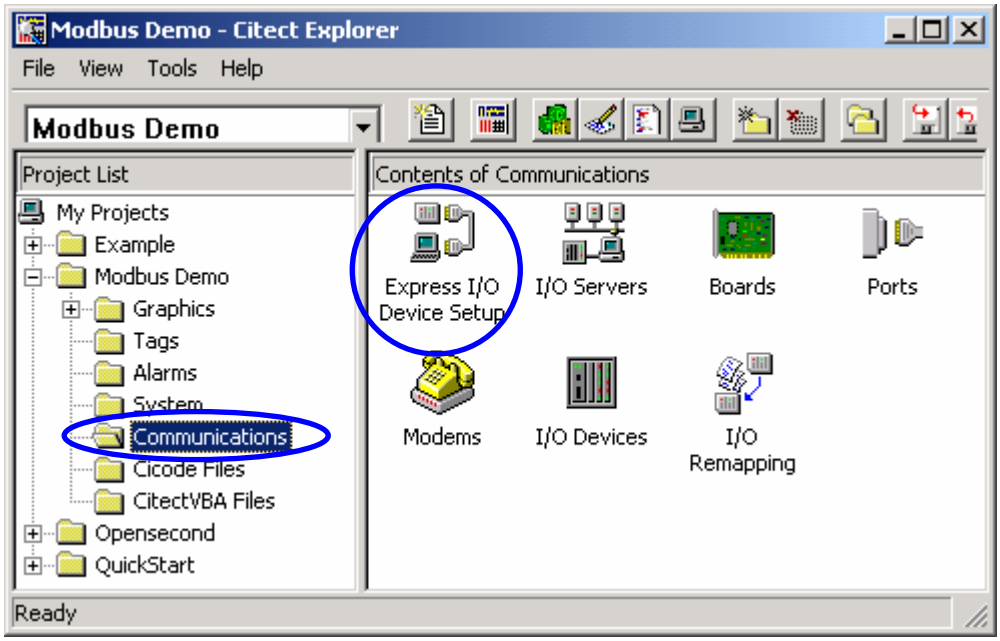


Step3: Input “Modbus Demo” to be the name of this project, and use default value for other parameters. Then Click “OK” to continue.



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Step4: Open the Folder-“Communications” and Click the “Express I/O Device Setup” to build a new I/O Server and I/O Device.



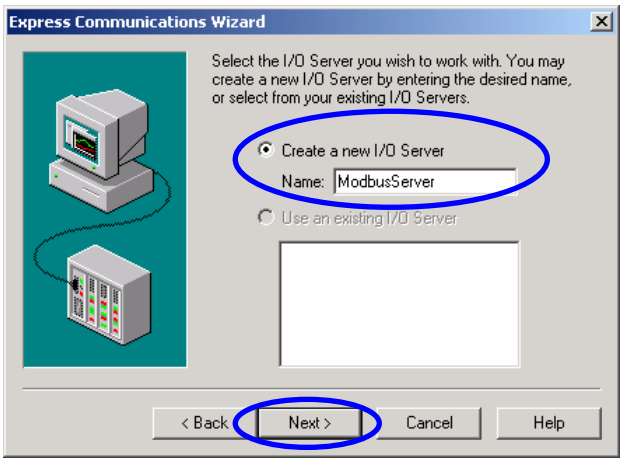
Step5: Click “NEXT” to continue.



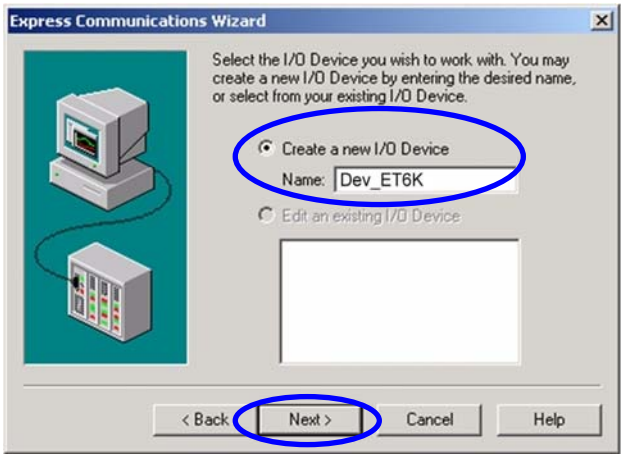
Step6: Select “Creat a new I/O Server” and input

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“ModbusServer” in the blank field to be the name of I/O Server. Then Click “Next” to continue.

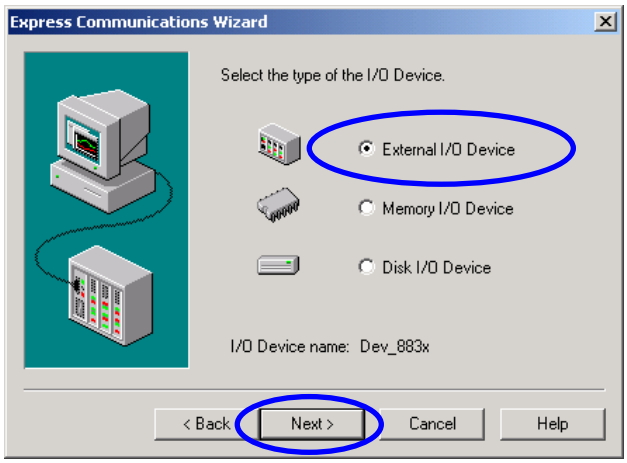


Step7: Select “Create a new I/O Device”, and input “Dev_883x” in the blank field to be the name of I/O Device. Then Click “Next” to continue.

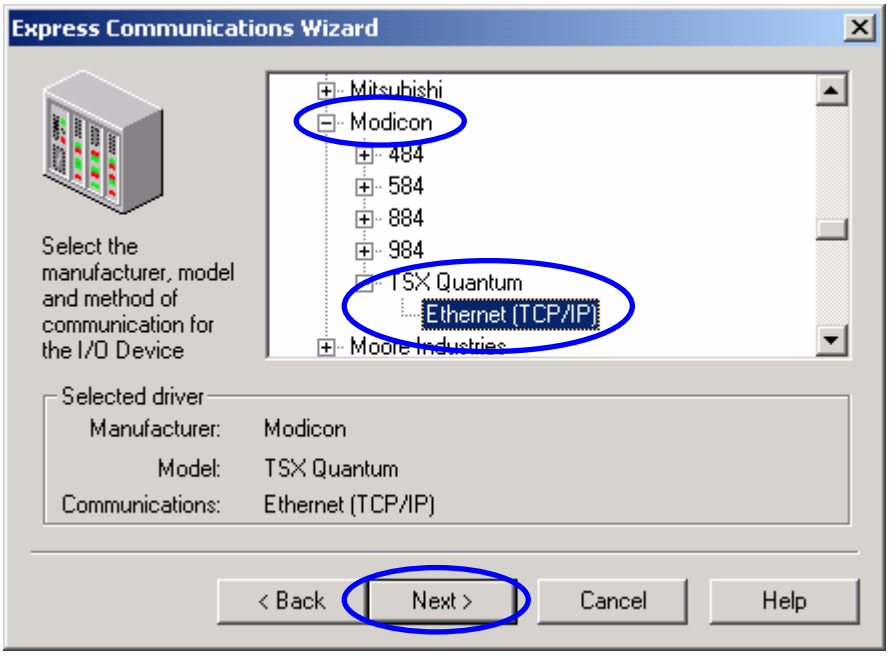


Step8: Select “External I/O Device” to be the type of the I/O Device, and click “Next” to continue.

