
Getting Started

iP-8xx7 is the abbreviation of iP-8417, iP8817, iP-8447, iP884 , and the iBx47 is the Ethernet PAC.

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ICP DAS CO., LTD. would like to congratulate you on your purchase of ISaGRAF PACs - iP-8417/8817/8447/8847. The ease to integration of the controller system and the power of the 61133 ISaGRAF software program combine to make a powerful, yet inexpensive industrial control system.

ISaGRAF PAC Series of ICP DAS includes :

PAC: PAC7186EG, PAC7186PEG, PAC7188EG, PAC7188XG,
PAC5007/5107/5207/5307
iPAC: iP-8447, iP8847, iP8437, iP8837, iP8417, iP8817,
WinPAC: WP-8147, WP8447, WP8847 (WinCon: WP847, WP8747)
ViewPAC: VP-25W7, VP-23W7, VP-2117
XPAC: XP-8047CE6, XP8347CE6, XP8747CE6

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Please visit www.icpdas.com on [FAQ](#), [Software](#), [ISaGRAF](#) For Frequently Asked Questions

Written by Chun Tsai, Spike Huang, Edited by Janice Hong

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Reference Guide

ISaGRAF Web Information:

<http://www.icpdas.com/products/8000/isagraf.htm>
www.icpdas.com Products Software > ISaGRAF

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CD-ROM: \napdos\isagraf8000\english_manual\user_manual_i_8xx7.pdf
http://www.icpdas.com/products/8000/getting_started_manual.htm

ISaGRAF(Chinese) : U

CD-ROM: \napdos\isagraf8000\chinese_manual\chinese_user_manual_i_8xx7.pdf
http://www.icpdas.com/products/8000/getting_started_manual.htm

Hardware Manual:

Please refer to CD-ROM: \NAPDOS\8000\8000manual.pdf.
<ftp://ftp.icpdas.com.tw/pub/cd/8000cds/8000/>

Resource on the Internet:

Newly updated ISaGRAF IO libraries, drivers and manuals can be found at
<http://www.icpdas.com/products/8000/isagraf.htm>

Related Products

- ' Industrial Ethernet Switch 2015NS-208
[http://www.icpdas.com/products/Industrial Ethernet Switch](http://www.icpdas.com/products/Industrial%20Ethernet%20Switch)
[Unmanaged Industrial Ethernet Switch](http://www.icpdas.com/products/Industrial%20Ethernet%20Switch)
- ' RS-232 to RS-422/485 Converter : 71520R
[http://www.icpdas.com/products/Industrial Communication Converter & Repeater](http://www.icpdas.com/products/Industrial%20Communication%20Converter%20&%20Repeater)
- ' Power Supply : 6P5/660, 152F
[http://www.icpdas.com/products > Accessories > Power_Supply](http://www.icpdas.com/products/Accessories/Power_Supply)
- ' High profile 8K/87 Series I/O Modules
http://www.icpdas.com/products/PAC8000/io_support_list.htm

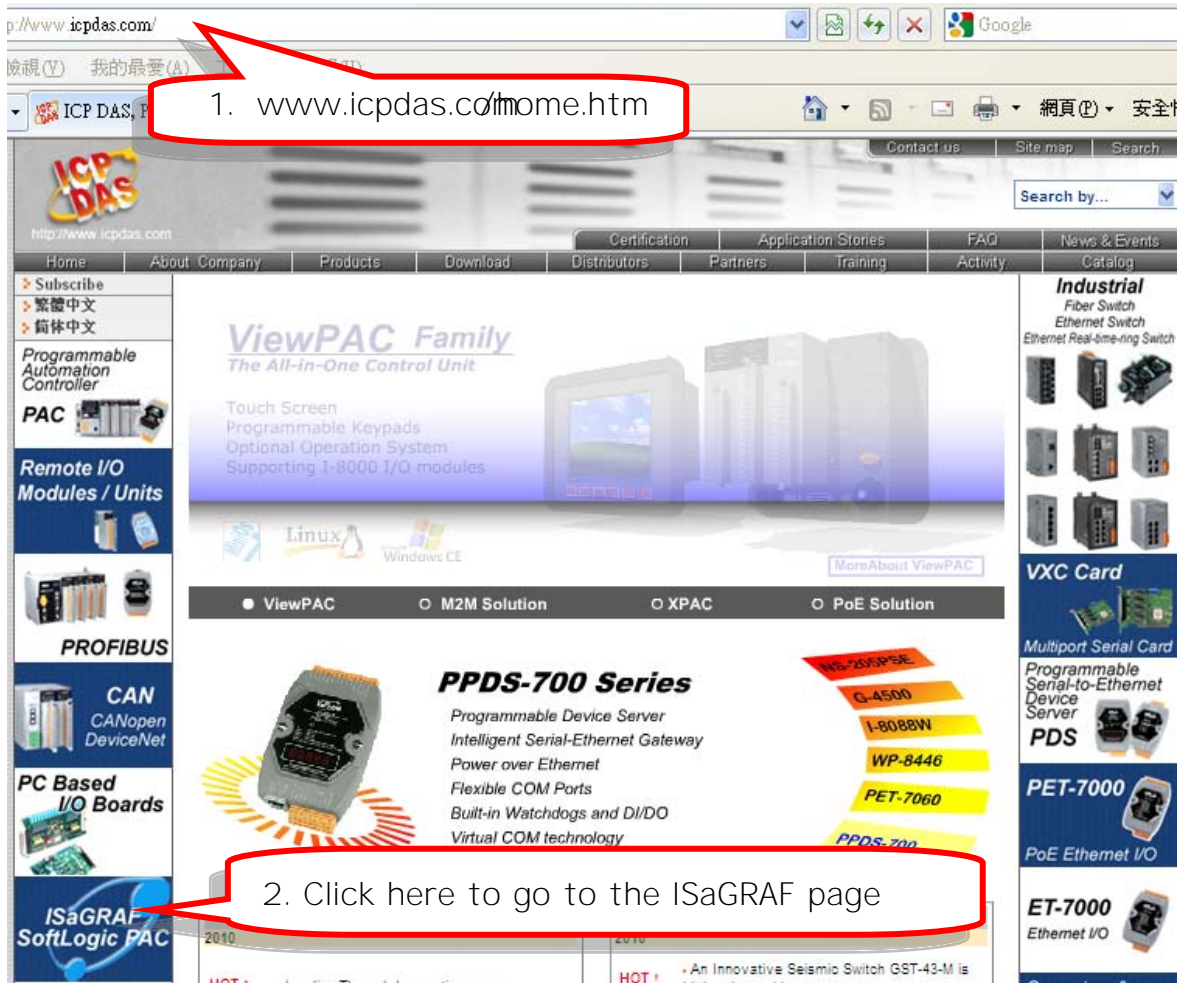


FAQ:

