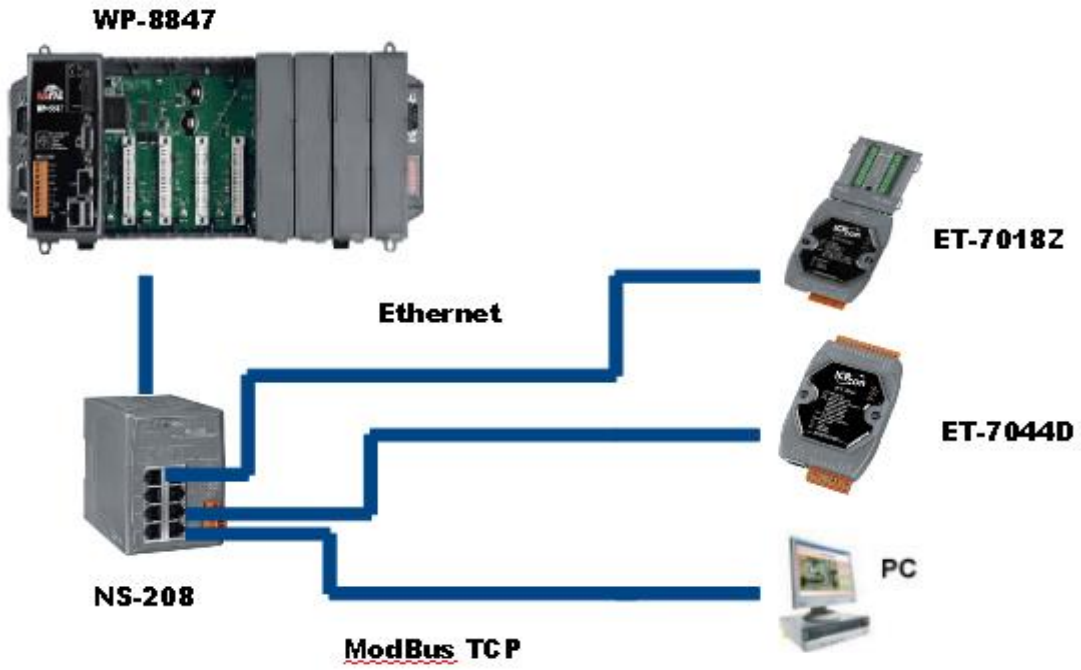
How to use the WP-8847 to connect ET-7018Z and ET-7044D and develop the HMI program by InduSoft, VS2008 C#, and VB.NET?

This document shows how to use the WP-8xx7's ethernet port to connect the ET-7018Z and ET-7044D modules. The ET-7018Z is for measuring maximum 10 channel temperture inputs.The ET-7044D is for outputing max 8 channel Digital outputs. There are three HMI sample programs in this example. One is written in InduSoft, another one is written in C#.NET,the other one is written in VB.NET. Following is the architecture of the example:



For further information about the ET-7000 series product, please refer to the following page.
http://www.icpdas.com/en/product/guide+Remote__I_O__Module__and__Unit+Ethernet__I_O__Modules+ET-7000_ET-7200#650



ET-7018Z



ET-7044D

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Reference:

User manual of the ET-7000 series:

http://www.icpdas.com/en/download/show.php?num=2217&nation=US&kind1=6&kind2=8&model=&k=ET-7000

Please download the MiniOS7 Utility:

http://www.icpdas.com/en/download/show.php?num=1053&nation=US&kind1=6&kind2=17&model=&kw=MiniOS7

More information about the WP-8xx7 series product:

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

ser manual of the ISaGRAF can be found in :

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

More information about connecting modbus device please refer to the ISaGRAF manual chapter 8:

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

Please refer to "FAQ113.pdf". This document shows how to connect the Modbus TCP device by ISaGRAF PAC.

https://www.icpdas.com/en/faq/index.php?kind=280#751 → 113

Basic operations with InduSoft project.

http://www.icpdas.com/en/download/show.php?num=1619&nation=US&kind1=&model=&kw=Indusoft

Please refer to the chapter 6 and chapter 10 of the "WP-8xx7 Getting Started manual" for programming C#.NET and VB.NET in WP-8xx7.

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

You can download the document and sample program in :

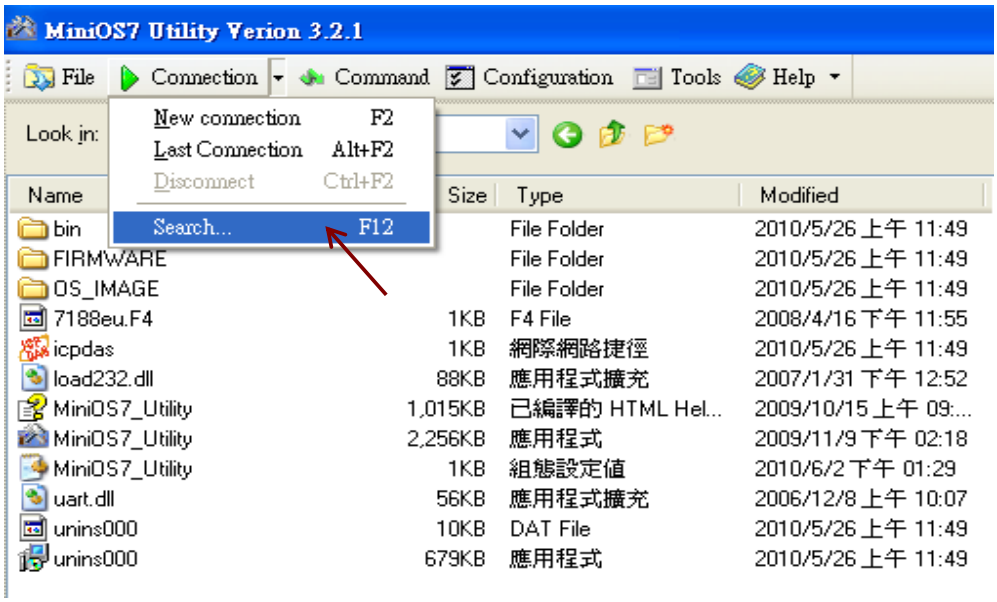
https://www.icpdas.com/en/faq/index.php?kind=280#751 → 126

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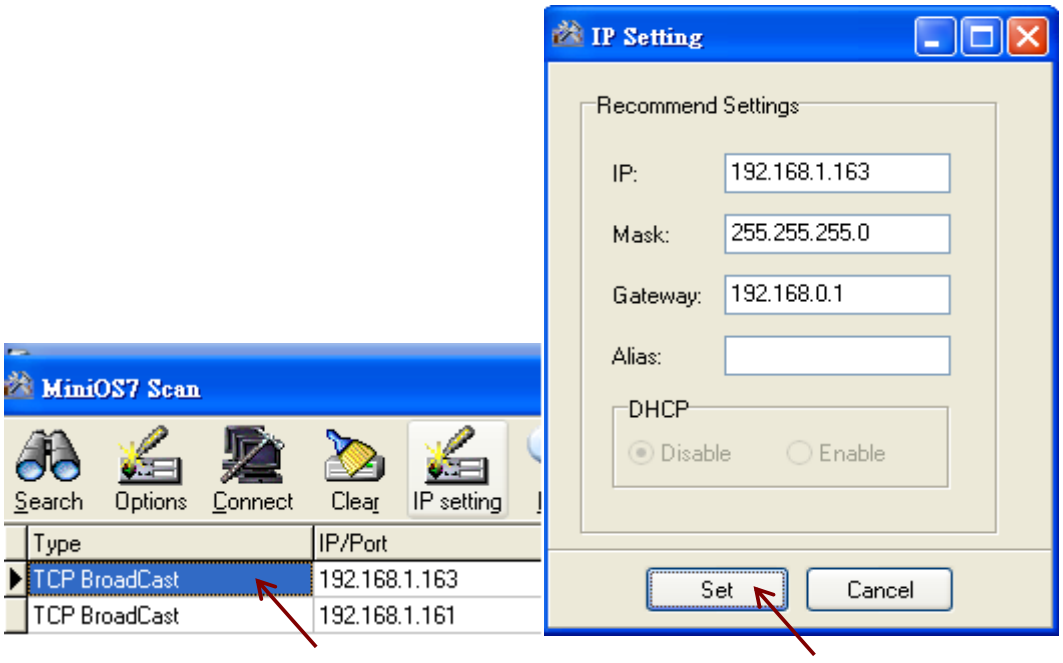
1.1 Configuring ET-7000 series :

The MiniOS7 Utility is a tool for setting IP address on ET-7000 modules. Please follows below steps to set a proper IP address to the ET-7000 module.