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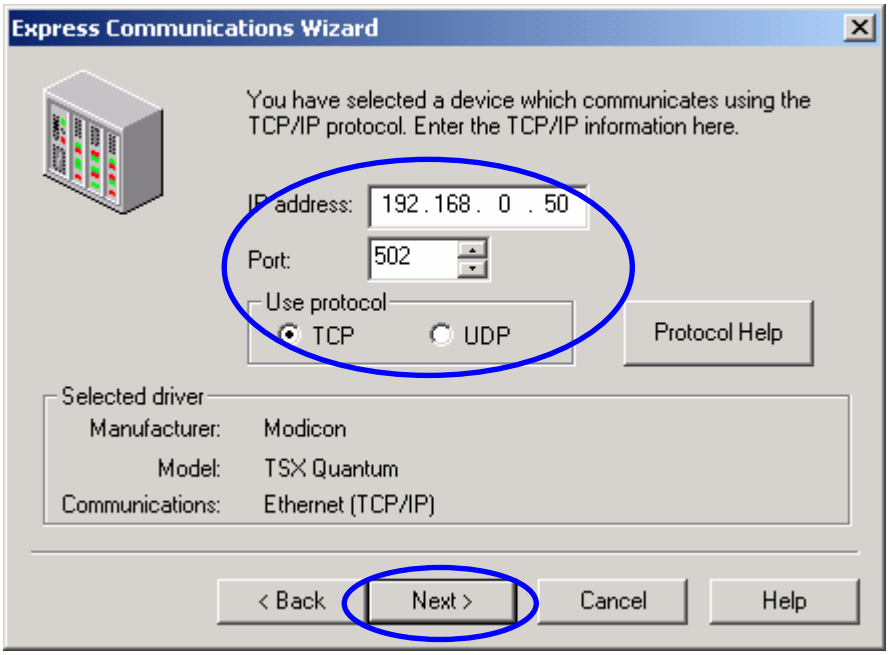


Step9: Select “Modicon/TSX Quantum/Ethernet (TCP/IP)” to be the communication protocol. Then click “Next” to continue.

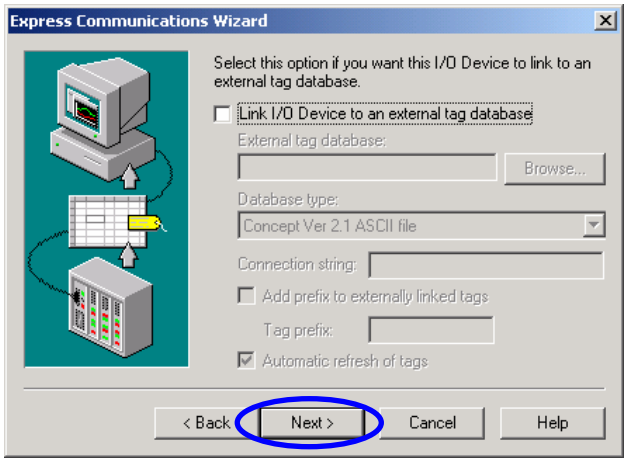


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Step10: Find the IP address which is showed on the LED in the left hand side of the ET-7000, and input it in to IP address field. Here, we fill 192.168.0.50 to be the IP address of the ET-7000. Then input the “502” in the Port field and click “Next” to continue.

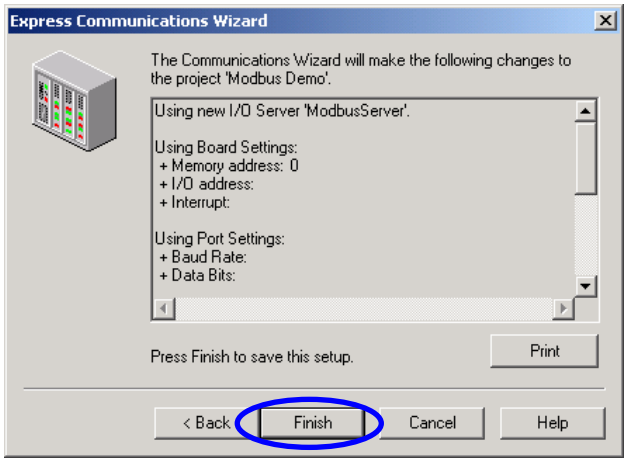


Step11: Click “Next” to continue.

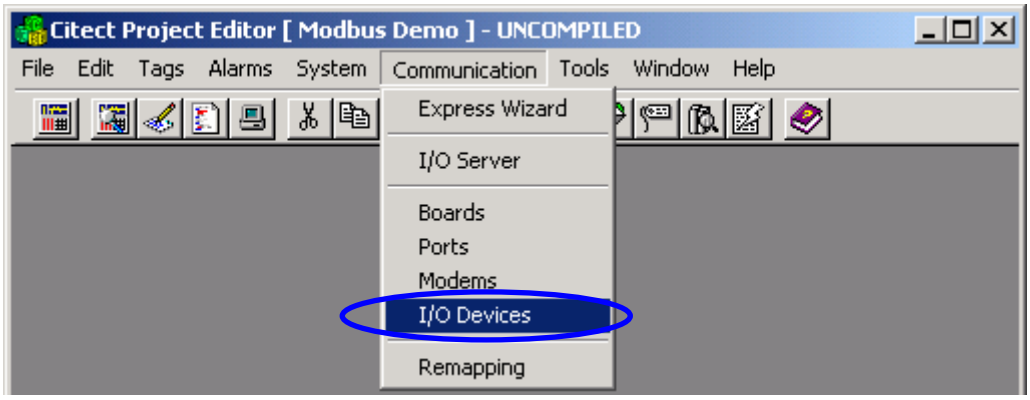


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Setp12: Click “Finish” to finish the parameter setting of I/O Servers and I/O Devices.



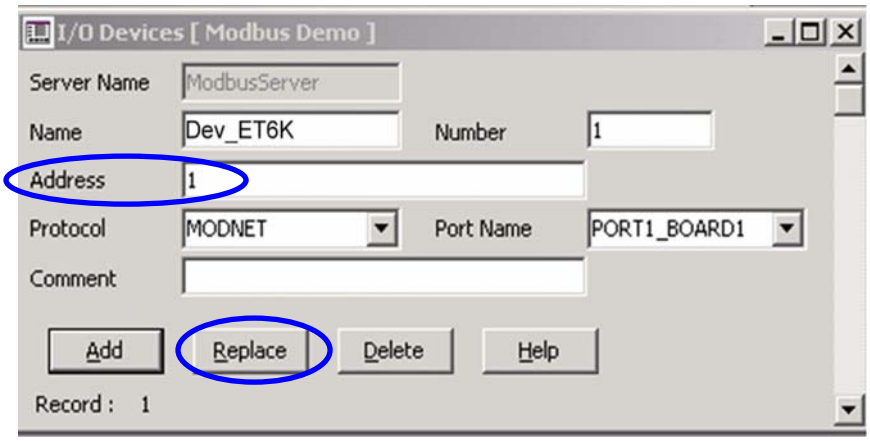
Step13: In the Citect Project Editor**,** select “I/O Devices” to modify the parameters of the I/O device that we build previously.



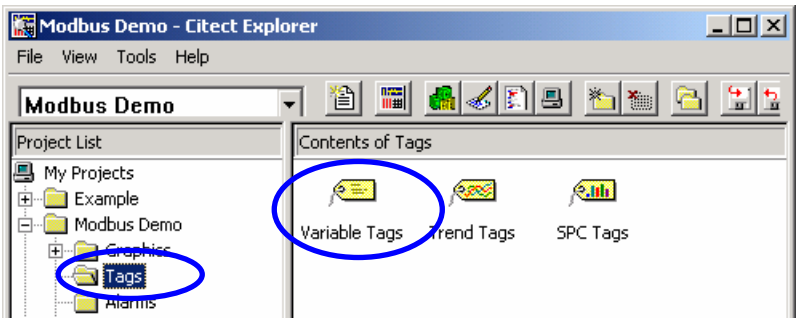
Step14: Fill the station number that displayed on the switch in the right hand side of the ET-7000. Here, we use “1” to be the station number of the ET-7000. Click “Replace” to

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finish the parameters setting.



