

ICP DAS Release Stable and Cost-effective Data Acquisition Auto-Report System

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1. Introduction

Please refer to Section 2 and 3 for VC++ 6.0 demo program.

Please refer to Section 2 and 4 for VB 6.0 demo program.

Please refer to Section 6 for more information about Ethernet security.

Many applications need to monitor / collect large amount of I/O and acquisition data distributed in wide-spread location for safety and management. The usual way to implement this is to apply one or couples of central PC / Server to poll (request one by one in turn) every controller / PLC periodically in every spread location. This generates three disadvantages. (1) The CPU loading of the central PC / Server will become too heavy. That is because it must request every distributed local controller one by one in turn periodically. So the result is the PC / Server becoming un-effective. (2) The second one is when the amount of local controllers is a little more or large, the PC / Server can not handle emergency events (because it request controller in turn) . (3) Every local controller should setup a fixed Internet IP address for the PC / Server to request them. This waste money and Internet resource a lot.

ICP DAS ISaGRAF controllers i-7188EG, i-8437-80, i-8837-80 and Wincon-8347 / W-8747 support Auto-report data acquisition and I/O data to the remote Internet PC / Sever via UDP / IP protocol. They can be setup to report periodically and report at any time when emergency event happens. Moreover, at any time, the PC / Server can send command to the local controller if necessary. For example, the time synchronization. This feature is very useful in the below three applications.

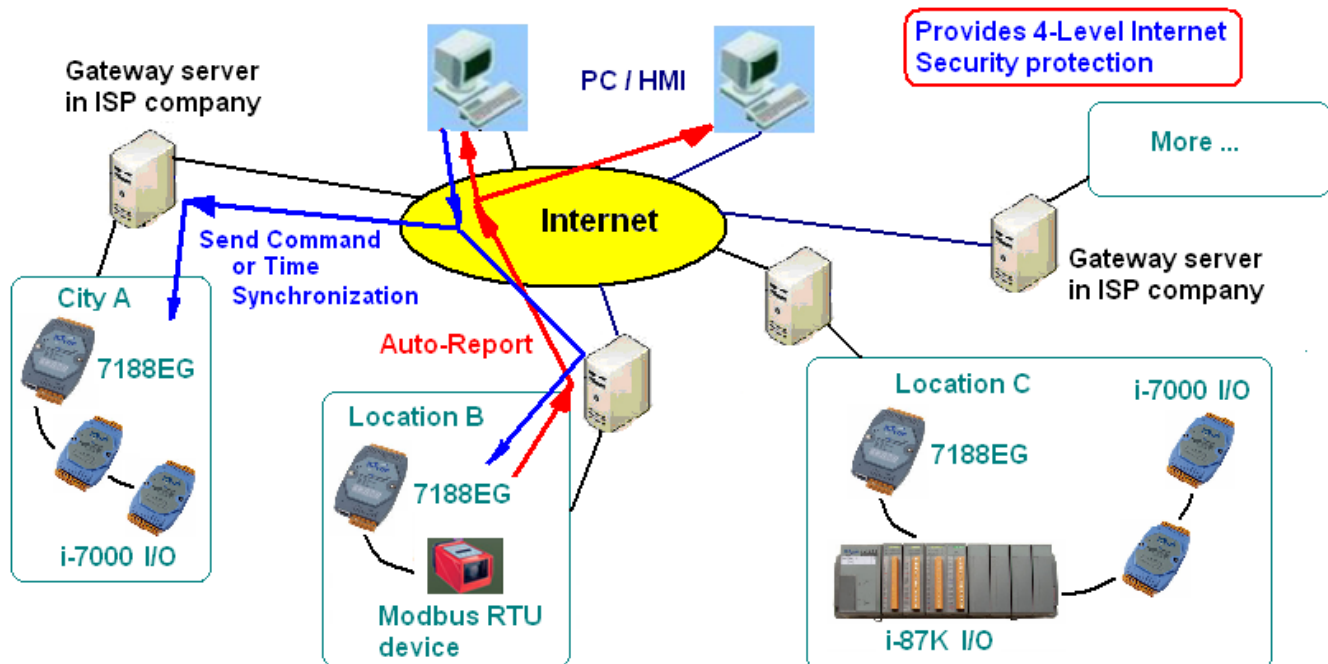
Useful Applications:

Distributed energy monitoring / management system, like electric power, gas, oil, water dam, ...

Distributed facility safety monitoring / management system, like elevator , building, stock room, ...

Other possible distributed data acquisition system.

Stable and Cost-effective Data Acquisition Auto-Report System



Seven Advantages:

1. If local controller is i-7188EG, the price is much cost-effective compared with other PLC / PAC if they have similar solution .
(ICP DAS i-7188EG, i-8437-80, i-8837-80, W-8347, W-8747 all support this feature)
2. The distributed local controller doesn't need a fixed Internet IP. There is no limitation of the distance between the local controller and the central PC / Server, 100 meters, 1 kilo-meter, ... , 10000 kilo-meters are all possible.
3. Provides 4-Level Internet security protection.

Level 1: Controller do auto-report only if it wish do . Controller can be programmed to refuse any communication data coming from Internet normally. The controller can be designed only accept one valid command when it auto-report data to the PC / Server, after that it can refuse any data again.

Level 2: "Security Password" . Every delivered data between local controller and PC / Server all add a "Security Password" protection.

Level 3: IP protection. Controller can be programmed to accept data only coming from one or couples of selected Internet IP address.

Level 4: Programmer can design his own security protection in both controller and the PC / Server.

4. Local controller will automatically report its acquisition and I/O data to remote PC / Server. It can report periodically and report when an emergency event triggered. Moreover, at any time, the PC / Server can send command to the local controller if necessary. For example, the time synchronization command.
5. ICP DAS ISaGRAF controllers support various I/O modules, such as i-7000 series, i-87K series remote I/O. Also support Modbus RTU devices created by others, like Modbus power meters, Modbus inverters, Modbus temperature controllers ...
6. Controllers support ISaGRAF with IEC61131-3 PLC standard, which provides Ladder Diagram, Structure Text, Function Block, IL , SFC and Flow Chart PLC languages. Easy to use and easy programming.
7. ICP DAS provides VC++6.0 and VB6.0 and VB.net 2005 sample program which can run in PC / Server. And also provides ISaGRAF sample program for running in i-7188EG, i-8437-80, i-8837-80, W-8347, W-8747 controllers. Please visit www.icpdas.com – FAQ – Software – ISaGRAF – 065 .