Please visit www.icpdas.com FAQ Software ISaGRAF for Frequently Asked Questions.
<http://www.icpdas.com/faq/isagraf.htm>

Performance Comparison Table of SaGRAF PACs

Please click on the [ISaGRAF Comparison Table](#) follow the below steps



Specifications iP-8417/8817/8447/8847

Models		iP-8417	iP-8817	iP-8447	iP-8847
System Software					
OS		MiniOS7 (DOS -like embedded operating system)			
Development Software					
ISaGRAF Software	ISaGRAF Version 3	IEC 61131 -3 standard			
	Languages	LD, ST, FBD, SFC, IL & FC			
	Max. Code Size	64 KB			
	Scan Time	2 ~ 25 ms for normal program 10 ~ 125 ms (or more) for complex or large program			
CPU Module					
CPU		80186, 80 MHz			
SRAM		512 KB	768 KB		
Flash		512 KB; with Write Protect Switch			
microSD Expansion		Yes (but ISaGRAF doesn't support)			
Dual Battery Backup SRAM		512 KB; data valid up to 5 years (for retain variables)			
EEPROM		16 KB			
NVRAM		31 bytes (battery backup, data valid up to 5 years)			
RTC (Real Time Clock)		Provide second, minute, hour, date, day of week, month, year			
64-bit Hardware Serial Number		Yes, for Software Copy Protection			
Watchdog Timers		Yes (0.8 second)			
DIP Switch		Yes (8 bits)			
Communication Ports					
Ethernet		-	RJ-45 x 2, 10/100 Base -TX (Auto-negotiating, Auto MDI/MDI -X, LED indicators)		
COM 0		Internal communication with the high profile I -87K series modules in slots			
COM 1		RS -232 (to update firmware) (Rx, Tx and GND); non -isolated			
COM 2		RS -485 (Data+, Data -) with internal self -tuner ASIC; 3000 V _{DC} isolated			
COM 3		RS -232/RS -485 (Rx, Tx, CTS, RTS and GND for RS -232, Data+ and Data - for RS -485); non -isolated			
COM 4		RS -232 (Rx, Tx, CTS, RTS, DSR, DTR, CD, RI and GND); non -isolated			
SMMI					
LED Display		Yes, 5 -Digit			
Programmable LED Indicators		3			
Push Buttons		4			
Buzzer		-	-	Yes	

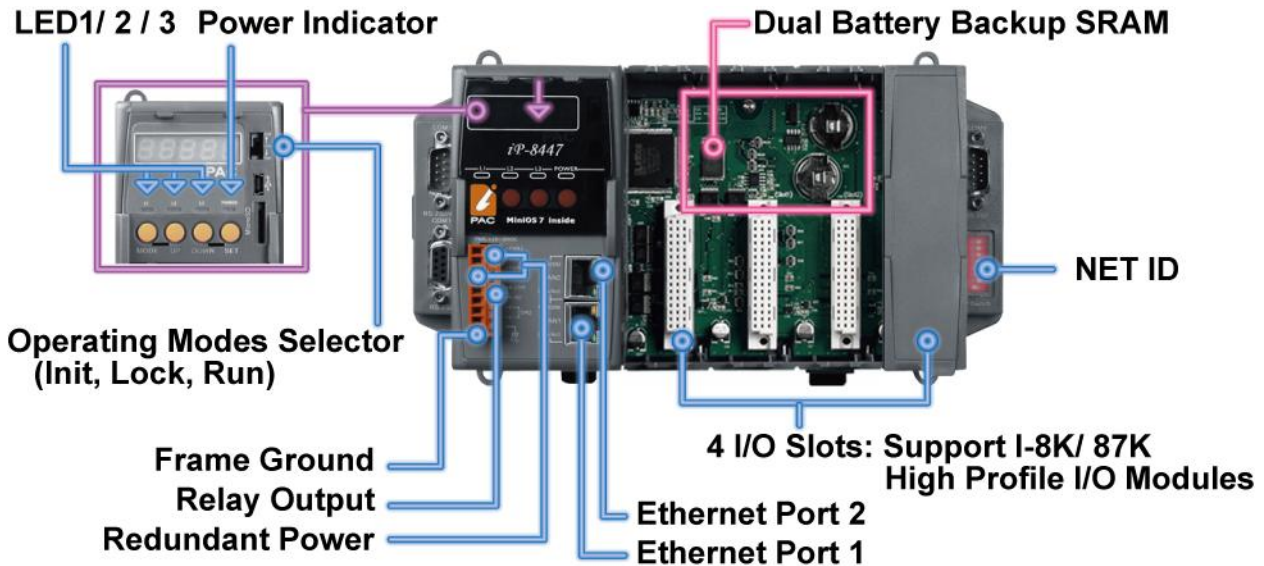
Models	iP -8417	iP -8817	iP -8447	iP -8847
I/O Expansion Slots				
Slot Number	4	8	4	8
	Note: For High Profile I -8K and I -87K Modules Only			
Data Bus	8/16 bits			
Address Bus Range	2 K for each slot			
Mechanical				
Dimensions (W x L x H)	231 mm x 132 mm x 111 mm: iP -8417, iP -8447 355 mm x 132 mm x 111 mm: iP -8817, iP -8847			
Installation	DIN -Rail or Wall Mounting			
Environmental				
Operating Temperature	-25 ~ +75°C			
Storage Temperature	-30 ~ +80°C			
Ambient Relative Humidity	10 ~ 90% RH (non -condensing)			
Power				
Input Range	+10 ~ +30 V _{DC}			
Isolation	1 kV			
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V _{DC}) for alarm			
Capacity	30 W	30 W	30 W	30 W
Consumption	6.7 W	7.2 W	6.7 W	7.2 W
Protocols (some protocols need optional devices)				
NET ID	8 bits DIP switch to assign NET ID as 1 ~ 255			
Modbus RTU/ASCII Master	Max. 2 COM Ports, COM1 ~ COM5 can support Modbus RTU Master or ASCII Master protocol to connect to other Modbus Slave devices. Max. Modbus_XXX Function Block amount for 2 ports: 128. (*)			
Modbus RTU Slave	Max. 2 COM Ports, COM1 and one of (COM2, COM3) can support Modbus RTU Slave protocol for connecting ISaGRAF, PC/HMI/OPC Server & MMI panels.			
Modbus TCP/IP Slave	2 Ethernet ports support Modbus TCP/IP Slave Protocol for connecting ISaGRAF & PC/HMI. (Max. 6 connections) (for iP-8x47)			
User -Defined Protocol	COM1 ~ COM20 by serial communication function blocks (*)			
Remote I/O	One of COM2 or COM3 or COM4 supports I-7000 I/O modules & (I -87Kn or RU -87Pn + I -87K High Profile I/O boards) as Remote I/O. Max. 64 Remote I/O module for one PAC			
Fbus	Built-in CAN bus for I/O modules			
Ebus	Ethernet bus for I/O modules (The LAN2: upper port ONLY) (for iP -8x47)			
SMS: Short Message Service	One of COM4/5 can link to a GSM Modem to support SMS. User can request data/control the controller by cellular phone. (*) The controller can also send data/control the controller by cellular phone. Optional GSM/GPRS modem: GTM -201-RS232 (850/900/1800/1900 GSM/GPRS External Modem) or the GSM/GPRS Modem on the website: http://www.icpdas.com/products/GSM_GPRS/wireless/GSM_GPRS_modem.htm			
Modem Link	COM4 can connect a general Modem. Supports PC to remotely download & monitor the controller.			