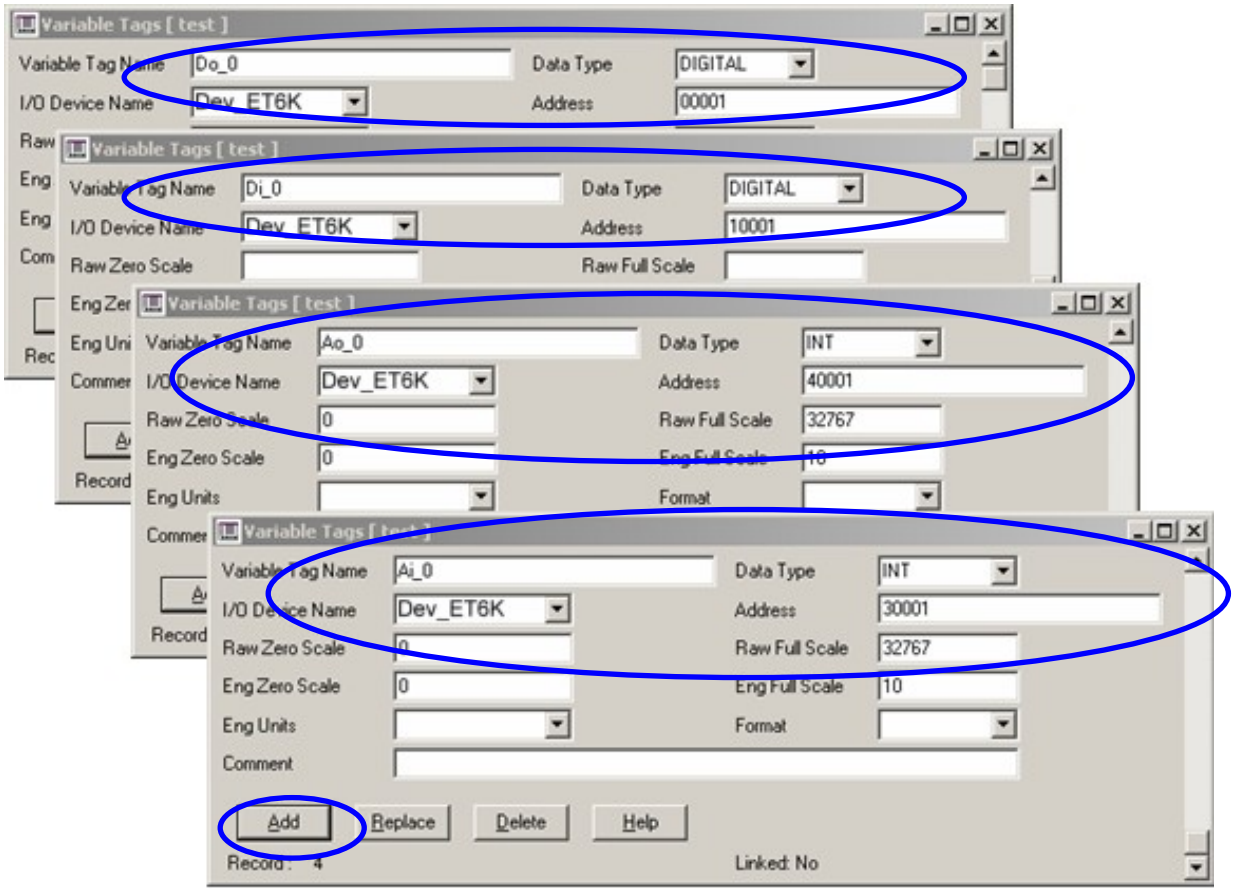
Step15: Open the folder-“Tags”, and click “Variable Tags” to create new tags.



Step16: Input the Variable Tag Name, Select I/O Device Name, select appropriate data type, and correct address. All this parameters are shown as following table. When finishing the parameters setting of one tag, click “Add” to build the next tag.

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Tag Name	I/O Device Name	Data Type	Address	Raw Scale	Eng Scale
Do_0	Dev_ET7K	DIGITAL	00001	X	X
Di_0	Dev_ ET7K	DIGITAL	10001	X	X
Ao_0	Dev_ ET7K	INT	40001	0~32767	0~10
Ai_0	Dev_ ET7K	INT	30001	0~32767	0~10



Note:

- In the Modbus protocol, the type of digital output is set to "**0**", digital input is set to "**1**", analog output is set to "**4**"

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and analog input is set to “**3**”.

- The DI and DO are declared as Boolean data, the AI and AO are declared as unsigned integral data.
- The “Starting address” begins at “0001”. Thus, if you want to use the 5th DO, the “address” filed must be given as “10005”, and the data type must be selected as “DIGITAL” type. If you want to use the 15th AI, you must fill “30015” in the “address” field, and Select “INT” to be the data type.
- The raw scale is used to converter a non-meaning value (0x0000 ~ 0xFFFF) to a meaning value (voltage, current, temperature, etc.)

	Zero scale	Full scale
Raw (non-menaing)	0	32768
Eng (menaing)	0	10 (V)

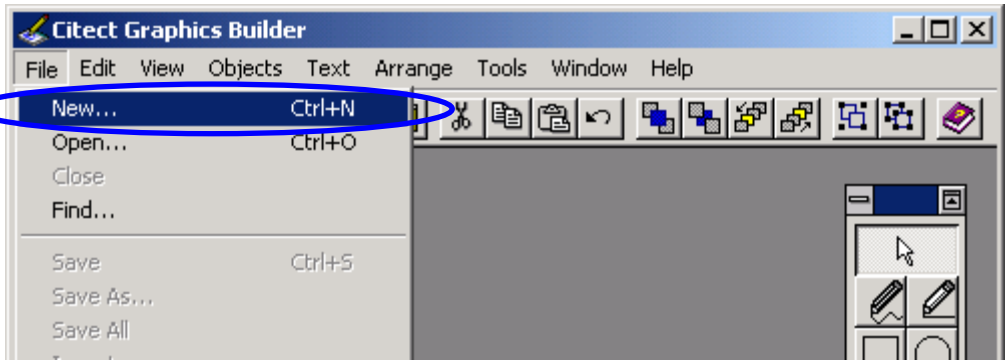
	Zero scale	Full scale
Raw (non-menaing)	0	65535
Eng (menaing)	-10 (V)	20 (mA)

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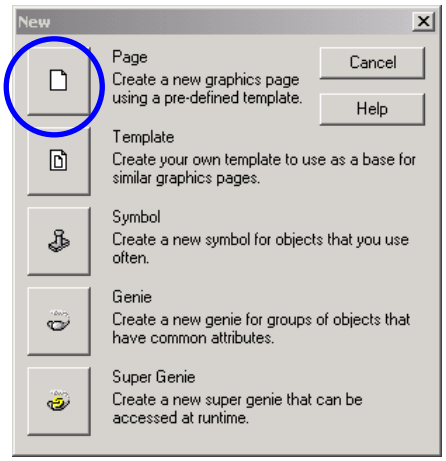
	Zero scale	Full scale
Raw (non-menaing)	0	32768
Eng (menaing)	0	10 V

Step17: In the Citect Graphics Builder environment, click

“New…” to create a new page.