1. run the MiniOS7 Utility, then click on "Search" on the connection menu bar.



2. Then double click the searched item to set the new proper IP and Mask address for the ET-7000 modules.

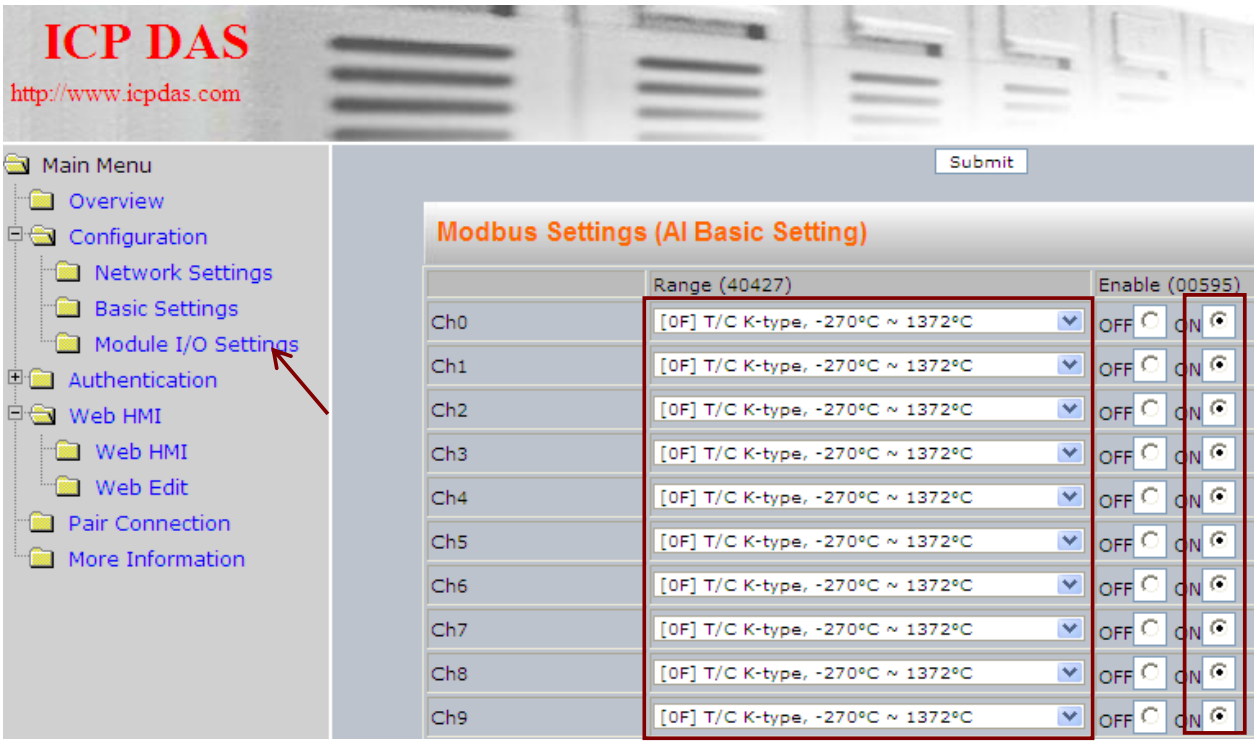


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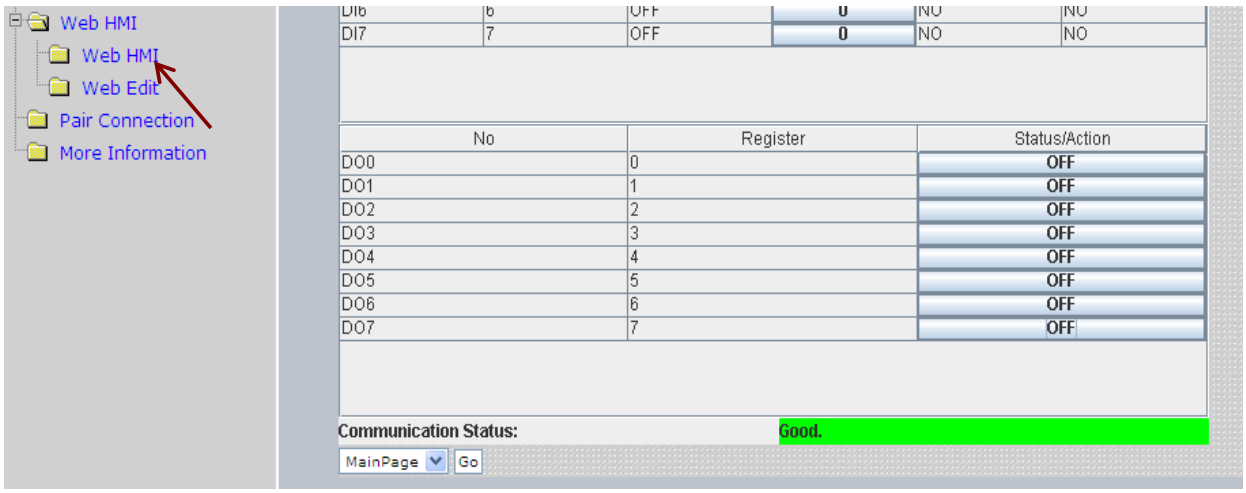
After setting the ET7018Z's IP, run the IE browser and type-in IP address of the ET-7018Z(ex:http://192.168.1.163/)Account & Password : Admin) Click "configuration menu→Module I/O Setting" on the left menu. Scrolling down the page to find the " ModBus Setting (AI Basic Setting)". All of the channel(ch0~ch9) must be set to "T/C K-type" in this example.

For the ET-7044D, only the IP address need to be set, no other settings needed.

ET-7018Z Mofule I/O Setting



ET-7044D WebHMI



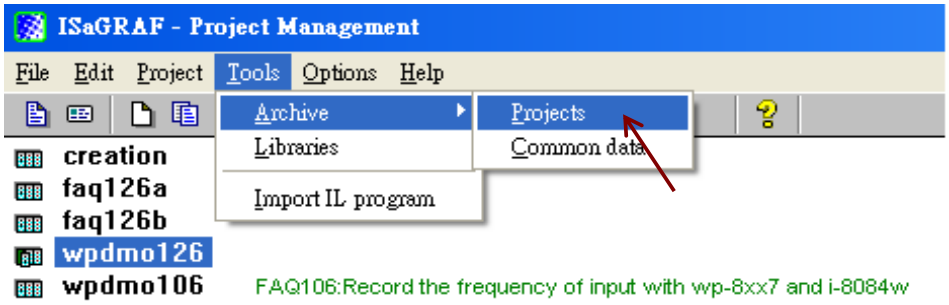
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1.2：ISaGRAF project in the example