2. Install software and hardware for demo testing

Please visit www.icpdas.com – FAQ – Software – ISaGRAF – 065 to download the related document and demo program. To know more about the UDP protocol for this demo, please refer to section 5.

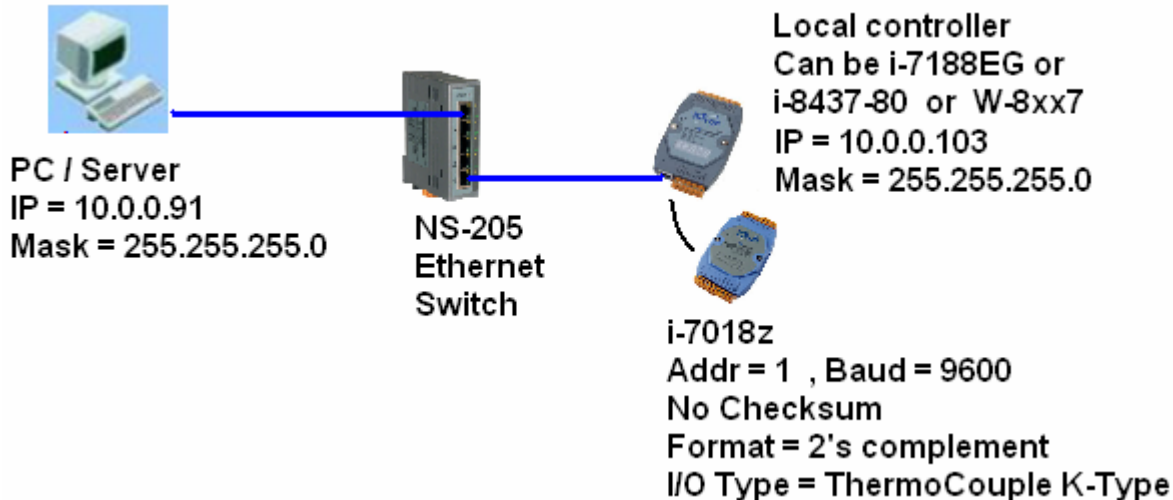
ISaGRAF demo program.

If the controller is i-7188EG, please use “.\demo_74.pia” (7188EG since driver version of 2.18)

If the controller is i-8437-80 or i-8837-80 or W-8xx7, please use “.\wdemo_61.pia”

(i-8x37 since driver version of 3.20 , W-8xx7 since driver version of 3.37)

Hardware configuration:



Please set IP address of your testing PC to a Fixed IP = 10.0.0.91 , Mask = 255.255.255.0

The testing controller can be one of i-7188EG or i-8437-80 or i-8837-80 or Wincon-8xx7. Please set its IP address as a Fixed IP = 10.0.0.103 , Mask = 255.255.255.0

Note: Sometimes PC / Server reside at the Internet with a fixed Internet IP address. Then all the local controllers in the same application must assign its proper Gateway IP. The value of this "Gateway IP" can be found in a PC which is in the same local area with the local controller. First please set IP of that PC as DHCP (Obtain an IP address automatically), then open a Command Prompt , key-in "ipconfig" as below, then we got the Gateway IP setting.

```
命令提示字元
C:\Documents and Settings\Administrator> ipconfig

Windows IP Configuration

Ethernet adapter 區域連線:

    Connection-specific DNS Suffix  . : banchiao.icpdas.com
    IP Address. . . . .                : 10.0.0.91
    Subnet Mask . . . . .              : 255.255.255.0
    Default Gateway . . . . .          : 10.0.0.254

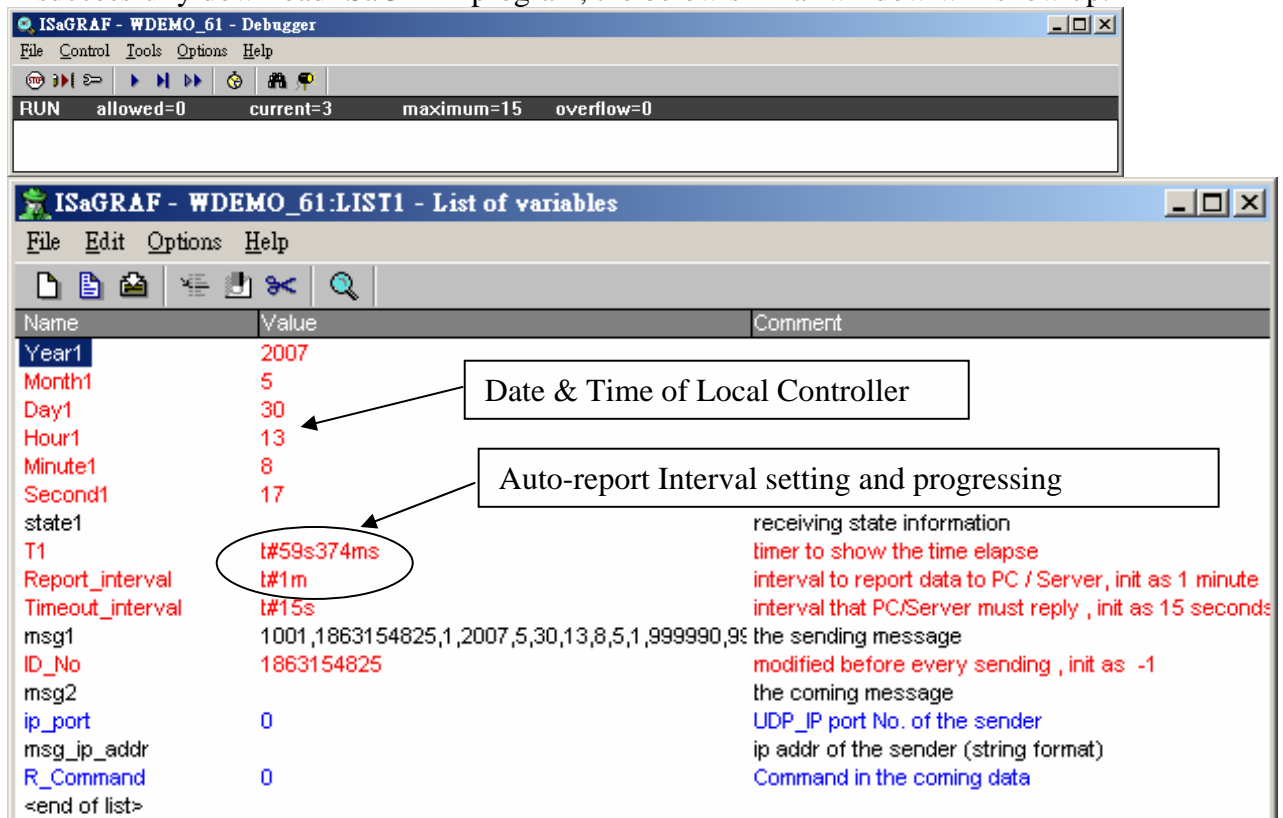
C:\Documents and Settings\Administrator>
```