MMICON/LCD		C b Y ' c Z ' 7 C A ' ' c f ' 7 C A (' g i d d c f h g ' = 7 D ' 8 5 G D g ' A A with a 240 x 64 dot LCD and a 4 x 4 Keyboard. User can use it to display picture, string, integer, float, and input a character, string, integer and float.
Redundant Bus7000		Two ISaGRAF PACs can link to remote I -7000 & I-87K High profile I/O modules at the same time. Only one controller is active to control these Remote I/Os. If one is dead, the other one will take over the control of Remote I/ Os.
CAN/CANopen		COM1, 3, 4 or COM5 ~ COM12 (*) can connect one I -7530 (converter: RS -232 to CAN) to support CAN/CANopen devices and sensors. One iP -8xx7 supports max. 3 RS-232 ports to connect max. 3 I -7530. (FAQ-086)
FRnet I/O		Support max. 4 I -8172W FRnet Master cards to connect FRnet I/O modules (Max. 1024-ch. DI + 1024 -ch. DO)
Send Email		Actively or passively sending Email via Ethernet port through internet. Max.10 receivers for each sending and can send Email with an attached file. (Max. file size is about 488 KB) (for iP -8x47)
FTP Client		Support FTP client to upload files in the PAC to a remote FTP server on PC. (FAQ-151)
Optional I/O Functions (Refer to ISaGRAF PAC I/O Selection Guide for I/O Module list)		
PWM Output	High Speed PWM Module	I-8088W, 8-ch PWM outputs, software support 1 Hz ~ 100 kHz (non -continuous), duty: 0.1 ~ 99.9%
	DO Module as PWM	8-ch max. for one controller. 500 Hz max. For Off=1 & On=1 ms Output Square Curve: Off: 1 ~ 32767 ms, On: 1 ~ 32767 ms. Optional DO Boards: I -8037W, 8041W, 8 041AW, 8042W, 8050W, 8054W, 8055W, 8056W, 8057W, 8060W, 8063W, 8064W, 8068W, 8069W. (Relay Output boards cannot generate fast square wave)
Counters, Encoder, Frequency	Parallel DI Counter	8-ch. max. for 1 controller. Counter Val: 32 -bit.; 500 Hz max. Min. ON & OFF width must >1 ms Optional DI boards: I -8040W, 8040PW, 8042W, 8046W, 8050W, 8051W, 8052W, 8053W, 8053PW, 8054W, 8055W, 8058W, 8063W.
	Serial DI Counter	Counter input: 100 Hz max. Counter value: 0 ~ 65535 (16 -bit) Optional serial I -87K DI boards: I -87040W, 87046W, 87051W, 87052W, 87053W, 87053W-A5, 87054W, 87055W, 87058W, 87059W, 87063W.
	Remote DI Counter	All remote I -7000/I-87K DI modules support counters. 100 Hz max. value: 0 ~ 65535
	High Speed Counter	I-87082W: 100 kHz max. 32 -bit; I-8084W: 250 kHz max. 32 -bit
	Encoder	I-8093W: 3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4M Hz for pulse/direction and cw/ccw input mode. (FAQ-112) I-8084W: 250 kHz max. , 4 -ch encoder, can be Dir/Pulse, or Up/Down or A/B phase (Quad. mode); Not support Encoder Z -index. (FAQ-100)
	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-87088W: 8-ch, 1 Hz ~ 100 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz;
Motion	Motion Control	Can integrate with one I -8091W (2-axis) or two I-8091W (4-axis) to do motion control. Ethernet communication is also available when doing motion control.
<p>* Note: COM5 ~ COM20 are resided at the expansion boards if they are plugged on slot 0 ~ 7 of iP -8xx7.</p> <p>* ISaGRAF FAQ: http://www.icpdas.com/faq/isagraf.htm</p> <p>* Recommend to use NS-205/NS-208 Industrial Ethernet Switch.</p>		

Chapter 1 Typical Application

1.1 iPAC-8x47 is better than 8x37-80

iPAC-8447/8847 the advanced I-8xx7 SaGRAF based iPAC



	iP-8x47	I-8x3780
EEPROM	16KB	2KB
SRAM	768KB	512KB
Battery Backup SRAM	512KB (Dualbattery)	Need extra S256512
COM2(RS-485)	Yes	No
Ethernet	10/100Mbpsx 2	10Mbpsx 1
Modbus TCP/IP connection	Support two Ethernet Port total max.6connections	Max.4connections
Support HotSwap	Yes	No
Support CAN/CANopen	Yes	No
Support send E-mail with attached file	Yes	No
Support FRnet I/O	Yes	No
Support Mbus24 and Mbus24r1 (Can read M24 word)	Yes	No

Note iPAC-8x47 only support 8K, I-87K(Hotswap) High Profile I/O modules plugged on 7slot 0