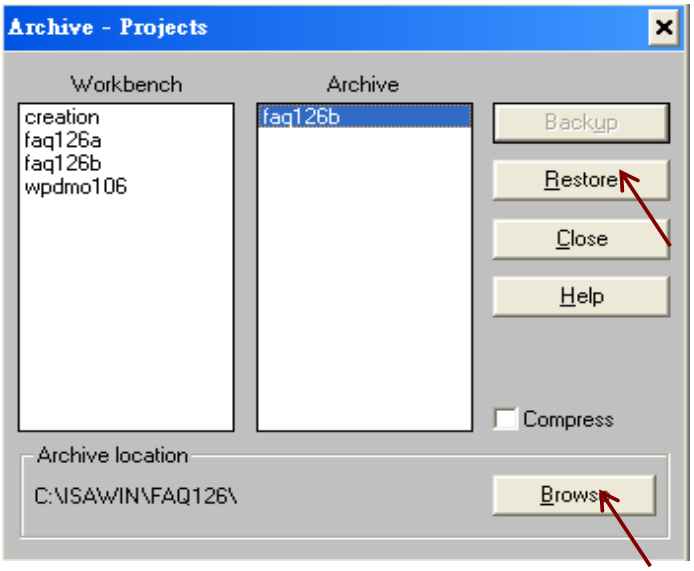
1.2.1： Restore the ISaGRAF project

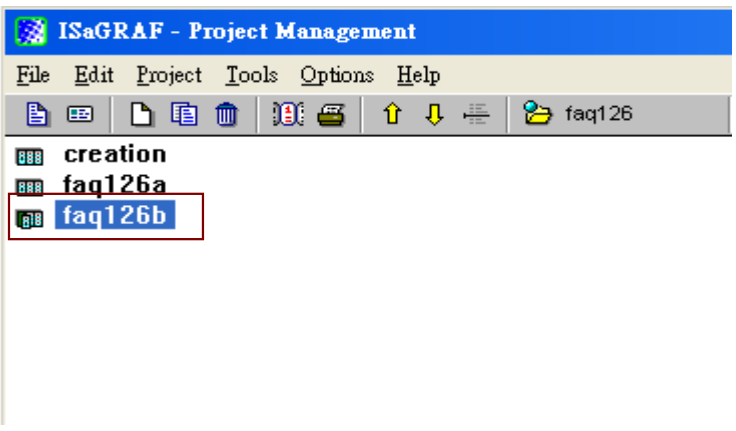
Please follow the below steps to restore "faq126.pia".

1. run tools → Archive → projects



2. Click Browse button to select the correct folder. Then click "faq126b" and "Restore" to restore it.

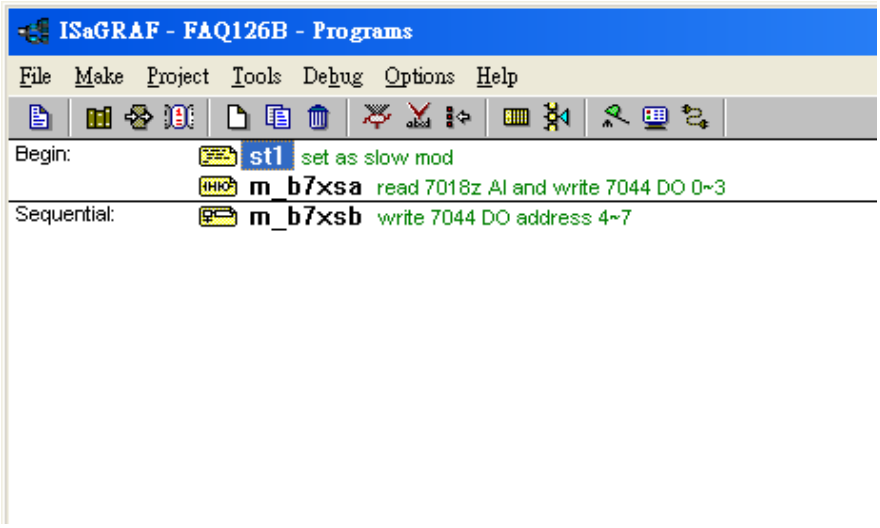




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1.2.2： Illustration of this ISaGRAF example project

There are three programs in this example project : the "st1","m_b7xsa"and "m_b7xsb".

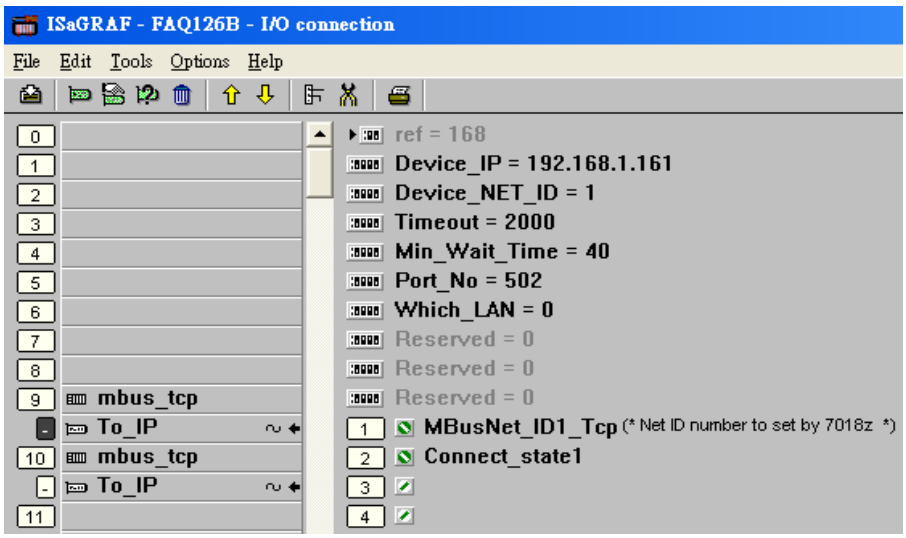


Varible Definition

Name	Type	Attribute	description
ok,ok2	Boolean	Internel	Estimating program execute correctly.
DO00~DO07	Boolean	Internel	Setting ET-7044D module's D/O channel. Varible's network address is 11~18.
tmp	Boolean	Internel	Estimating PLC mode in "st1" program.
init	Boolean	Internel	Initial value is true. Let "st1" program execute once.
Temper0~9	Integers	Internel	Reading the ET-7018Z A/I value. Varible's Network address is 1~9.
MBus_Net_ID1_TCP	Integers	Input	This is 7018Z's Net ID for setting project's I/O connection.
MBus_Net_ID2_TCP	Integers	Input	This is 7044S's Net ID for setting project's I/O connection.
connect_state1	Integers	Input	ET-7018Z's connecting state.
connect_state2	Integers	Input	ET-7044D's connecting state.
timer	Timer	Internel	ET-7044 D/O switching time.

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I/O connection：



1.**Device_IP** ： ET-7000 module's IP address.

2.**Device_NET_ID**：Modbus TCP Slave's device ID, default value is 1.

3.**Timeout**：communication timeout setting. Unit is ms.

4.**Min_Wait**：waiting time in ms before sending next request command.

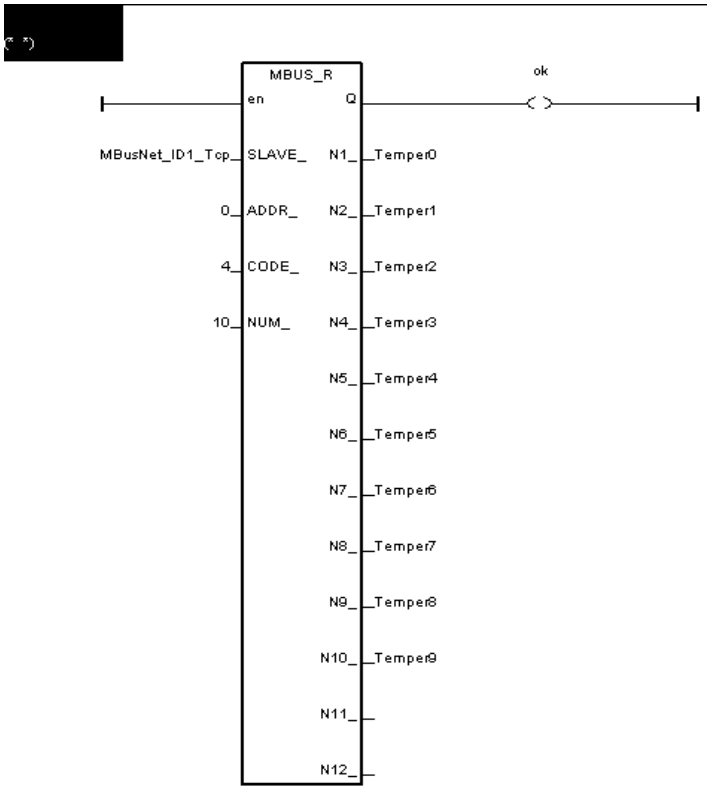
5.**Which LAN**：using which LAN port to connect modbus TCP devices. Default setting is 0.