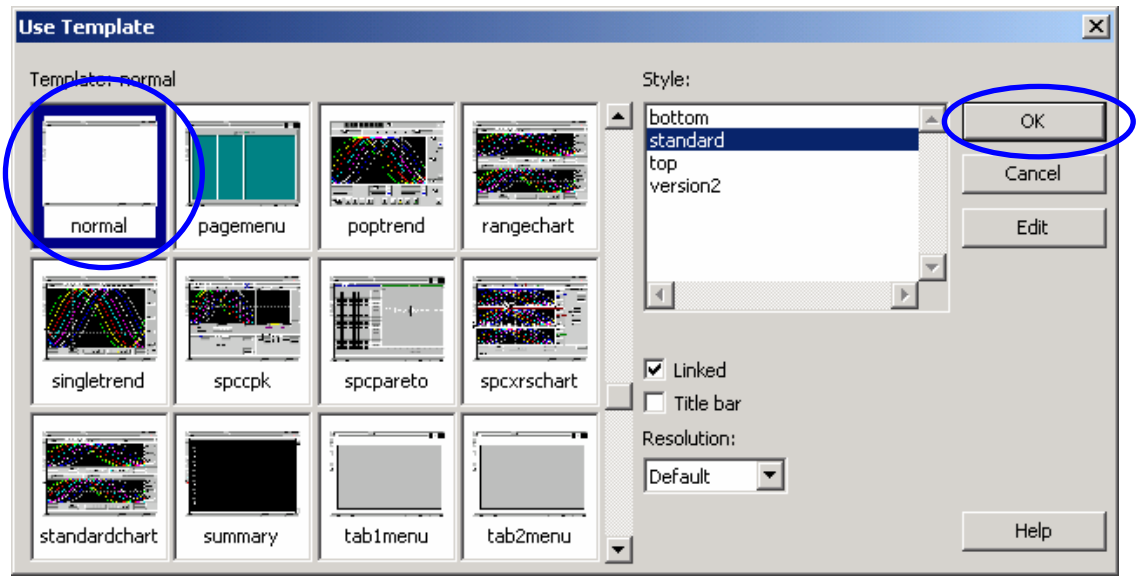
Step18: Click “Page” button to build a new page.



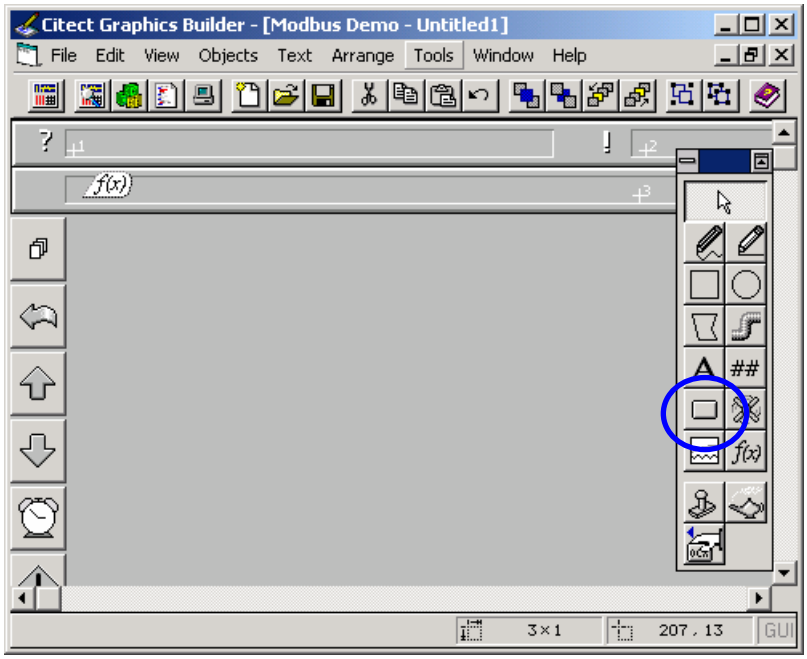
Step19: Select “normal” to be the template of page, and click

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“OK” to continue.

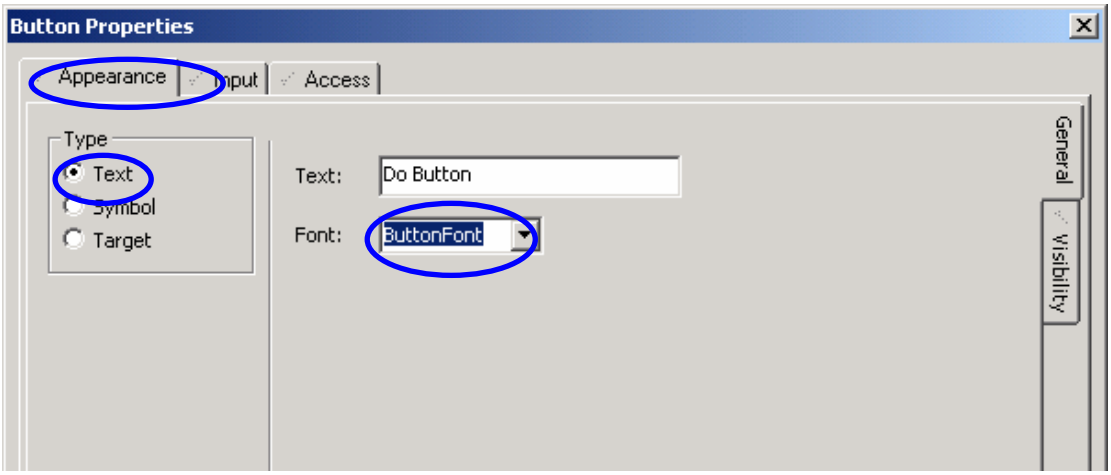


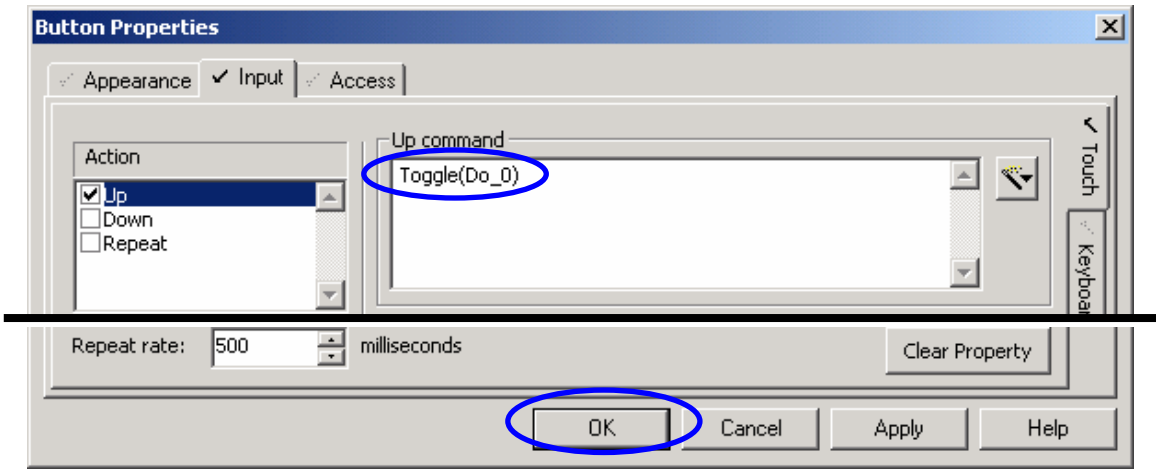
Step20: Click  button and drag-and-drop on the page to add a new button on this new page.