Here we use one i-7018z I/O module in this demo. Please do initial configuration for it by using the “DCON utility” . Please set its “ADDR” as 1, “Baud rate” as 9600, “Format” as 2’s complement, “Checksum” as disable and set its Ch.1 through Ch.10 as “T/C K-Type” .

Then if the controller is i-7188EG, please connect this i-7018z module at its COM2: RS-485. And then wire an external resistor about 110 to 330 ohms to be between the D2+ and D2- pin of the i-7188EG ‘s COM2:RS485 port. Then recycle the power of i-7188EG. And then download the ISaGRAF demo program “demo_74” to i-7188EG.

If the controller is i-8437-80 or i-8837-80 or Wincon-8xx7, please connect this i-7018z module at its COM3: RS-485. And then wire an external resistor about 110 to 330 ohms to be between the D+ and D- pin of the controller ‘s COM3:RS485 port. Then recycle the power of the controller. And then download the ISaGRAF demo program “wdemo_61” to the controller

If successfully download ISaGRAF program, the below similar window will show up.



“Msg1” is the message from Local Controller sent to the PC / Server.
 “Msg2” is the reply message from the PC / Server to Local Controller.
 “Msg_ip_addr” and “ip_port” are the source IP address and UDP port No. which sent message to the local controller. Normally, it is the IP and port No. of the central PC / Server. If it is not, that means some other un-friendly station or PC sending UDP data to the Local Controller.
 “R_Command” is the <command> field in the message from the PC / Server (Here in this demo is 2 or 4)

Then please run VC++ 6.0 demo_01 program in your testing PC (refer to Section 3) , or run VB 6.0 demo_7 program in your testing PC (refer to Section 4).

3. VC++ 6.0 demo program

Please finish the steps listed in section 2 first before doing the steps in this section.

Please set your PC 's IP address to a fixed IP = 10.0.0.91 , Mask = 255.255.255.0 for testing this demo. (Because the ISaGRAF demo program "demo_74" and "wdemo_61" running in the Local Controller will report message to the PC with IP = 10.0.0.91 and with UDP port No. = 12001)

The VC++ 6.0 demo program "demo_01.exe" resides at ".\vc++6_demo\demo_01\release\"

(Please visit www.icpdas.com – FAQ – Software – ISaGRAF – 065 to download it.)

Please run MS. VC++ 6.0 development studio to open the source code of this "demo_01" , the file is ".\vc++6_demo\demo_01\demo_01.dsw"

To run "demo_01.exe", open a Command Prompt in the PC first. Then get into folder of ".\vc++6_demo\demo_01\release\" . Then key-in the command as below to run it.

Syntax: demo_01 UDP_port Security_passwd (file_name)

"UDP_port" is the UDP port No. which this PC is going to bind it to receive message coming from local controllers (value can be 1001 to 65535). This demo uses value of 12001.

"Security_passwd" is the protocol security password . Value can be 0, or 1 to 2147483647, or -2147483647 to -1. This demo uses value of 1234567 .

"File_name" is an option. You may specify it or leave it empty. If specifying a name to it, then demo_01.exe will create a new empty file to record all valid message from the local controllers.

Example 1: Demo_01 12001 1234567

Example 2: Demo_01 12001 1234567 data1.txt

```
C:\I8xx7 - demo_01 12001 1234567 data1.txt
D:\Chun_D\VC++6_project\demo_01\Release> demo_01 12001 1234567 data1.txt

Demo of Receiving message via UDP/IP from ISaGRAF controller and then
reply back a time synchronization frame to the controller.

More information at www.icpdas.com - FAQ - Software - ISaGRAF - 065

Please set IP of this PC as a fixed IP = 10.0.0.91 Mask = 255.255.255.0 , Contro
ller IP = 10.0.0.103 , Mask = 255.255.255.0

Please run ISaGRAF program "Demo_74" in the i-7188EG <driver since 2.18> .
or run ISaGRAF program "WDemo_61" in the W-8xx7 <driver since 3.37> or i-8x37
<driver since 3.20> .

To exit this program, please press at Ctrl-C

The given parameter are :
UDP_port_No = 12001
Security_passwd = 1234567

Starting at 2007/7/23, 11:13:6
```

How to test ?

The local controller will send message to the PC / Server when below events happen in this demo.

1. 15 seconds later after the Local controller is power up. (This only deliver once)
2. Send once at every minute past. (Continuously and periodically)

In the following item 3 to item 8, local controller will send once when each event happens.

3. If the RS-485 communication between the Local Controller and i-7018z is broken.
4. If the RS-485 communication between the Local Controller and i-7018z is back to OK again.
5. If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is damaged or broken.
6. If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is back to OK again.
7. If any one of i-7018z 's Ch.1 through Ch.10 's temperature reading larger than 60 degree Celsius.
8. If any one of i-7018z 's Ch.1 through Ch.10 's temperature reading is back to under 60 degree Celsius again.