0:Auto Selecting port LAN1/2. 1 :always selecting LAN1. 2 :always selecting LAN2.

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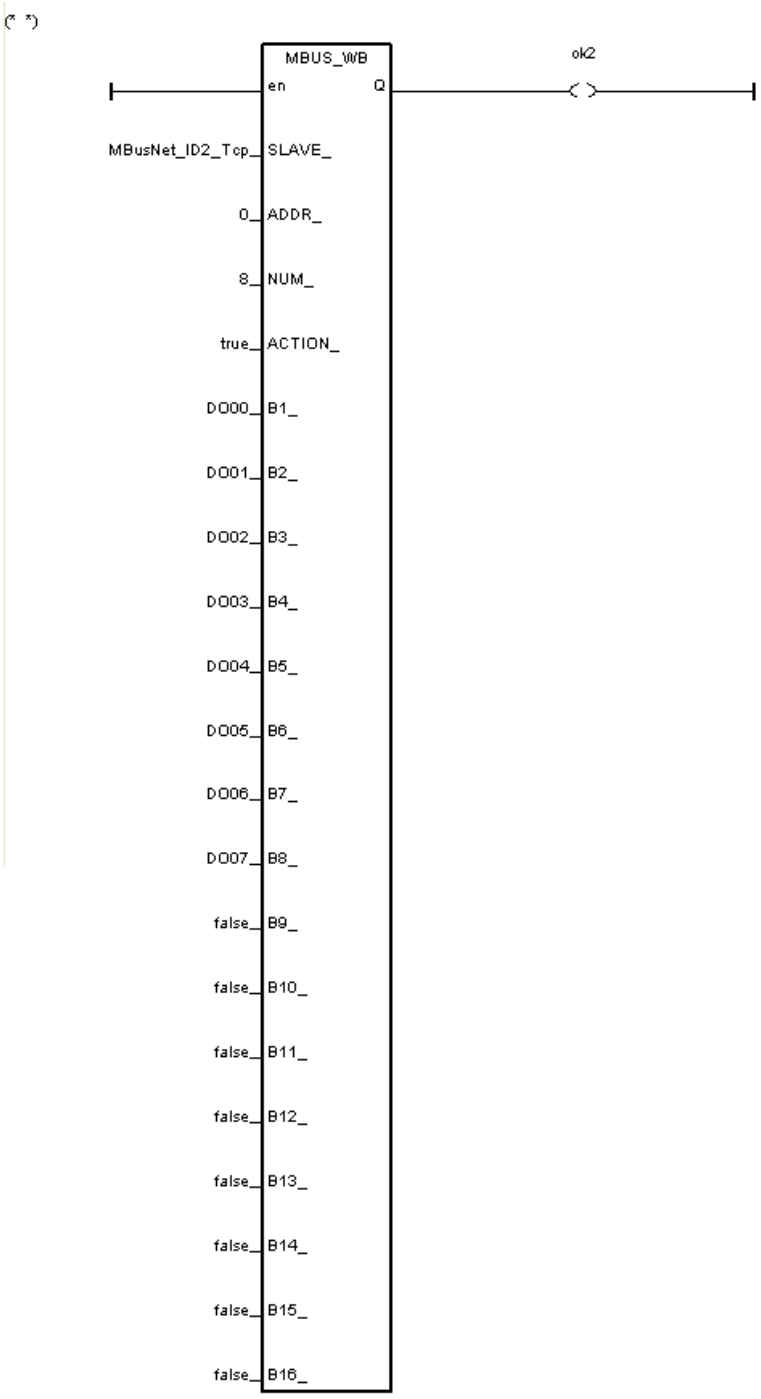
"m_b7xsa" ladder program illutration :

MBUS_R : Function Block for reading the ET-7018Z's A/I value. Using Modbus code 4 to read 10 words. Starting with address 0.



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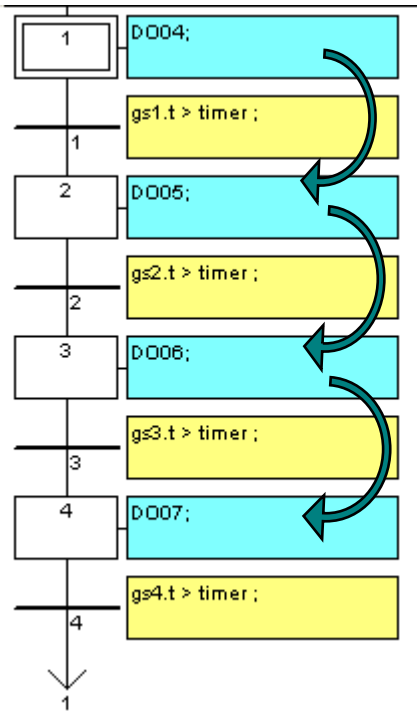
MBUS_WB：Writing D/O to the ET-7044D's D/O channel 0~7. Using the "Mbus_wb" to write 8 bits. starting with address 0.



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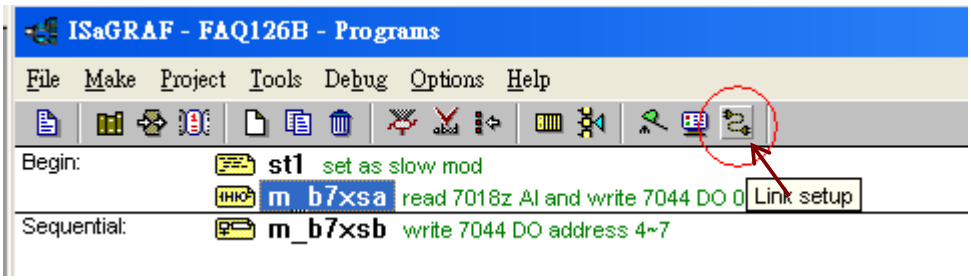
"m_b7xsb" SFC program :

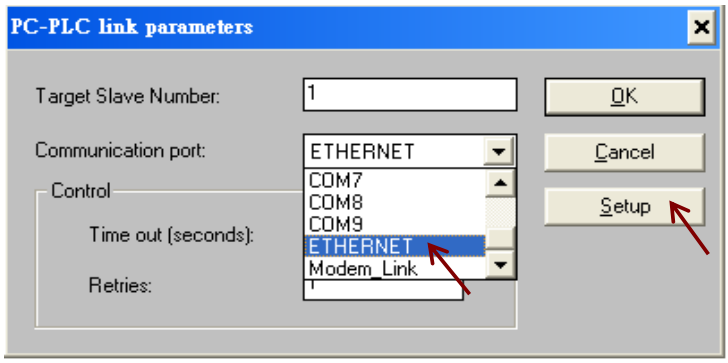
The following SFC program will switch to ouput the next D/O variable after a period of time (default is 3 seconds).