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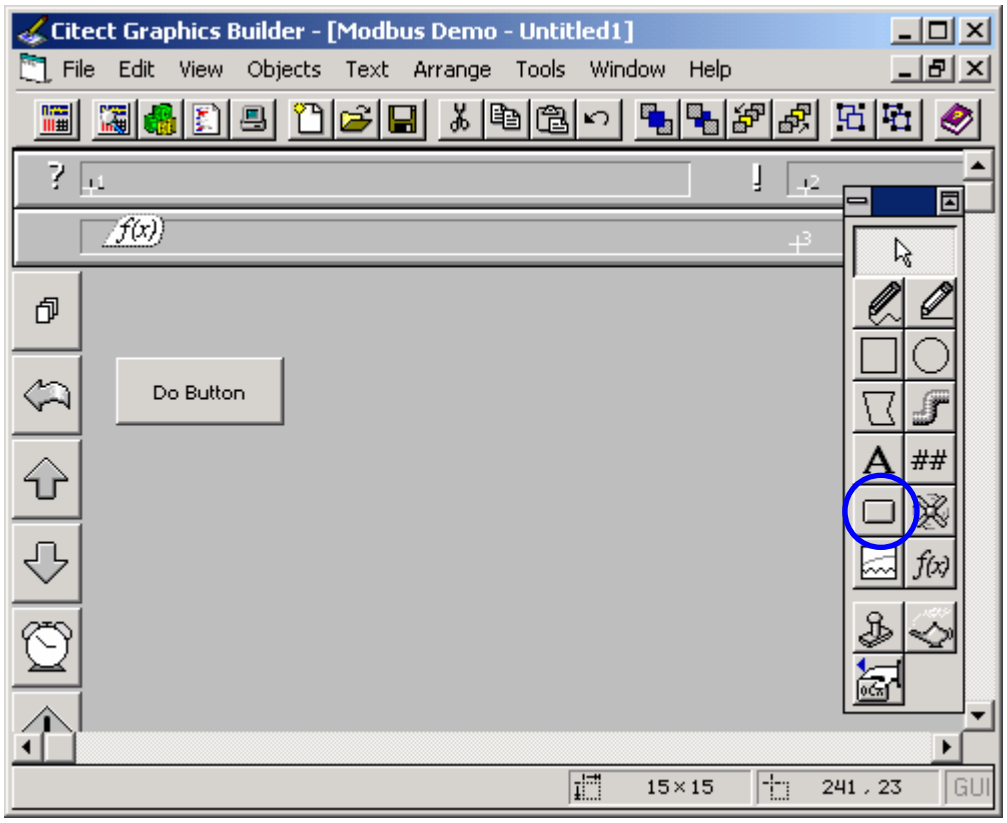
Step21: In the attribution-”Appearance”, input the text-“Do Button” which will be showed on the button. And in the attribution-“Input”, fill “toggle(Do_0)” in the blank text box. Then click “OK” to build another object.





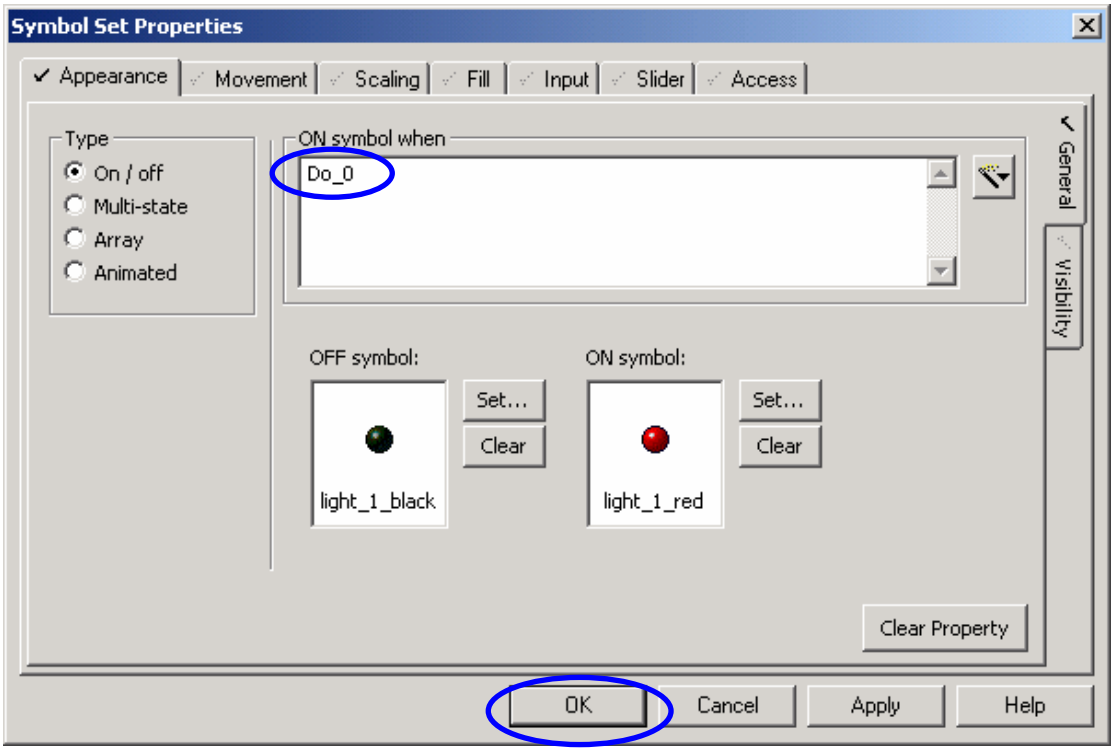
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Step22: Insert a LED object by clicking  button.

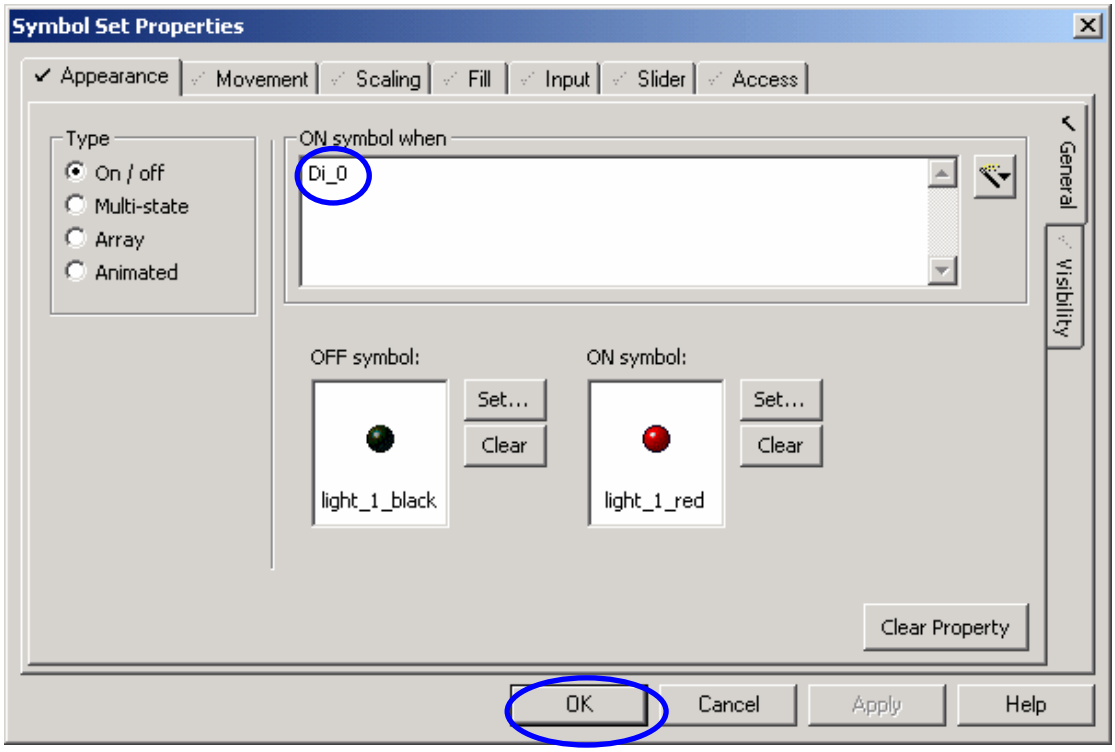


Step23: In the attribution-"Appearance", fill "Do_0" to decide the symbol of this LED object. Then click "OK" to build another LED object.