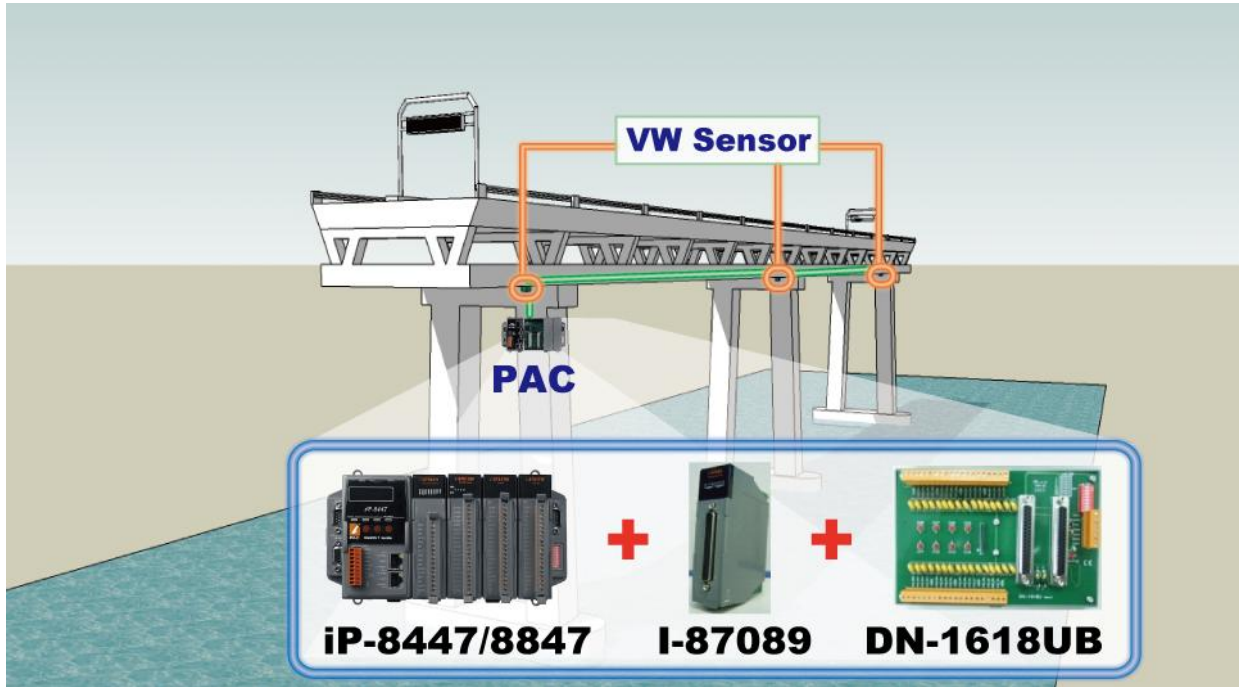
1.2 Connect the SmartPower Meter PM-2133/2134

- ' ISaGRAF PAC support standard Modbus protocol, support multiple RS to connect to multiple PM-213x Smart meters.
- ' For the power measurement control systems in small/medium sized stores, buildings and factories with electric equipments.
- ' PM-213x smart meter with "Wh" pulse output is useful in the systems needing to connect meter tester.
- ' PM-213x smart meter with wired CT is easy wiring for the installation, suitable for the uninterruptible power systems.
- ' PM-213x is a series of 3 Phase/4 Loops 1 Phase Compact Smart Meter with true RMS energy power parameters measurement in compact size. The ISaGRAF PACs connect with PM-213x with apply to various control/monitor systems about intelligent electric power measurement.
- ' For more details www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (English)



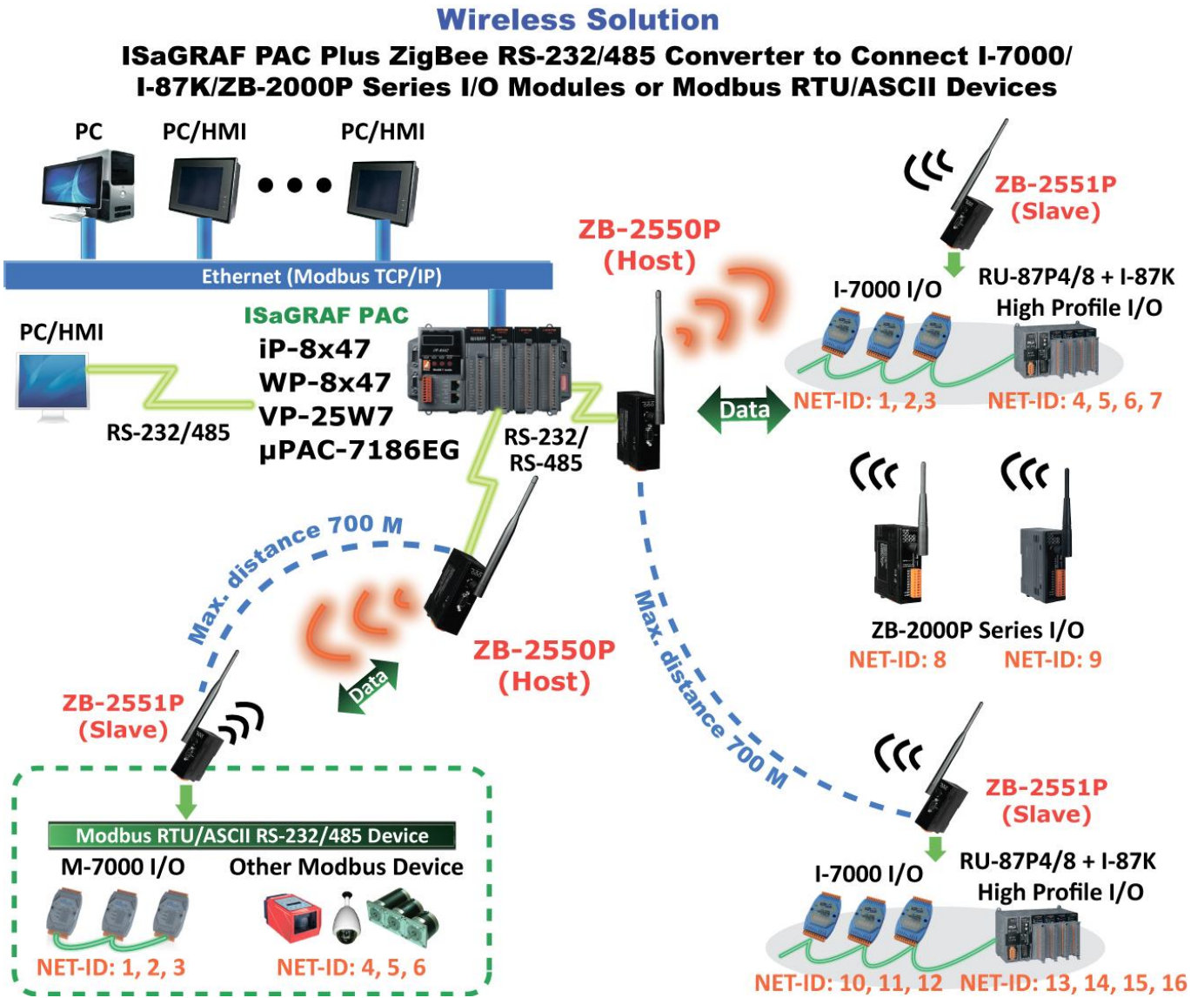
1.3 Constructions Monitoring Application (VW Sensor)