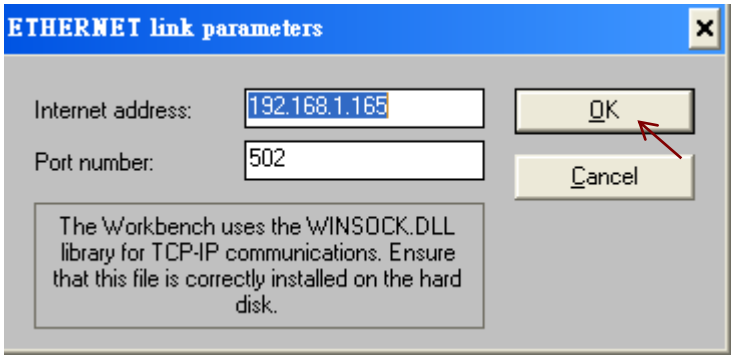
Downloading the "FAQ126b" to the WP-8847:

1.Click "Link Setup". Then select "ETHERNET" option,if you download project via ehernet. Click "Setup" to set the WP-8847's IP and Port Number 502.

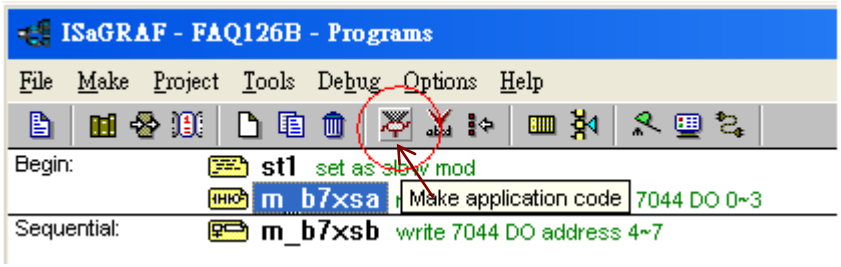




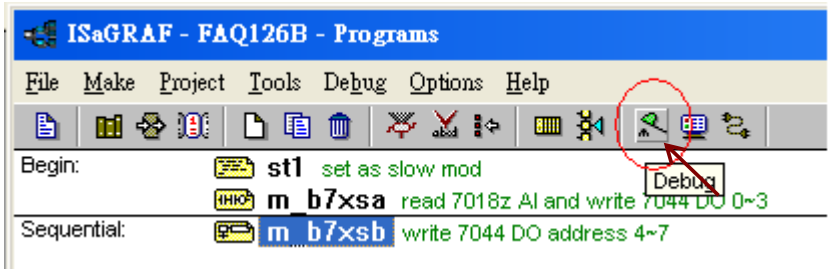
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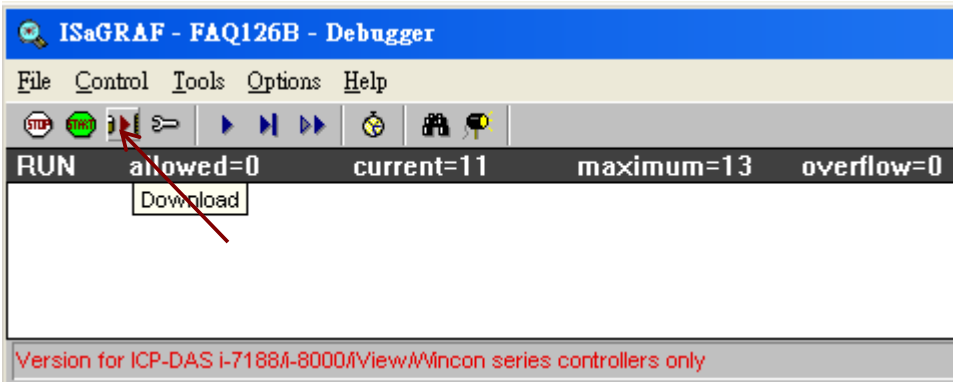


2. Click "Make Application"



3. Then click debug→to download the ISaGRAF project to the PAC.



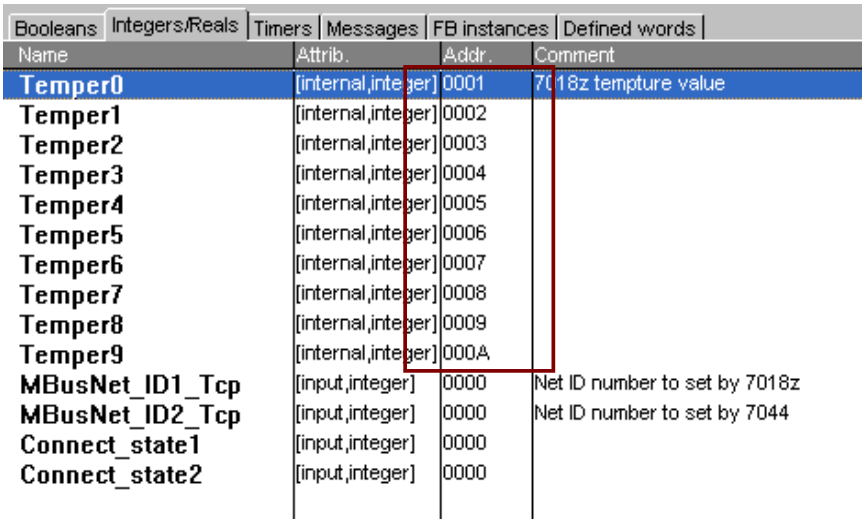


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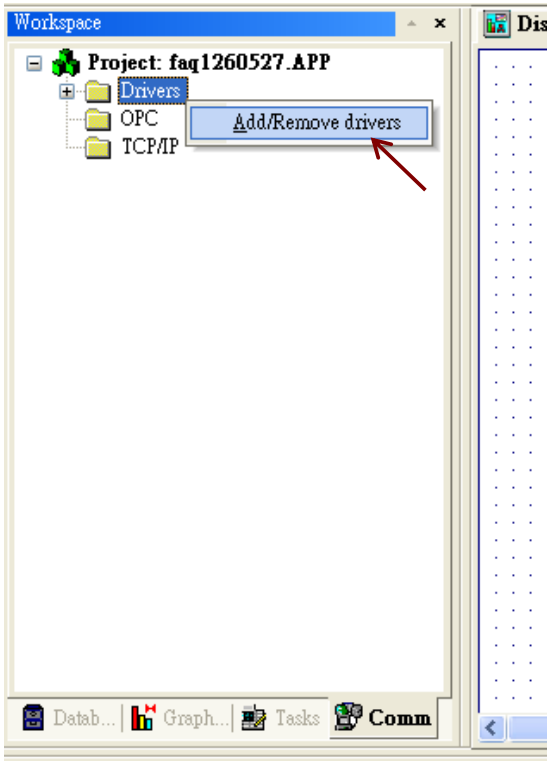
1.3：HMI program by InduSoft

ISaGRAF program is running in the WP-8447 as listed in section 1.2.2**.** InduSoft can access ISaGRAF's varibles if each varible has been set one "Network Address".The following steps shows how to set the InduSoft project to access ISaGRAF varibles.

1. Please check varible in the ISaGRAF project. All variables must be assigned with a network address for the HMI software to access them.