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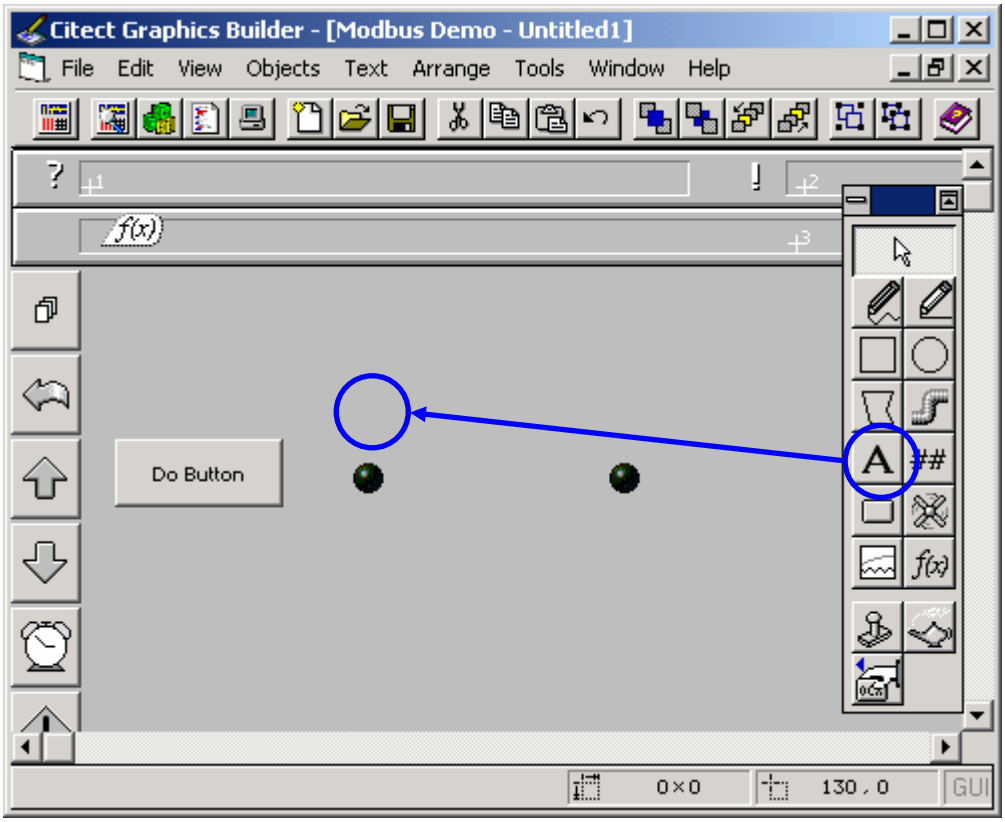
Step24: Follow the “Step22” and “Step23” as a model to build another LED object, and the parameters of this LED



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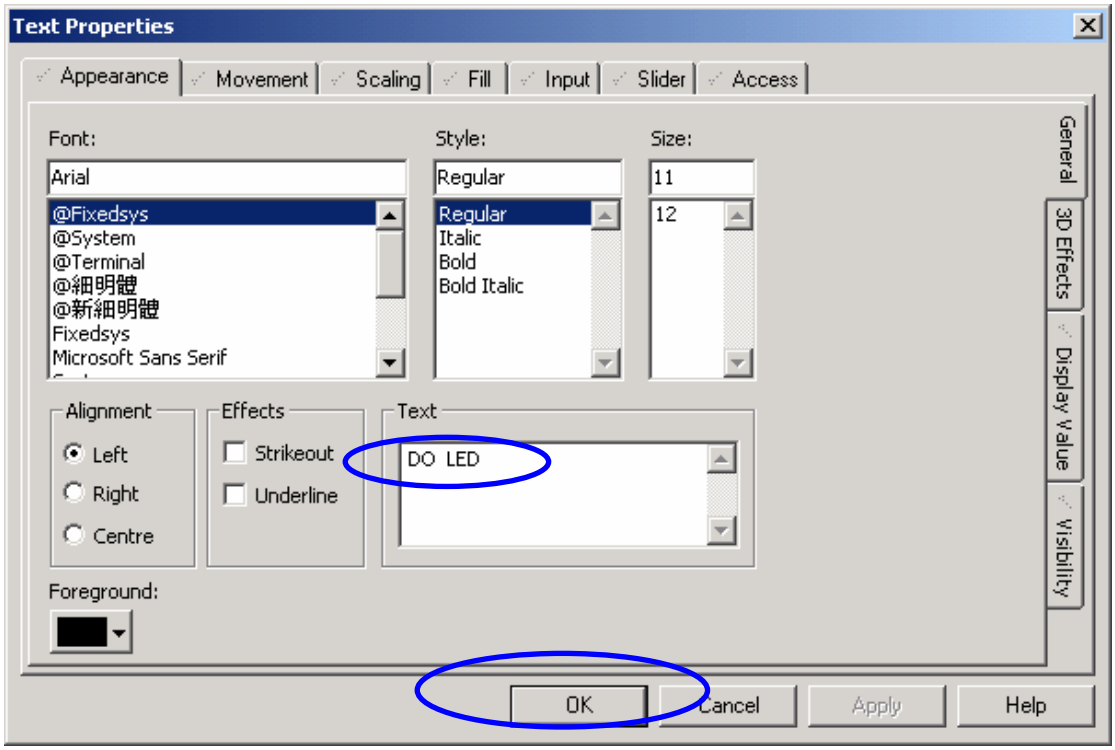
object is showed as following.

Step25: Click  button to create a new Text object, and put it on the above of left LED object.



Step26: In the attribution-“Appearance”, fill “DO LED” into “Text” box. Then click “OK” to create another new Text objects.

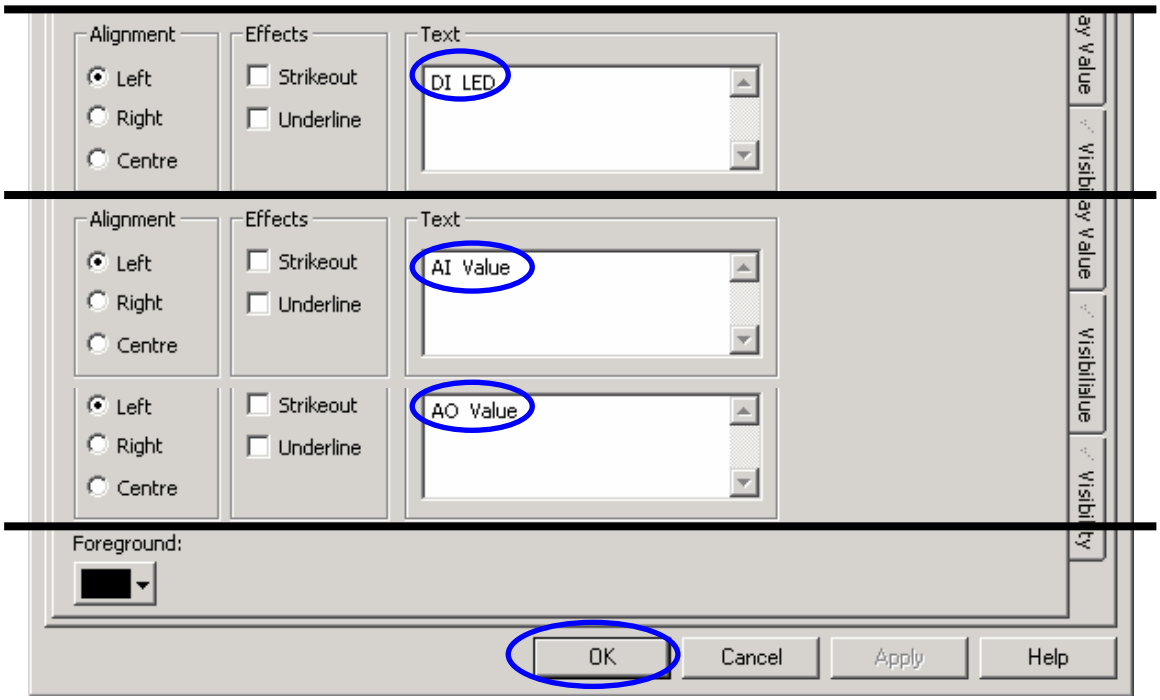
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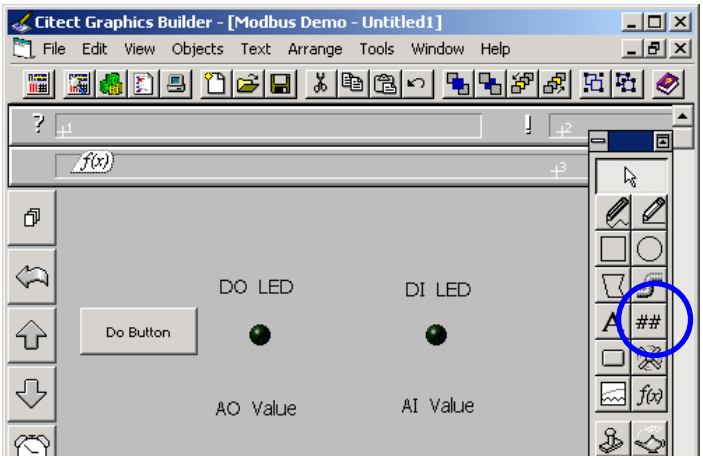
Step27: Follow the “Setp25” and “Step26” as a model, build three another Text Objects and put them in the appropriate place. The parameter setting of these Text objects are showed as following.