- ' ICP DAS releases effective "VW Sensor" (Vibration Wire solution) and "Carlson Strain Gauge" solution. It's useful for measuring the stress of constructions like building, bridge, dam, etc.
- ' The iP-8x7 supports the I-87089 (the VW master card) plus the DN-1618UB (daughter board) to achieve the "VW Sensor" application.
- ' For more details www.icpdas.com > FAQ > Software > ISaGRAF Ver. 3 (FAQ 91)



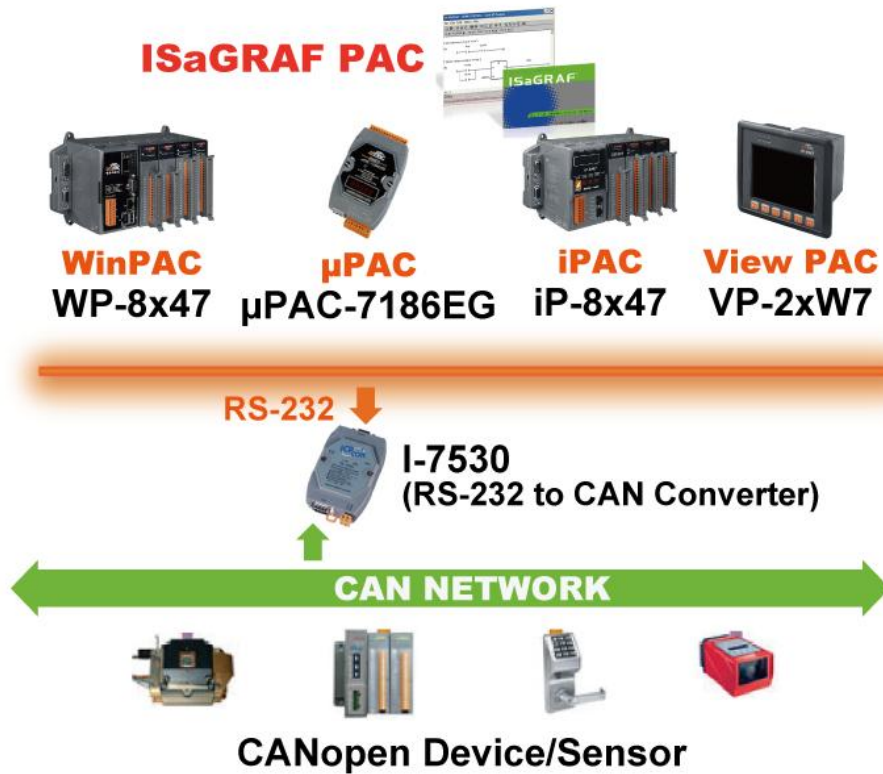
1.4 ZigBeeWireless Solution

- ' The iP8x7plus ZB-2550P and ZB-2551P RS-232/RS-485 Converters can apply wireless communication, reduce the wiring and achieve the mission of remote I/O control and data acquisition.
- ' For more details [www.icpdas.com > FAQ > Software > ISaGRAF Ver. 3 \(FAQ110\)](http://www.icpdas.com > FAQ > Software > ISaGRAF Ver. 3 (FAQ110))



1.6 Integrate with CANopen Devices and Sensors

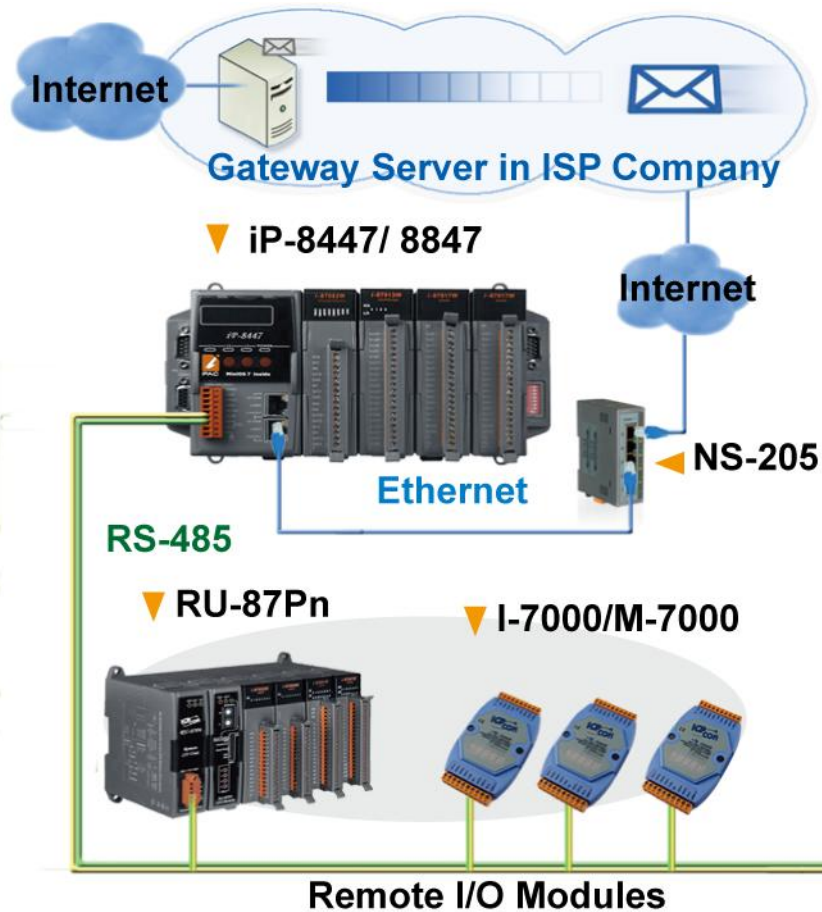
- ' The iP-8x7 supports max. 3 I-7530 (RS-32 to CAN) converters.
- ' For more details www.icpdas.com > FAQ > Software > [ISaGRAF\(English\)](#) FAQ086



1.7 Send Email with One Attached File

- ' TheiP-8x7 can send Email with one attached file via Ethernet Port. The maximum file size is 488K bytes.
- ' One Email can send to 10 receivers at one sending.
- ' For more details www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (FAQ 67)