A. After demo_01.exe is running, please disconnect the RS-485 connection between the i-7018z and the Local Controller. It should display a coming message from the local controller similar as below.

```
C:\Chun\udp_ip_demo\demo_01\Release> demo_01 12001 1234567 data1.txt

Demo of Receiving message via UDP/IP from ISaGRAF controller and then
  reply back a time synchronization frame to the controller.

Please run ISaGRAF program "Demo_74" in the i-7188EG <driver since 2.18> control
  ler.
  or run ISaGRAF program "WDemo_61" in the W-8xx7 <driver since 3.37> or i-8x37
  <driver since 3.20> controller.

To exit this program, please press at Ctrl-C

The given parameter are :
  UDP_port_No = 12001
  Security_passwd = 1234567

Starting at 2007/5/30, 15:38:46

try to create socket... Ok
Wait data coming ...

1: Receive 116 characters... "1001,42402515,1,2007,5,30,15,38,54,0,999990,999990
,999990,999990,999990,2390,999990,999990,999990,999990,57357,13234"
  Receive 22 integers well ~
  Command is from controller Station No. = 1001 , Command=1
  Controller local time is 2007/5/30 , 15:38:54
  !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
  ! Communication between this local controller and the i-7018z is broken !
  !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
  Temperature <Ch.1 to 10> ... " > 9900.0 means sensor is broken !!!"
  [[ 9999.90]] [[ 9999.90]] [[ 9999.90]] [[ 9999.90]] [[ 9999.90]]
    23.90 [[ 9999.90]] [[ 9999.90]] [[ 9999.90]] [[ 9999.90]]
```

B. Then please recover the RS-485 connection between the i-7018z and the controller. It should display a coming message.

C. Please observe if receiving a message every minute.

D. Please measure the temperature of a glass of hot water by one channel K-type sensor of the i-7188z. If the temperature is over 60 degree Celsius, it should display a message. And then if the temperature is back to under 60 degree Celsius again, one another Message should be displayed.

E. Remove one channel K-type sensor from the i-7018z, it should receive one message. Then recover it, another message should be received.

F. This demo provides a time synchronization feature. If the date and time sent by the local controller differ more than 20 seconds than the time in the PC / Server, the PC will drop this message and reply back <command> = 4 to inform the local controller to adjust its date and time and then send data to the PC/Server once again. (Here use so big value of 20 seconds because the application may be applied in the Internet. Sometime the Internal communication is busy. If your application is in local intranet, you may reduce this value to, for example, 5 seconds) .

User can modify the date or time in the PC / Server, then you will see the controller 's date and time will be modified also when it sends next message to the PC / Server.

4. VB 6.0 demo program

Please finish the steps listed in section 2 first before doing the steps in this section.

Please set your PC 's IP address to a fixed IP = 10.0.0.91 , Mask = 255.255.255.0 for testing this demo. (Because the ISaGRAF demo program “demo_74” and “wdemo_61” running in the Local Controller will report message to the PC with IP = 10.0.0.91 and with UDP port No. = 12001)

The VB 6.0 demo program “demo_7.exe” resides at “.\vb6_demo\demo_7\”

(Please visit www.icpdas.com – FAQ – Software – ISaGRAF – 065 to download it.)

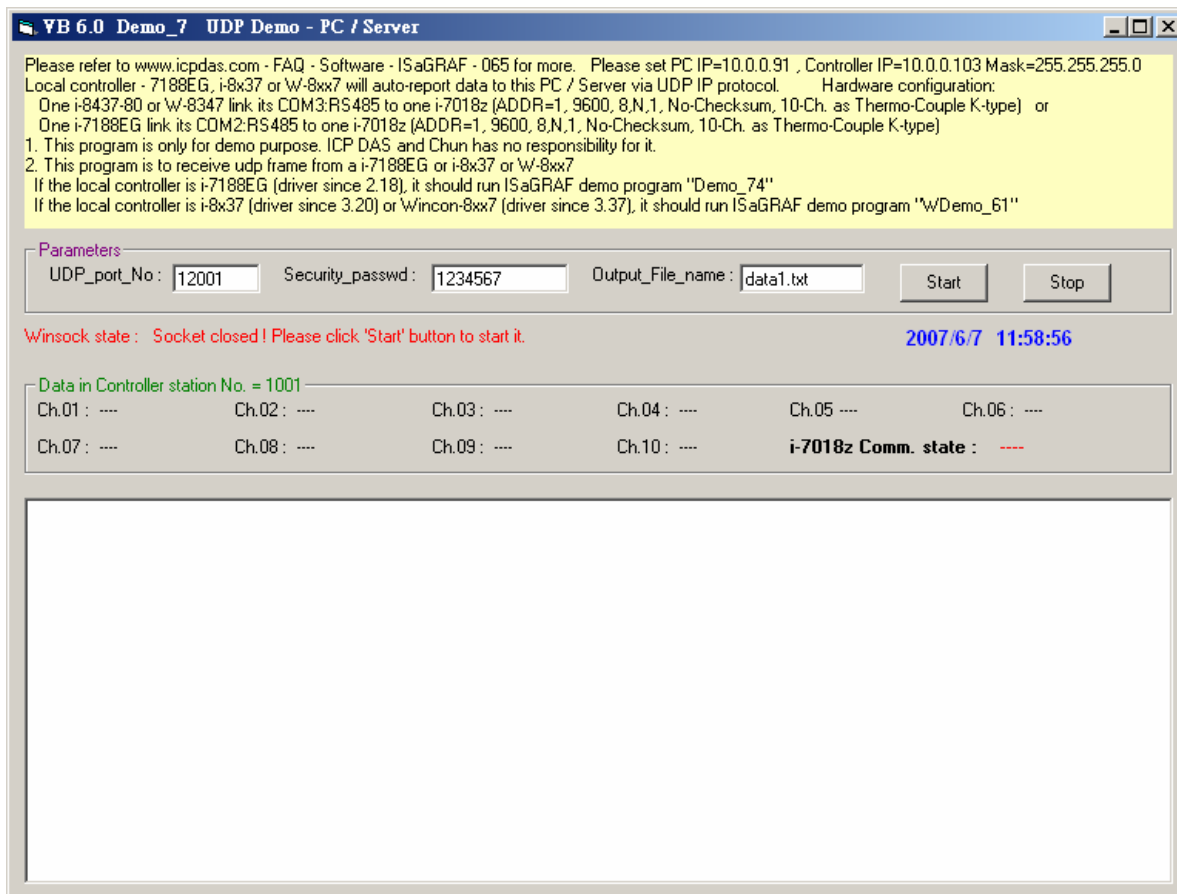
Please run MS. VB 6.0 development studio to open the source code of this “demo_7” , the file is “.\vb6_demo\demo_7\demo_7.vbp”

After running this “demo_7.exe”, a “VB 6.0 Demo_7” window will show up as below. Please enter the proper value of the following items and then click on “Start” to test it.