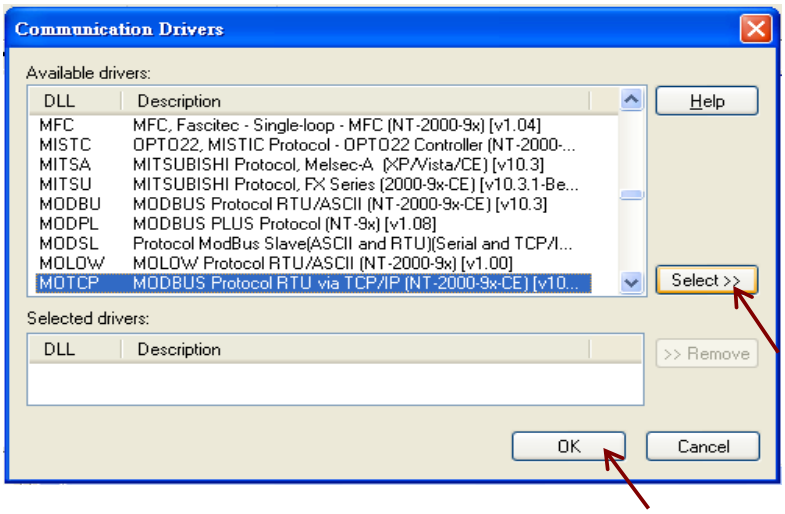


2. Select "Common" then right click on "Drivers" to run "Add/remove driver"

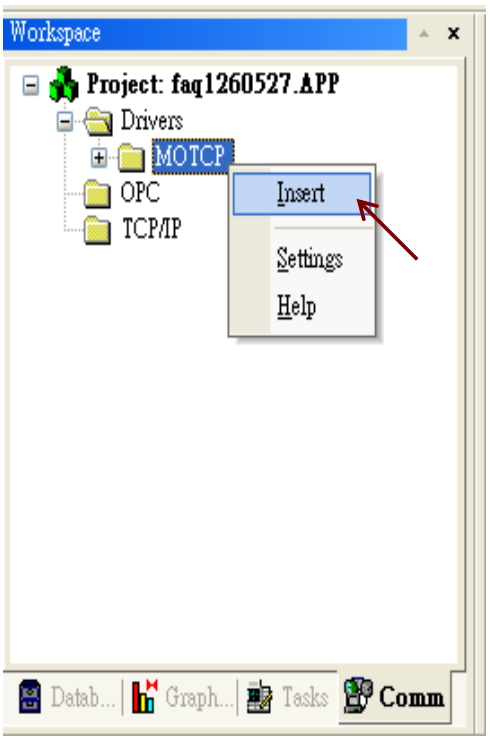


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3. Select "MOTCP" and click "OK".

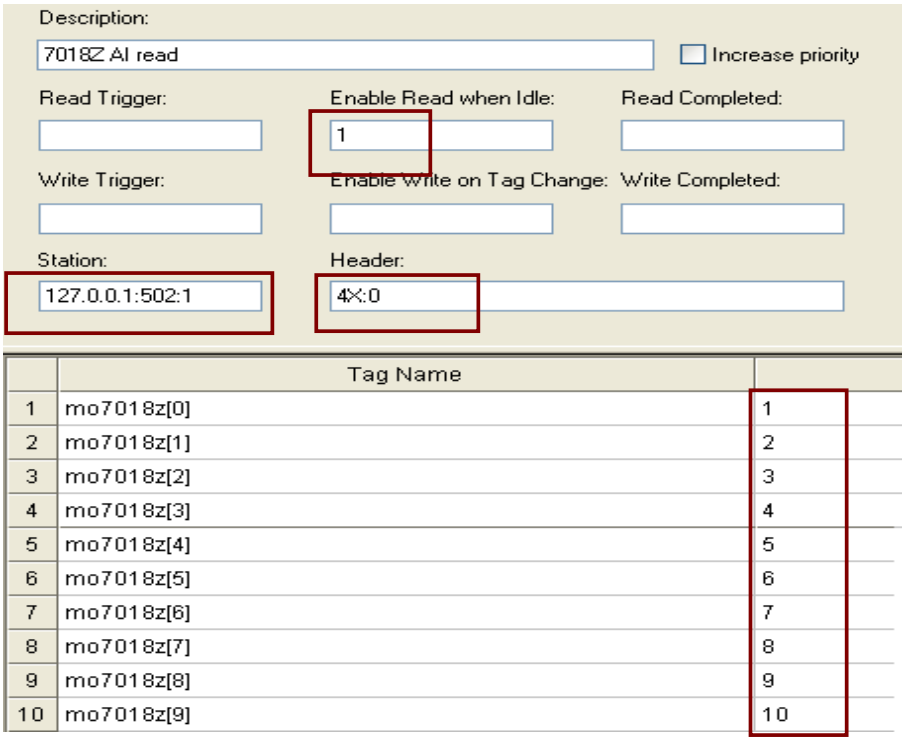


4. Right click on the "MOTCP" and then click "Insert"

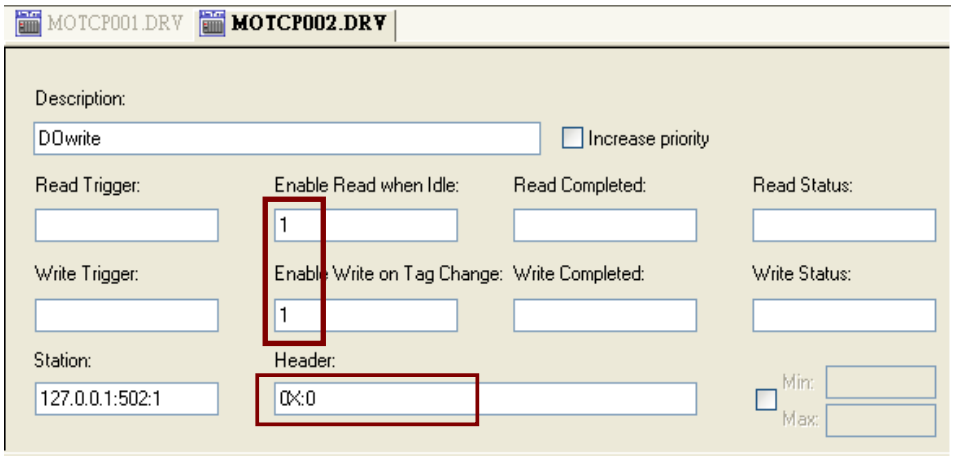


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5. Insert 3 Data Sheets,then follow the setting listed in the following diagram. (Note: Please add InduSoft tags used to "mo7018z[x]" and their address are decimal.)

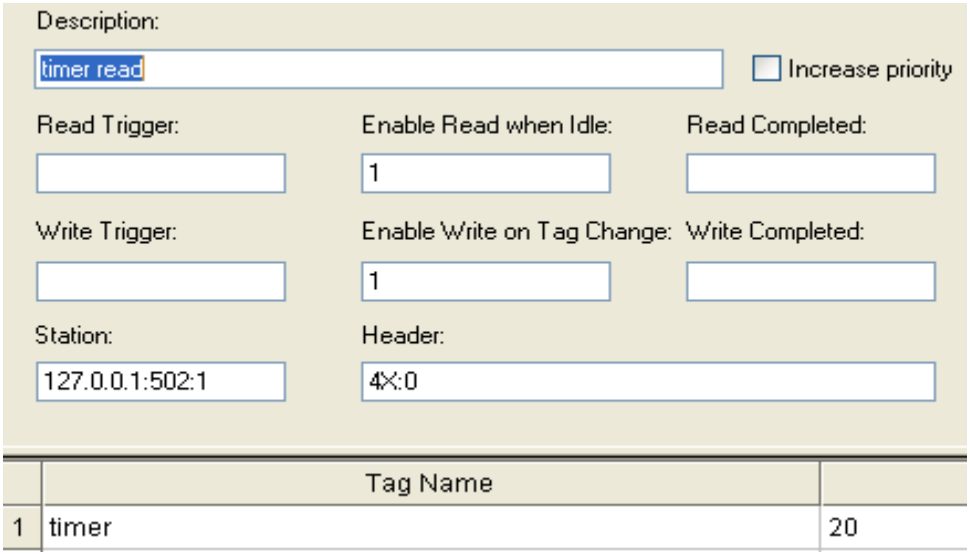


	Tag Name	
1	mo7018z[0]	1
2	mo7018z[1]	2
3	mo7018z[2]	3
4	mo7018z[3]	4
5	mo7018z[4]	5
6	mo7018z[5]	6
7	mo7018z[6]	7
8	mo7018z[7]	8
9	mo7018z[8]	9
10	mo7018z[9]	10