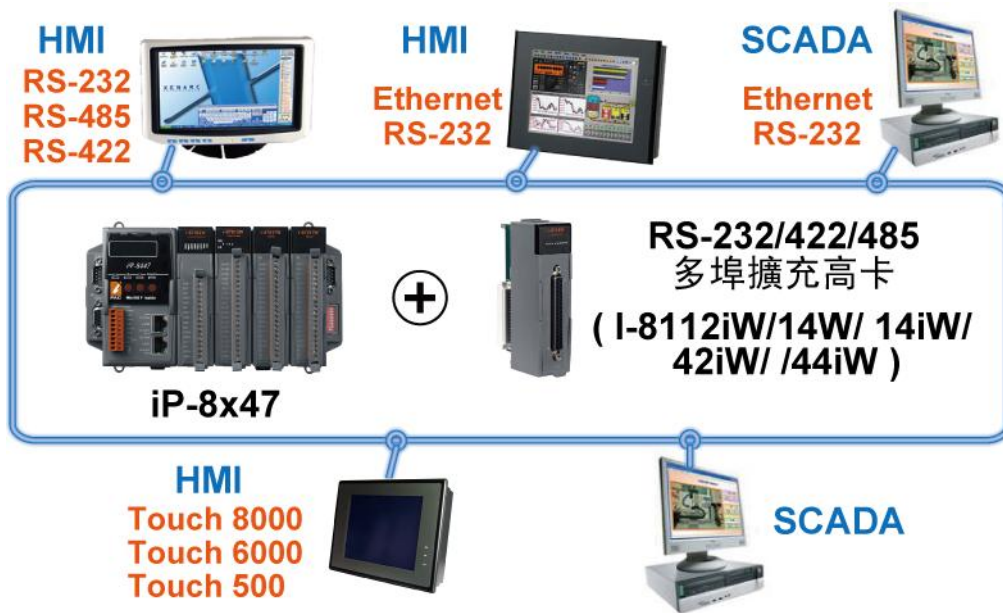
Note TheiP-8x17 doesnt support the feature



1.10 Modbus RTU/TCP Slave

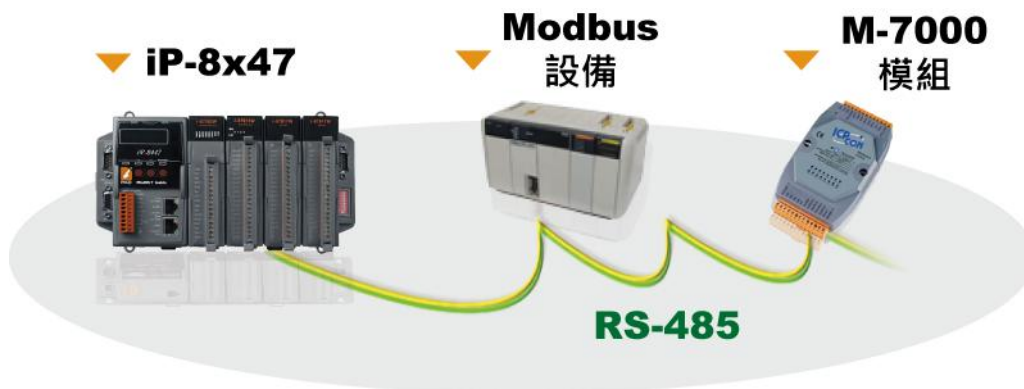
- Modbus RTU Slave (RS232/485/422) Max. 2 ports
> COM1 and one COM2, COM3
- Modbus TCP/IP Slave Max. 6 connections

Note The iP-8x17 doesn't support Modbus TCP/IP Slave



1.11 Modbus RTU/ASCII Master

- Modbus RTU/ASCII Master (RS232/485/422) Max. 2 ports
> COM1~COM4 and COM5(*)
- The iP-8x7 can link to Modbus PLC or I/O or Modbus devices (Powemeter, temperature controller, inverter etc.)

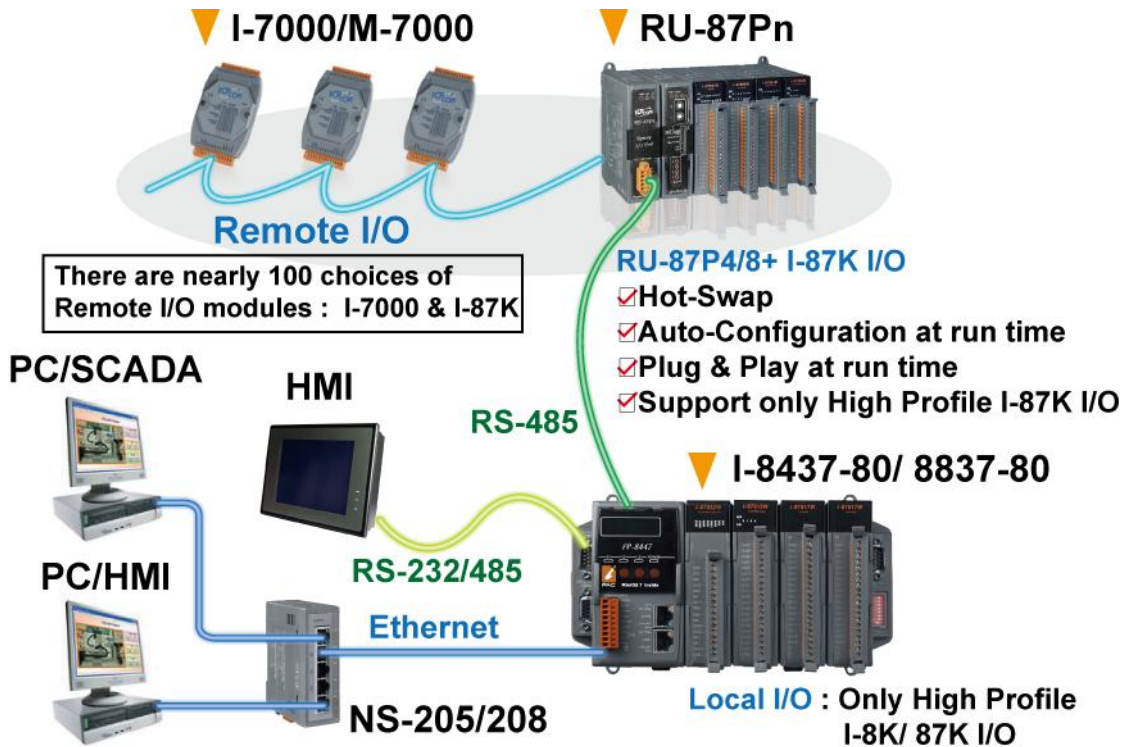


NOTE(*):

When the I-8112iW/8114W/8114iW/8142iW/8144iW expansion board is plugged, COM5 COM2 will be added http://www.icpdas.com/products/PAGE000/8000_IO_modules.htm