“UDP_port_No” is the UDP port No. which this PC is going to bind it to receive message coming from local controllers (value can be 1001 to 65535). This demo uses value of 12001.

“Security_passwd” is the protocol security password . Value can be 0, or 1 to 2147483647, or -2147483647 to -1. This demo uses value of 1234567 .

“Output_File_name” is an option. You may specify it or leave it empty. If specifying a name to it, then demo_01.exe will create a new empty file to record all valid message from the local controllers.



How to test ?

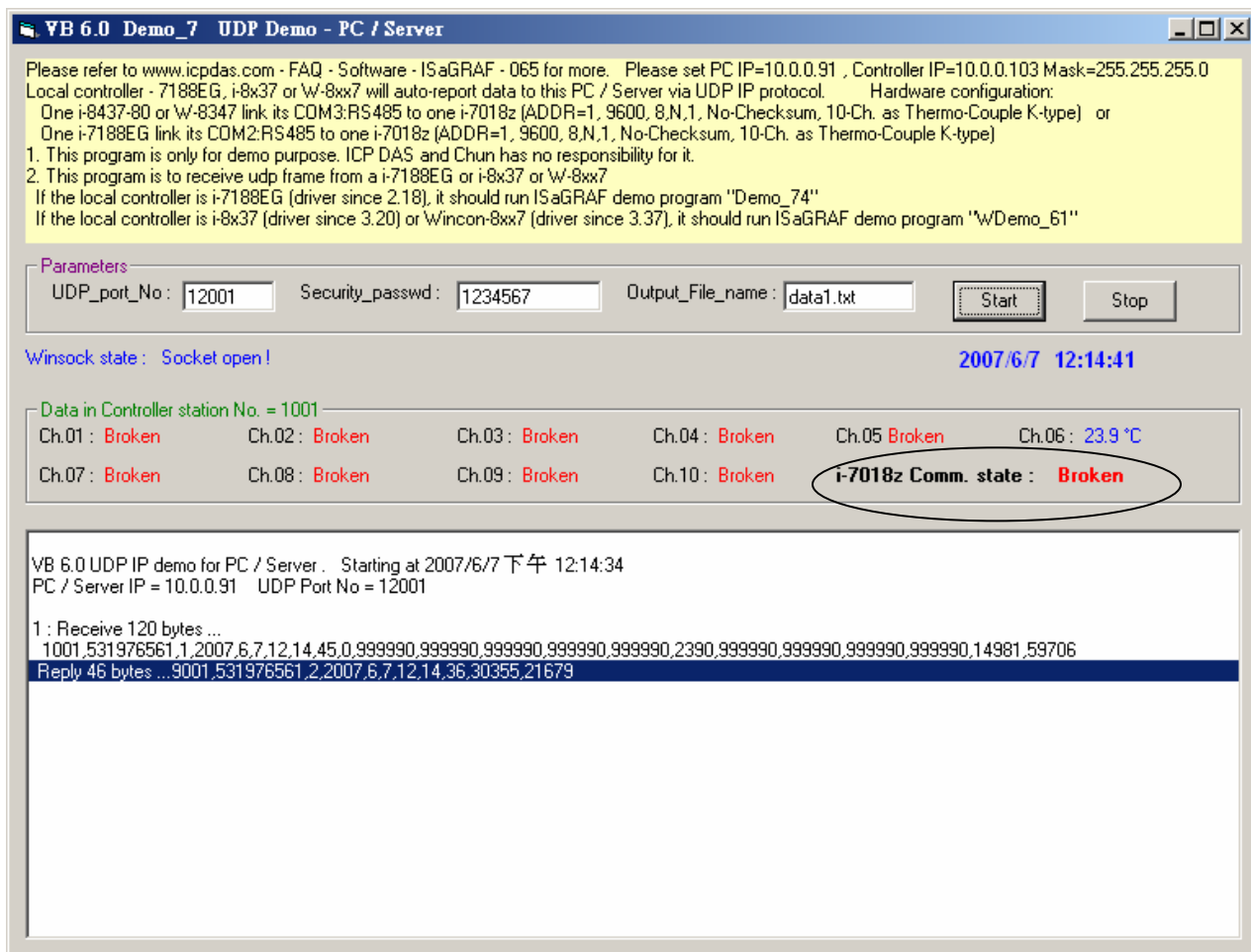
The local controller will send message to the PC / Server when below events happen in this demo.

1. 15 seconds later after the Local controller is power up. (This only deliver once)
2. Send once at every minute past. (Continuously and periodically)

In the following item 3 to item 8, local controller will send once when each event happens.

3. If the RS-485 communication between the Local Controller and i-7018z is broken.
4. If the RS-485 communication between the Local Controller and i-7018z is back to OK again.
5. If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is damaged or broken.
6. If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is back to OK again.
7. If any one of i-7018z 's Ch.1 through Ch.10 's temperature reading larger than 60 degree Celsius.
8. If any one of i-7018z 's Ch.1 through Ch.10 's temperature reading is back to under 60 degree Celsius again.

A. After demo_7.exe is running, please disconnect the RS-485 connection between the i-7018z and the Local Controller. It should display a coming message from the local controller similar as below.



B. Then please recover the RS-485 connection between the i-7018z and the controller. It should display a coming message.

C. Please observe if receiving a message every minute.

D. Please measure the temperature of a glass of hot water by one channel K-type sensor of the i-7188z. If the temperature is over 60 degree Celsius, it should display a message. And then if the temperature is back to under 60 degree Celsius again, one another Message should be displayed.

E. Remove one channel K-type sensor from the i-7018z, it should receive one message. Then recover it, another message should be received.

F. This demo provides a time synchronization feature. If the date and time sent by the local controller differ more than 20 seconds than the time in the PC / Server, the PC will drop this message and reply back <command> = 4 to inform the local controller to adjust its date and time and then send data to the PC/Server once again. (Here use so big value of 20 seconds because the application may be applied in the Internet. Sometime the Internal communication is busy. If your application is in local intranet, you may reduce this value to, for example, 5 seconds) .

User can modify the date or time in the PC / Server, then you will see the controller date and time will be modified also when it sends next message to the PC / Server.