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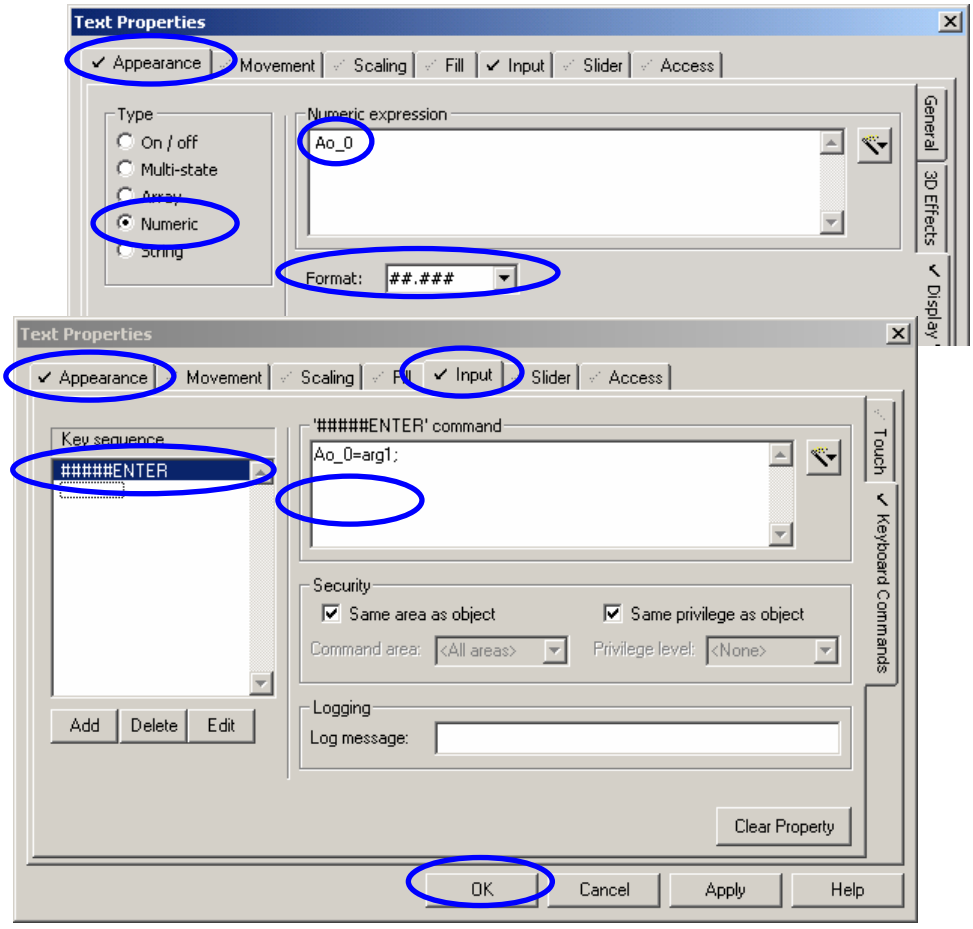
Step28: The filished page is showed as following. Click ## button to create a new number object.



Step29: In the attribution-“Appearance”, fill “Ao_0” into the numeric expression field, and “Format” is “##.###”. In the

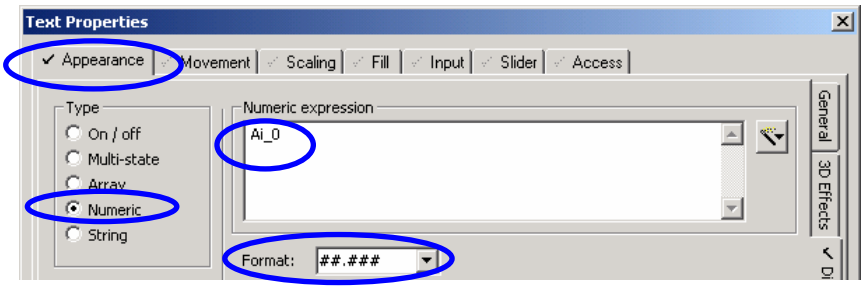
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attribution-“Input”, fill “#####ENTER” into key sequence box, and fill “Ao_0=arg1;” into command box.

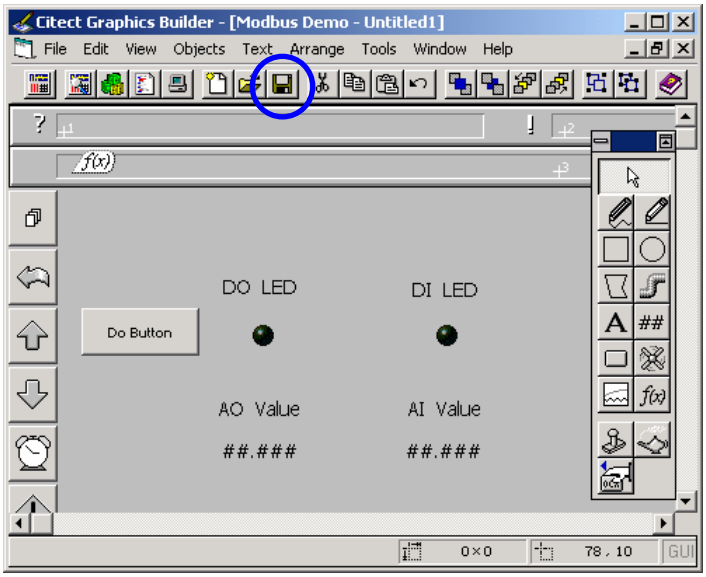


Step30: Follow the “Step29” as a model. Build a new number object, and set the “Appearance” attribution, but not to set the attribution-“Input”. The setting parameters are as following.

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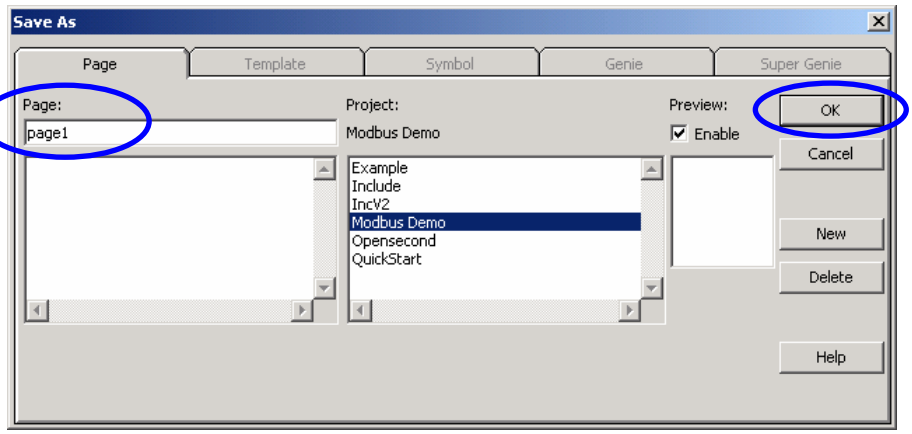


Step31: The finished page is showed as following. Then click  button to save this page.