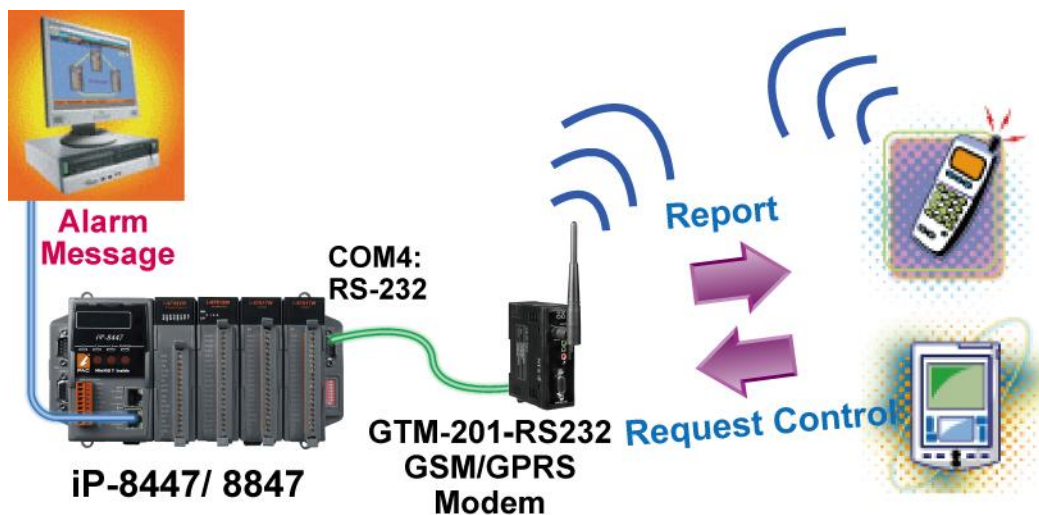
1.12 Multi-HMI & Local/Remote I/O

- Users can choose 485 Remote I/O modules (I-7000) or expansion units (RU-87Pn, I-87Kn) plugged with I-87K high profile I/O modules.
- With Modbus TCP protocol up to 6Cs an link to one 847.



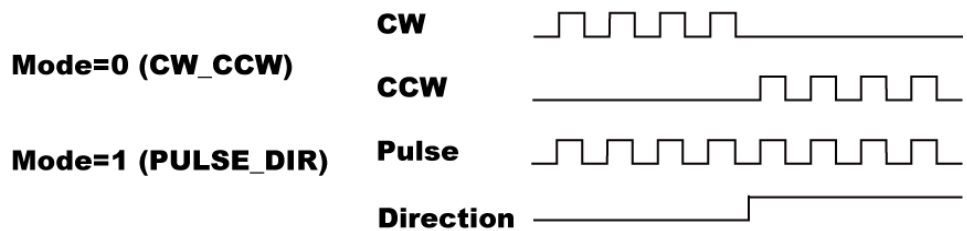
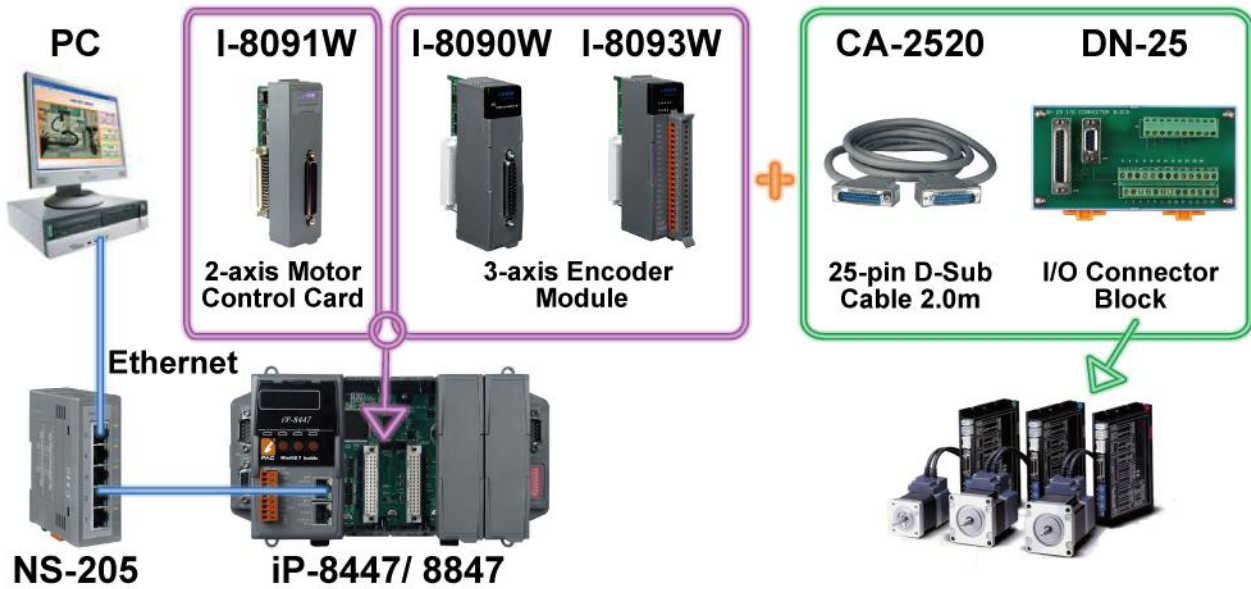
1.13 SMS Short Message Service

The iP8x7 can integrate with a GSM Modem to Short Message Service. This allows user to request information or perform control tasks for the ISaGRAF PAC via his personal cell addition, the PAC can also send information and alarms to user's cellular phone.