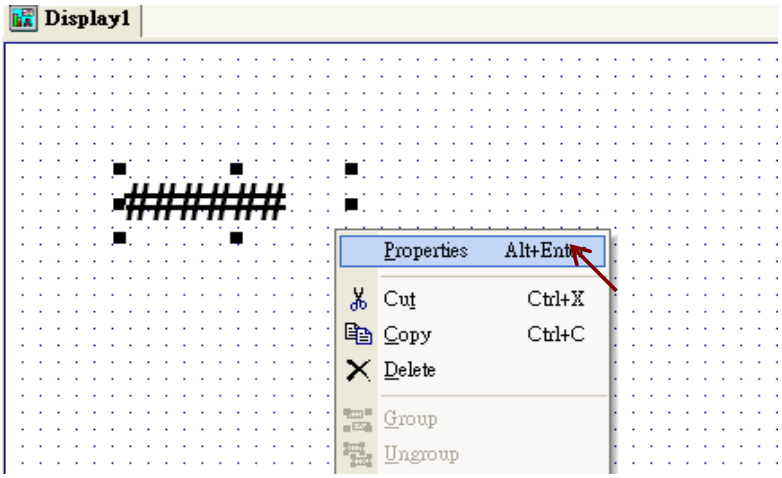


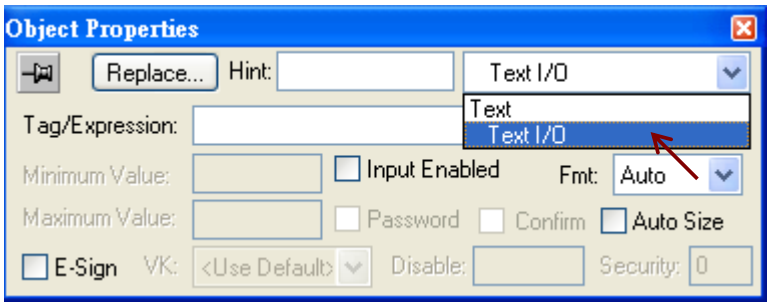
	Tag Name	Address
1	mo7044[0]	11
2	mo7044[1]	12
3	mo7044[2]	13
4	mo7044[3]	14
5	mo7044[4]	15
6	mo7044[5]	16
7	mo7044[6]	17
8	mo7044[7]	18

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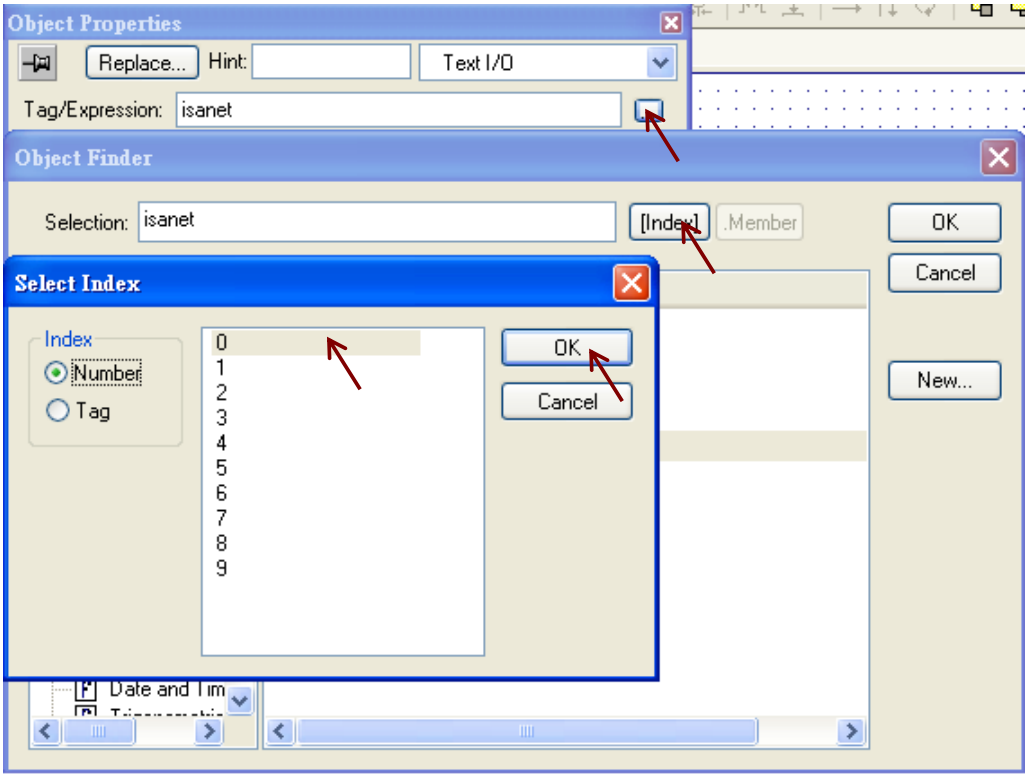


6.The amount of "#" means the amount of character can be displayed on the screen after a text object created.

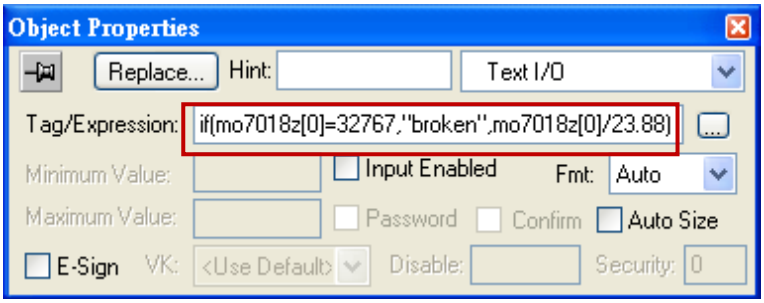




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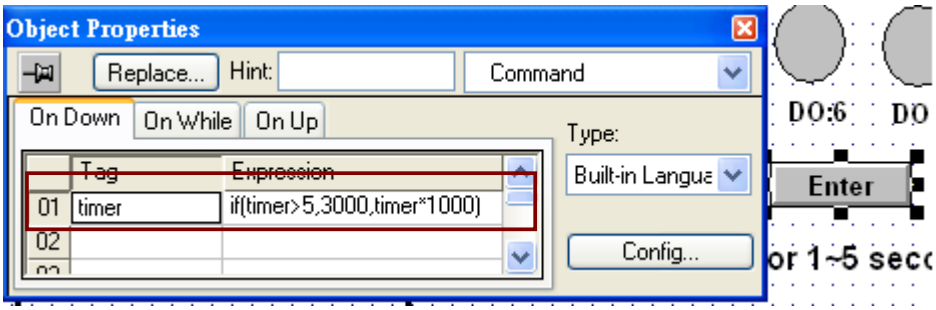
7.Because the ET-7018Z A/I value is ranging between -32768 and 32767. Then scaling the A/I value to a proper temperture value is necessary by adding the if(mo7018z[0]=32767,"broken",mo7018z[0]/23.88) statement.