5. UDP protocol definition in the demo listed in this document

This protocol definition is valid for the ISaGRAF demo program “demo_74” and “Wdemo_61” and VC++ 6.0 demo program “demo_01” and VB 6.0 demo program “demo_7” .

1. Local Controller is as UDP Client , while PC / Server is as UDP Server. Only Local Controller can auto-send data (message/string) to the PC / Server (The message variable - “IP_correct_PC “ and integer variable - “Port_correct_PC” in the ISaGRAF demo program “demo_74” and “Wdemo_61” specify the IP address and UDP port No. of the target PC / Server. And also there is similar definition of the target PC / Server in the ISaGRAF IO connection window - “udp_ip”).
2. PC / Server must reply a message with <Command> = 2 or 4 to the local controller in 15 seconds after it receives a valid message from the local controller. The replied message must contain the exact same <ID No.> as the <ID No.> it received from the local controller. The local controller will drop the replied message with incorrect <ID No.>. If the local controller doesn't receive a valid replied message from the PC / Server in 15 seconds, it will send message once to the PC / Server with a different <ID No.>. Then if PC / Server still not replied it in 15 seconds, local controller will continuously send message again until it receives a valid replied message. (The timer variable - “Timeout_interval” in the ISaGRAF demo program “demo_74” and “Wdemo_61” defines this Timeout value)
3. The local controller will send message to the PC / Server when below events happen in this demo.
 - (1) 15 seconds later after the Local controller is power up. (This only deliver once)
 - (2) Send once at every minute past. (Continuously and periodically)

In the following item (3) to item (8) , local controller will send once when each event happens.

- (3) If the RS-485 communication between the Local Controller and i-7018z is broken.
 - (4) If the RS-485 communication between the Local Controller and i-7018z is back to OK again.
 - (5) If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is damaged or broken.
 - (6) If any one of i-7018z 's Ch.1 through Ch.10 's temperature sensor is back to OK again.
 - (7) If any one of i-7018z 's Ch.1 through 10 's temperature reading larger than 60 degree Celsius.
 - (8) If any one of i-7018z 's Ch.1 through 10 's temperature reading is back to under 60 degree Celsius again.
4. UDP message format of Local Controller sending to the PC / Server

Security_passwd: Must be specified as the same value in the ISaGRAF IO connection window – “udp_ip” and in the PC VC++ and VB demo program to communicate well. Value can be 0: means “No encoding” (it is not safe) , or 1 to 2147483647, or -2147483647 to -1 (none-zero value means “with encoding”, it is much safe).

If setting as a none-zero value, please refer to the “convert_to_udp_deliver_buf()” , “convert_back_udp_deliver_buf()” and “udp_ip_crc()” function in the VC++ 6.0 “demo_01” or VB 6.0 “demo_7” for its encoding algorithm.

If setting “Security_passwd” as 0, every delivered message can not exceed 255 bytes.

If setting "Security_passwd" as non-zero value, every delivered message can not exceed 259 bytes. The last added 4-bytes is the <4-byte-Checksum > calculated by the "udp_ip_crc()" function.

Local Controller will send the below format to the PC / Server.

Security_passwd is 0 : (No 4-byte-Checksum at the end)

<Station_No of local controller>,<ID No.>,<Command>,
<Year>,<Month>,<Day>,<Hour>,<Minute>,<second>,<i-7018z Comm. state>,
<C1>,<C2>,<C3>,<C4>,<C5>,<C6>,<C7>,<C8>,<C9>,<C10>,
<User-defined CRC>

For example:

1001,850334470,1,2007,5,30,17,31,51,1,999990,999990,999990,999990,999990,2360,999990,999990,999990,999990,46677,18632

It means,

<Station_No of local controller> is 1001

<ID No.> is 850334470

<Command> is 1

Controller 's date and time is 2007/5/30 , 17:31:51

< i-7018z Comm. state > is 1 : RS-485 communication OK

The temperature reading value of Ch.1 through Ch.10 are,

broken, broken, broken, broken, broken, 23.60 degree, broken, broken, broken, broken
(value of 999990 means T/C Sensor is broken)

< User-defined CRC > is 46677,18632

Security_passwd is not 0 : (With 4-byte-Checksum at the end)

<Station_No of local controller>,<ID No.>,<Command>,
<Year>,<Month>,<Day>,<Hour>,<Minute>,<second>,<i-7018z Comm. state>,
<C1>,<C2>,<C3>,<C4>,<C5>,<C6>,<C7>,<C8>,<C9>,<C10>,
<User-defined CRC><4-byte-Checksum>

<Command> definition:

1 : Local Controller report data to the PC / Server

<i-7018z Comm. state> definition:

1 : RS-485 communication is OK between local Controller and i-7018z

0 : RS-485 communication is broken between local Controller and i-7018z

<User-defined CRC> definition:

Can be defined as a different algorithm by the User. This demo apply the following algorithm
(Please apply a different algorithm in real application for safety)

Value is fixed as 11 bytes (Character) . It contains two value of 0 to 65535 separated by a “,”

For example,

value_1	value_2		fixed length of 11 bytes (Character)
0	0	:	' 0, 0' (with 4 Space Char. before '0')
1	1	:	' 1, 1' (with 4 Space Char. before '1')
21	21	:	' 21, 21' (with 3 Space Char. before '2')
321	321	:	' 321, 321' (with 2 Space Char. before '3')
4321	4321	:	' 4321, 4321' (with 1 Space Char. before '4')
54321	65535	:	'54321,65535' (No Space Char.)

Below steps - (a) to (d) is to get value 1, while - (e) is to get value 2
(Please apply a different algorithm in real application for safety)

(a) extract the string not including the <User-defined CRC> and <4-byte-Checksum>
into byte array - user_buf[] (for convenient, we call this byte array as “user_buf[]”)

(b) replace user_buf[3] as user_buf[3] xor 100

That is user_buf[3] = user_buf[3] ^ (unsigned char)100 ;
(user may use [2], [4], ... , and may be not using 100, ... whatever,
this depends on your own decision. Please use your own algorithm for safety.)

(c) replace user_buf[7] as user_buf[7] xor 200

That is user_buf[7] = user_buf[7] ^ (unsigned char)200;
(user may use [5], [6], ... , and may not use 200, ... whatever,
this depends on your own decision. Please use your own algorithm for safety.)

(d) Calculate <User-defined CRC> as two byte => <CRC_Hi><CRC_Lo>

Then <User-defined CRC> = 256*<CRC_Hi> + <CRC_Lo>.