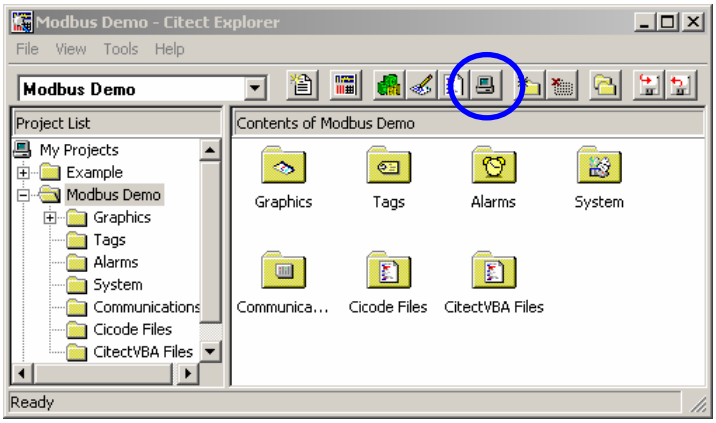


Step32: Input “page1” in the page field to be the name of this page.

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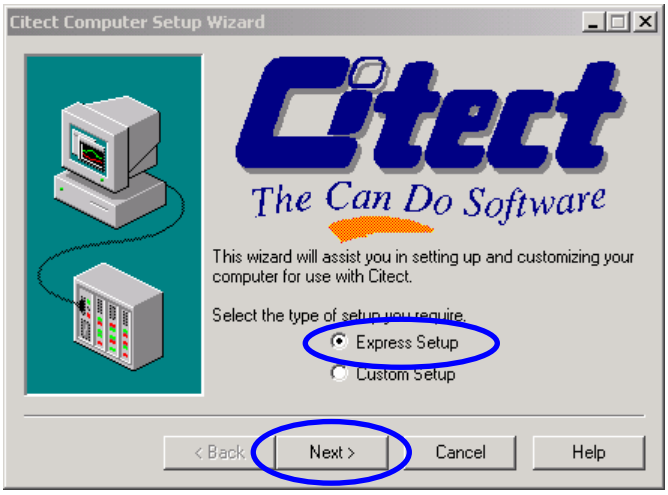


Step33: Click  button to start the “computer setup”

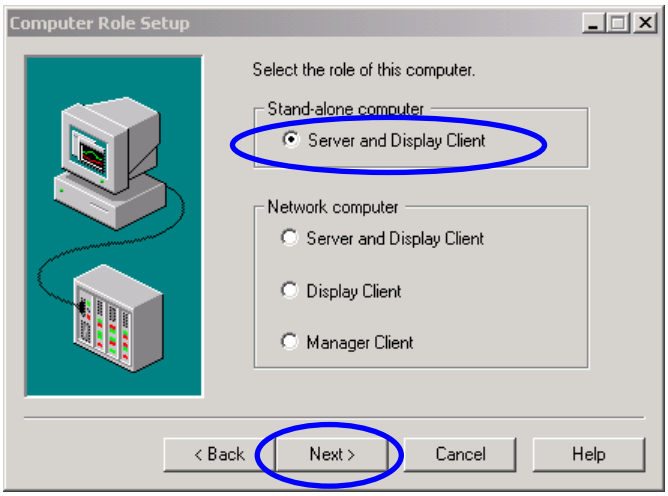


Step34: Select “Express Setup” and then click “Next” to continue.

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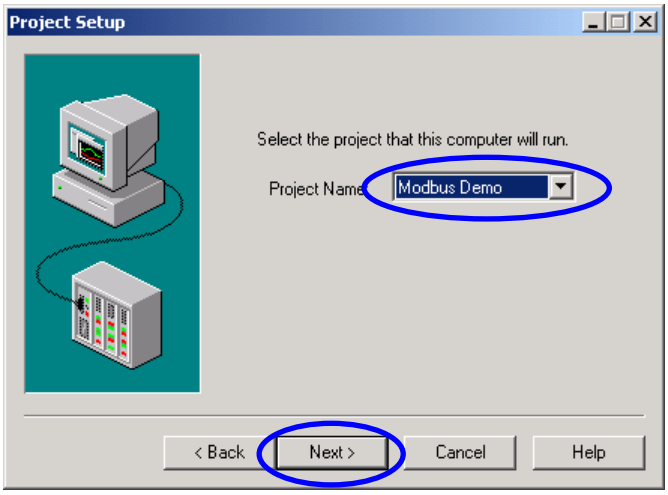


Step35: Select “Server and Display Client” and click “Next” to continue.

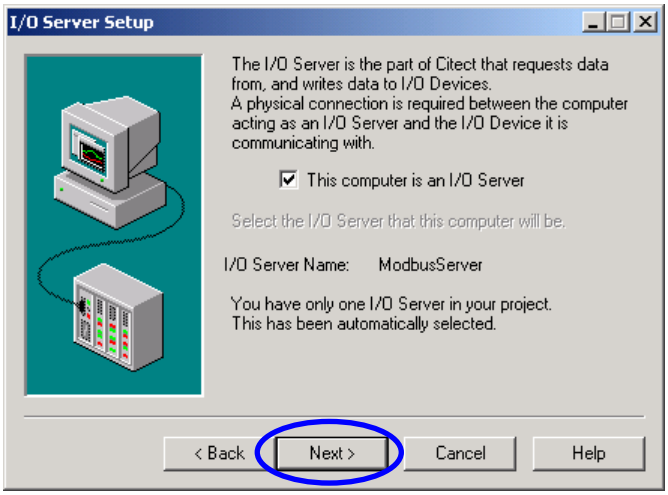


Step36: Select “Modbus Demo” in the “Project Name” list box and click “Next” to continue.

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Step37: Use default value and click “Next” to continue.

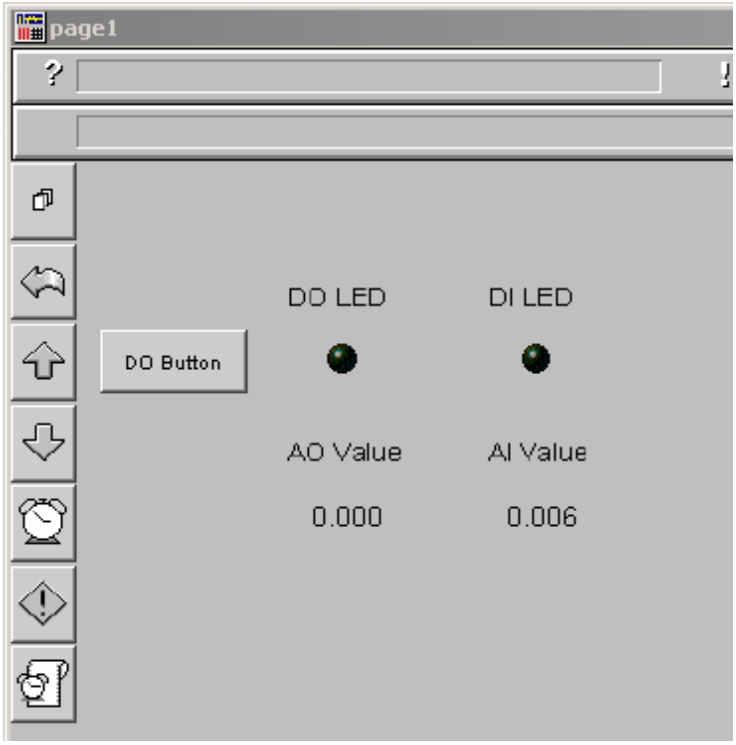


Step38: Click “finish” to finish the computer setup.

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Set40: Press “F5” to run the project. Clicking “Do Button” or click AO “number object” to input value can change the value of DO and AO.



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