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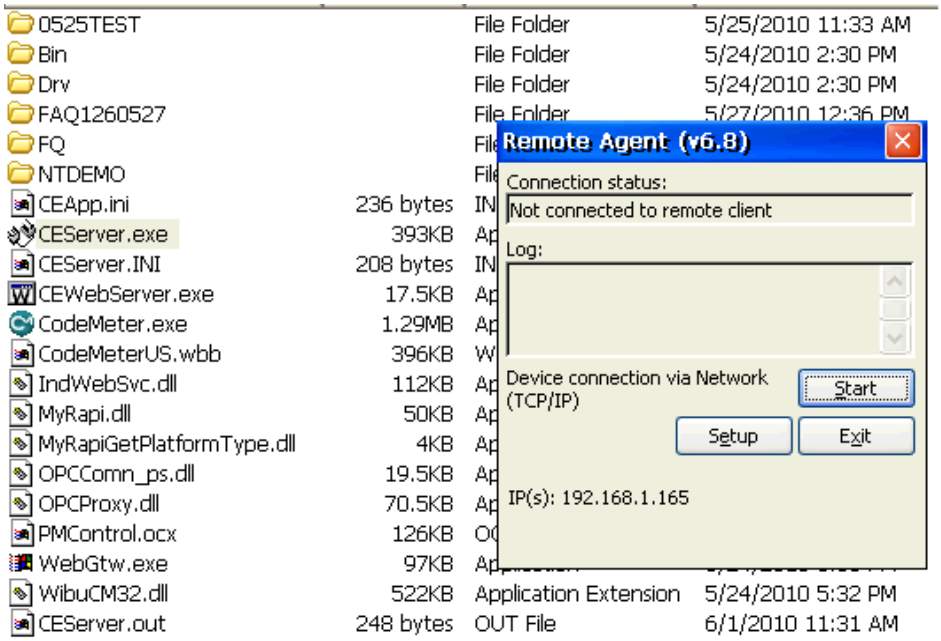
Adjusting theET-7044D D/O switching time:

To modify the "timer" value in the ISaGRAF program properly,plwase add the "if(timer>5,3000,timer*1000)" statement to the "timer" tag.



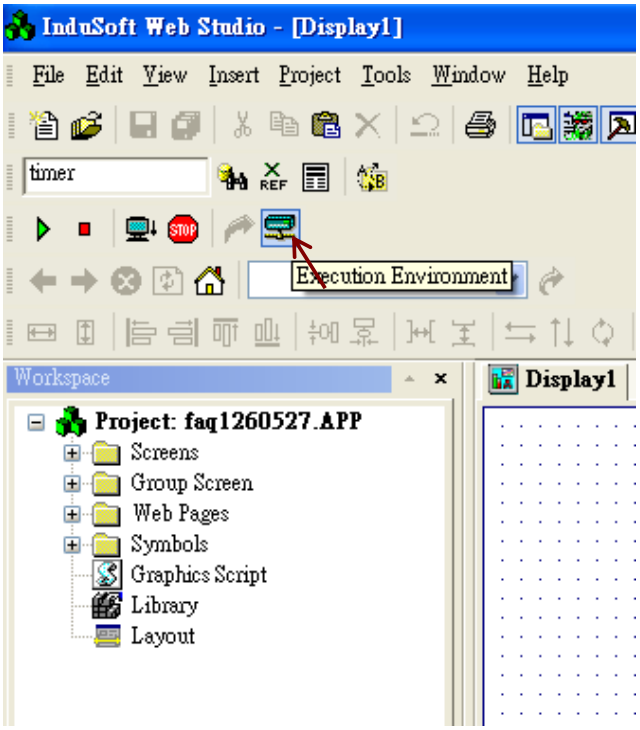
Download The InduSoft Application to the WP-8447 :

1.In PAC, run **\Micro_SD\InduSoft\CEServer.exe**.

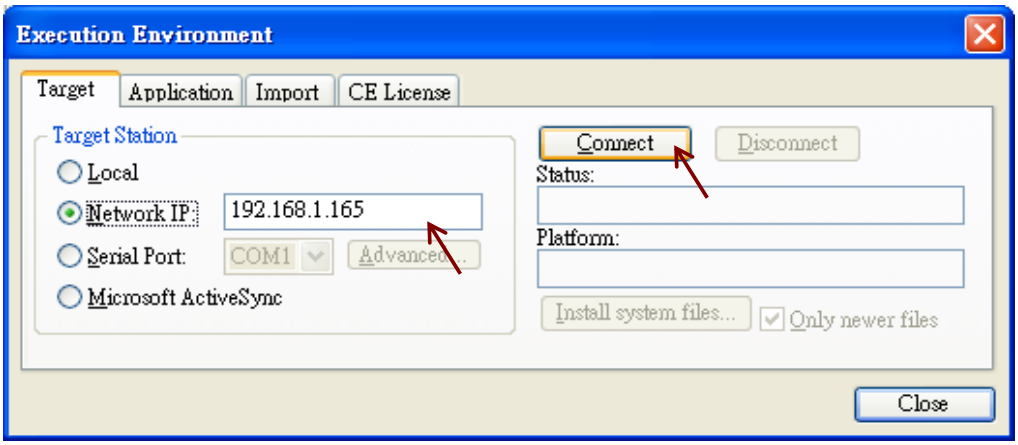


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2. click "Project → Execution Environment" in PC InduSoft development environment.

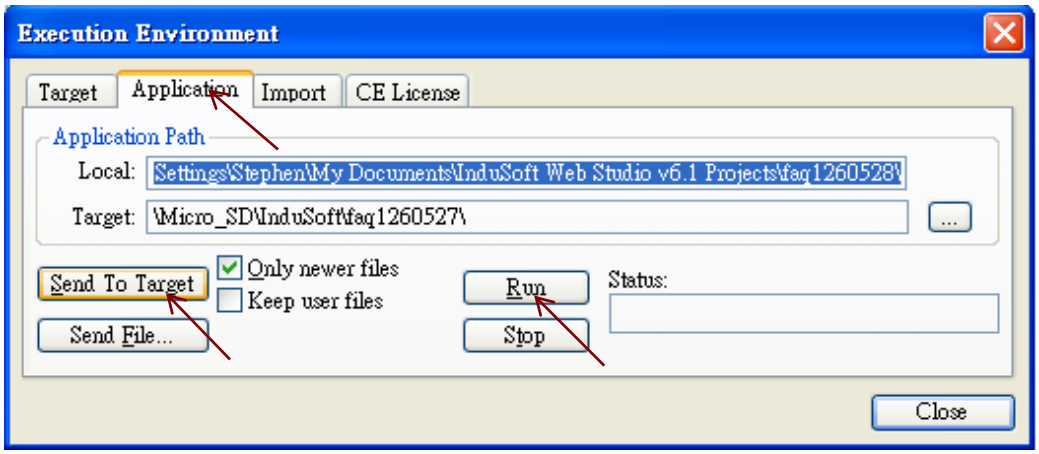


3. To connect the WP-8xx7, choose the "Network IP" option and type the PAC IP address. Then click "connect" to connect the PAC.



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4. Choose “Application” tab and click “Send to Target” button to download the application to the PAC.



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1.4：HMI program by C#.NET or VB.NET2008

The C#.NET and VB.NET program can call functions in the "quickerbet.dll" to access ISaGRAF varibles.Please refer to the chapter 6 and chapter 10 of the WP8xx7 getting started manual .

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

Function used in this example：

ScanAI( )： Reading all ET-7018Z's module A/I varible.

ScanDO( )：Reading all ET-7044D's module D/O varible.

UserGetReg_Short( )： Reading a word value from ISaGRAF.

UserSetReg_Short ( )：Writing a word value from ISaGRAF.

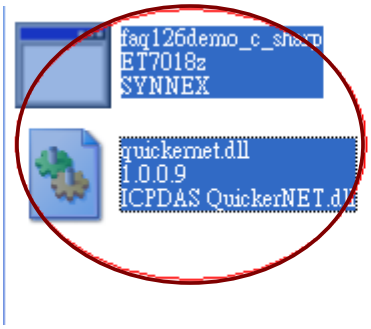
UserGetCoil( )：Reading a boolean value from ISaGRAF.

UserSetCoil( )：Writing a boolean value from ISaGRAF.

Running the program

1.download the ISaGRAF programto the PAC.

2.Copy the "faq126demo_c_sharp.exe" and "quickernet.dll" for c# program("faq126_VB_demo" and "QuickerNet.dll" for VB.NET.) to the \System_disk\ directory and then run it.





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