It is a value between 0 and 65535.

(e) using a different algorithm to get value 2

proceed (a) , then proceed (b) by using user_buf[4]=user_buf[4]^(unsigned char)48

then proceed (c) by using user_buf[6]=user_buf[6]^(unsigned char)197

then proceed (d). Then we get value 2. It is a value between 0 and 65535.

(Please use your own algorithm for safety.)

5. UDP message format of the PC / Server replying to local controller

Security_passwd: Using the same definition as item 4.

PC / Server will reply below format to the local controller.

Security_passwd is 0 : (No 4-byte-Checksum at the end)

<Station_No of PC/Server>,<Same ID No. from the local controller>,<Command>,
<Year>,<Month>,<Day>,<Hour>,<Minute>,<second>,
<User-defined CRC>

For example,

9001,519805546,2,2007,5,30,18,59,53, 6830,42679

It means,

< Station_No of PC/Server > is 9001

<ID No.> is 519805546

<Command> is 2

Date and Time in PC/Server is 2007/5/30 , 18:59:53

< User-defined CRC > is 6830,42679 (there is one Space Char. Before the first “6”)

Security_passwd is not 0 : (With 4-byte-Checksum at the end)

<Station_No of PC/Server>,<Same ID No. from the local controller>,<Command>,
<Year>,<Month>,<Day>,<Hour>,<Minute>,<second>,
<User-defined CRC><4-byte-Checksum>

<Command> definition:

2 : to inform the local controller that PC / Server receive its correct data .

4 : to inform the local controller that its date and time differ more than 20 seconds than the PC / Server, please adjust controller 's date and time and then send data to PC / Server once again

<User-defined CRC> definition: Using the same definition as item 4.

6. Controller Ethernet security

6.1 : Modbus TCP/IP security

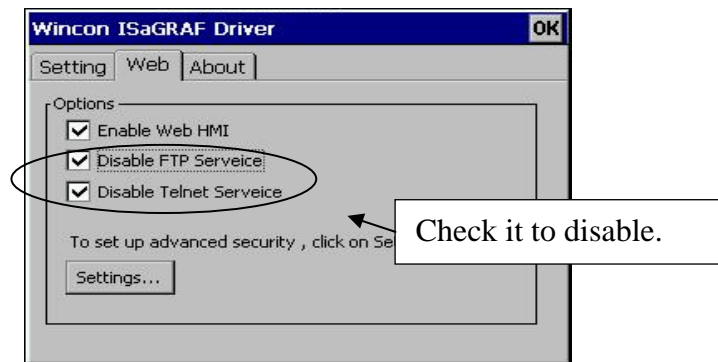
There are some ways user can get access to the Wincon-8xx7 via its ethernet port.

1. Using Modbus TCP protocol at port No.= 502. (ISaGRAF and other HMI can do this)
2. Using ftp (for example, keyin “ftp://10.0.0.103” on the Internet Explorer)
3. Using telnet (for example, keyin “telnet 10.0.0.103 in the “command” window)
4. Using the Web server (The Web HMI does)

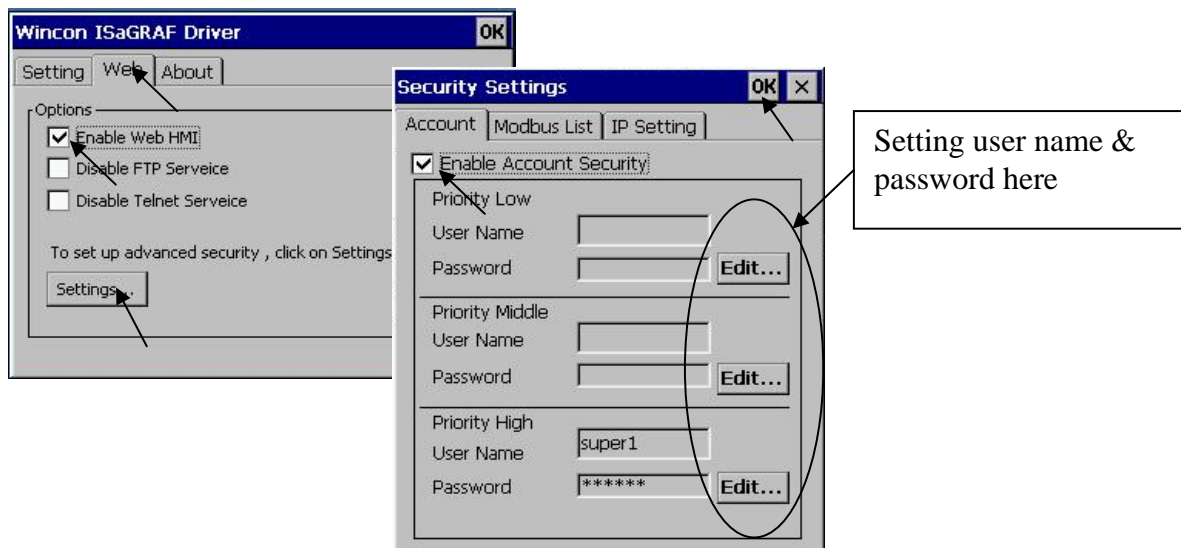
Note:

1. While for i-8437-80 / 8837-80, i-8437/8837 and i-7188EG, only item 1 is possible.
2. If the controller is W-8x47/8x46, when using “ftp”, “telnet”, “Web HMI” & “Modbus TCP/IP”, please connect your PC/HMI to W-8x47/8x46’s “LAN1” port, and please use “NS-205” or “NS-208” Ethernet switch.

For safety, recommend to disable item 2 and 3 at run time for Wincon.

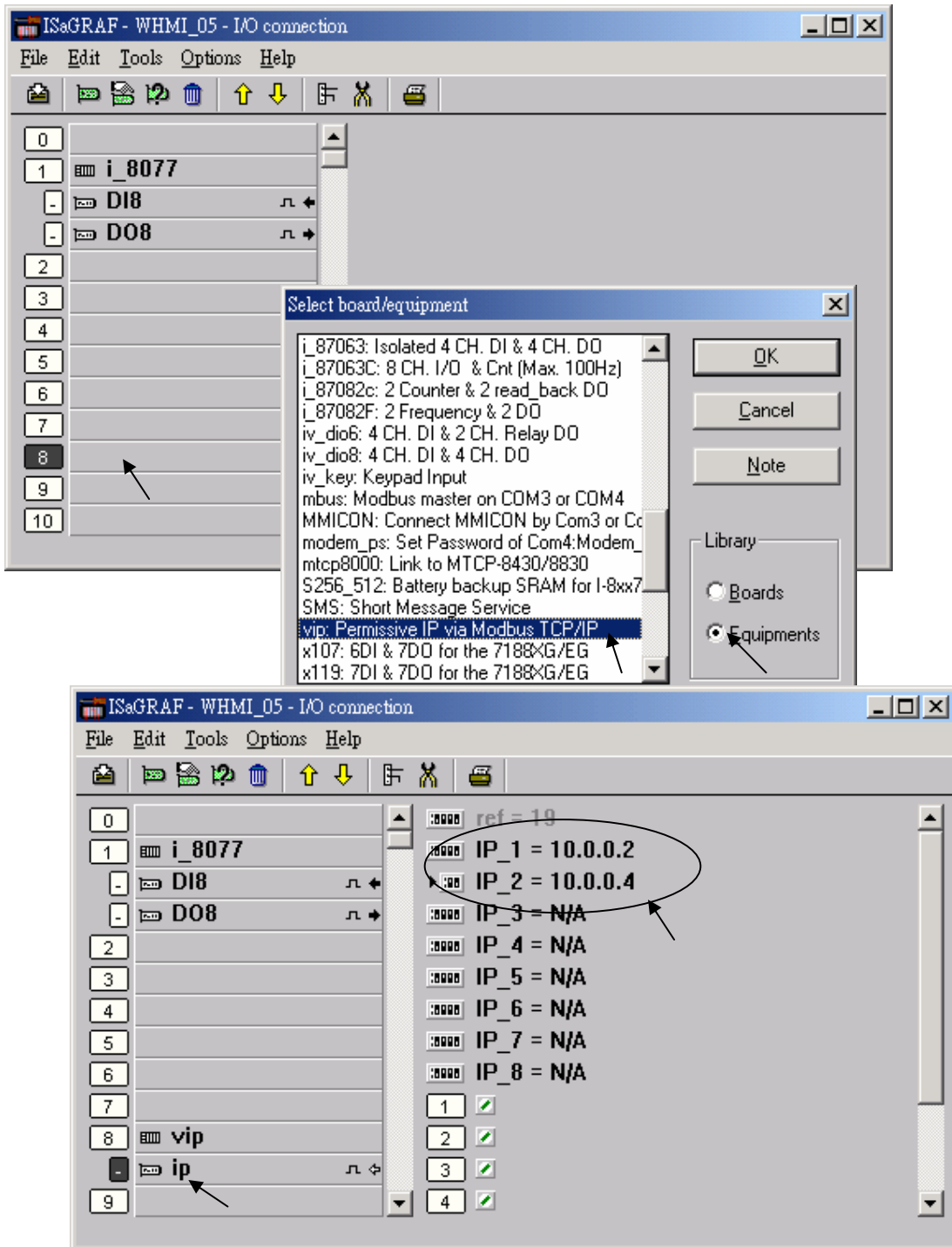


And about item 4, please set proper username & password for the Wincon Web HMI.



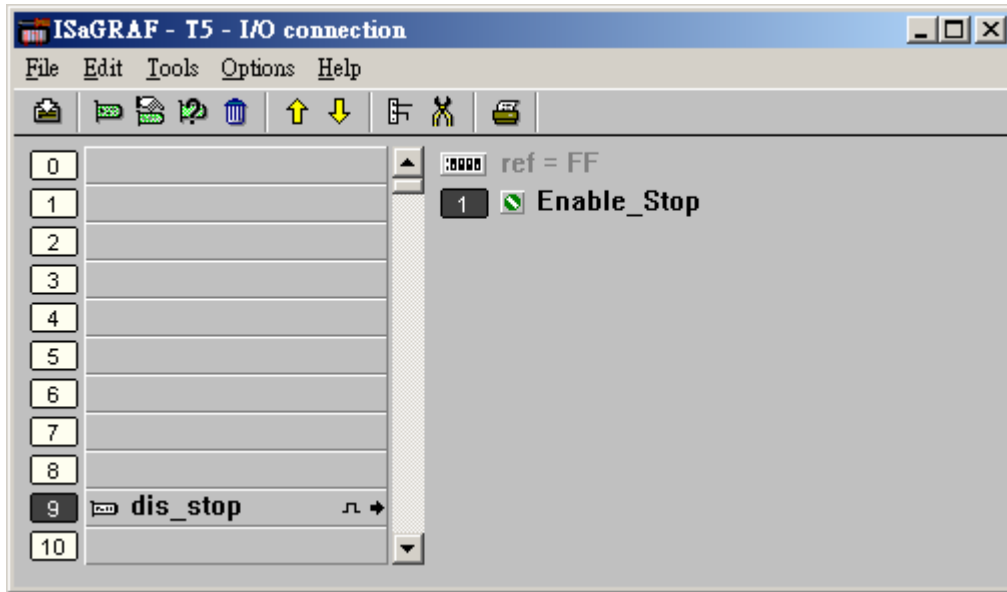
About item 1, user may set up to 8 IP address for ISaGRAF or other HMI to get access to the I-8x37, I-7188EG & W-8xx7 via the Modbus TCP/IP protocol as below.

On the IO connection window of ISaGRAF, please connect “vip” and entering the IP which can get access to the controller via Modbus TCP/IP protocol. If “vip” is not connected, any remote IP can get access to your controller via Modbus TCP/IP protocol. If “vip” is connected and No IP is entered (all assigned as “N/A”), No HMI and ISaGRAF can get access to it by Modbus TCP/IP anymore.



6.2 : Using “dis_stop” to disable / enable the ISaGRAF Download function

For some reason, to prevent someone to use ISaGRAF software to stop or to download a different controller project already running in the i-7188EG , I-8437/8837 and W-8xx7, the “Dis_stop” can be applied . Please connect “dis_stop” at a slot No. larger than 8 and init the channel value to become TRUE. Then stop / download command is not allowed in this controller.



To disable “Dis_stop” to accept stop / download command, please run the original ISaGRAF project to link to this controller and set the channel value to become False.