1.14 Motion Control

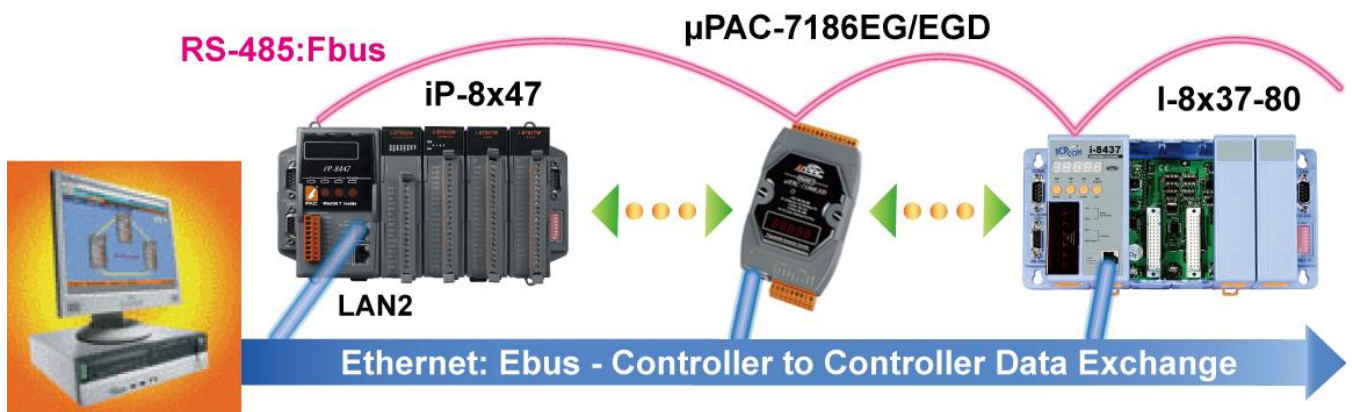
- ' One I-809W can control 2-axis: XY plane or 2-axis independent
- ' Two I-809W can control 4-axis X-Y plane + 2-axis independent or 4-axis independent
- ' Encoder Modules-8093W : 3-axis [FAQ-112](#) ; I-8084W: 4-axis, without index [FAQ-100](#) ; I-8090W: 3-axis



1.15 Data Exchange Ebus or Ebus

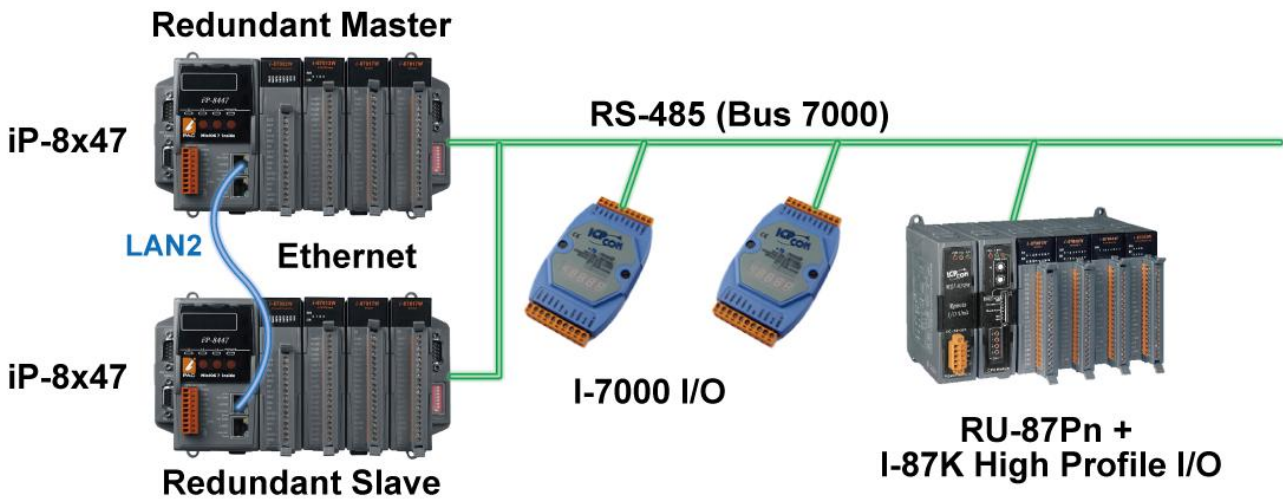
- Fbus (RS485 Network)
 Each ISaGRAF PAC can use its RS485 port to talk to each other via the Fbus communication mechanism. Fbus can be used to broadcast data to each controller or each controller can request to send or receive data from any other controller on the same Fbus network.
- Ebus (Ethernet Network)
 Each ISaGRAF PAC can use its Ethernet port to talk to each other via the Ebus communication mechanism. When PC is talking to controllers via Ethernet, the controllers can also talk to each other via the same Ethernet; It makes the configuration more flexible and

Note The iP-8x17 doesn't support Fbus



1.16 Redundant Bus7000

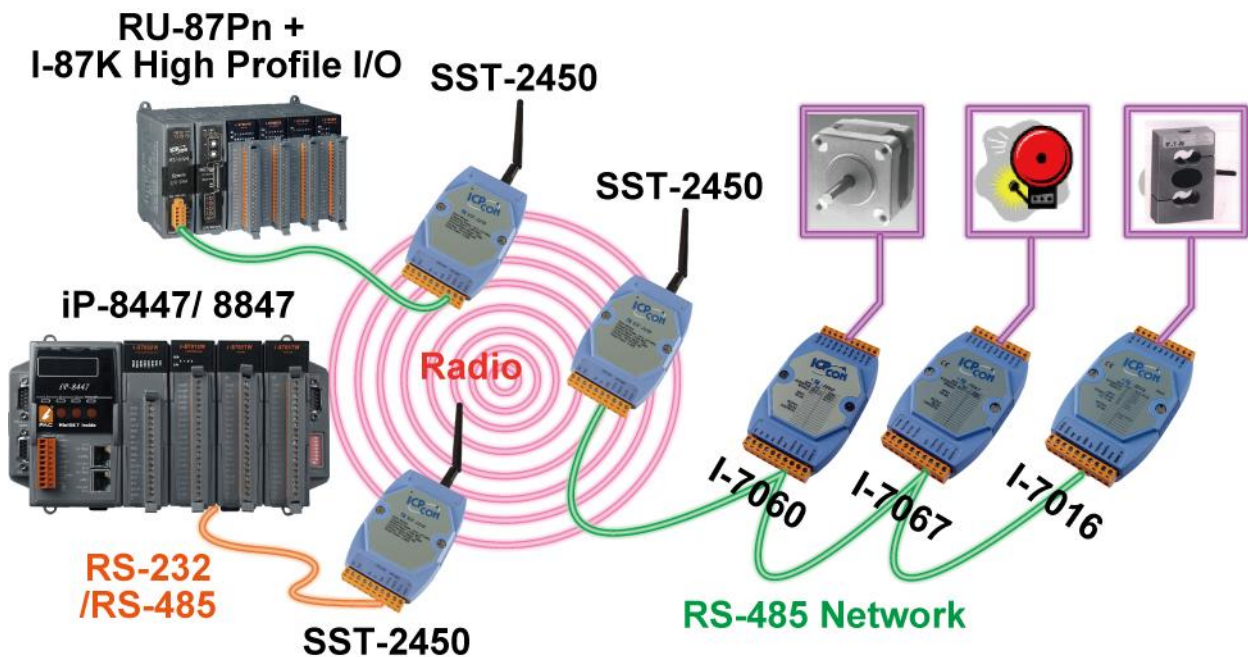
iP-8447/8847



Note The iP-8x17 doesn't support the feature

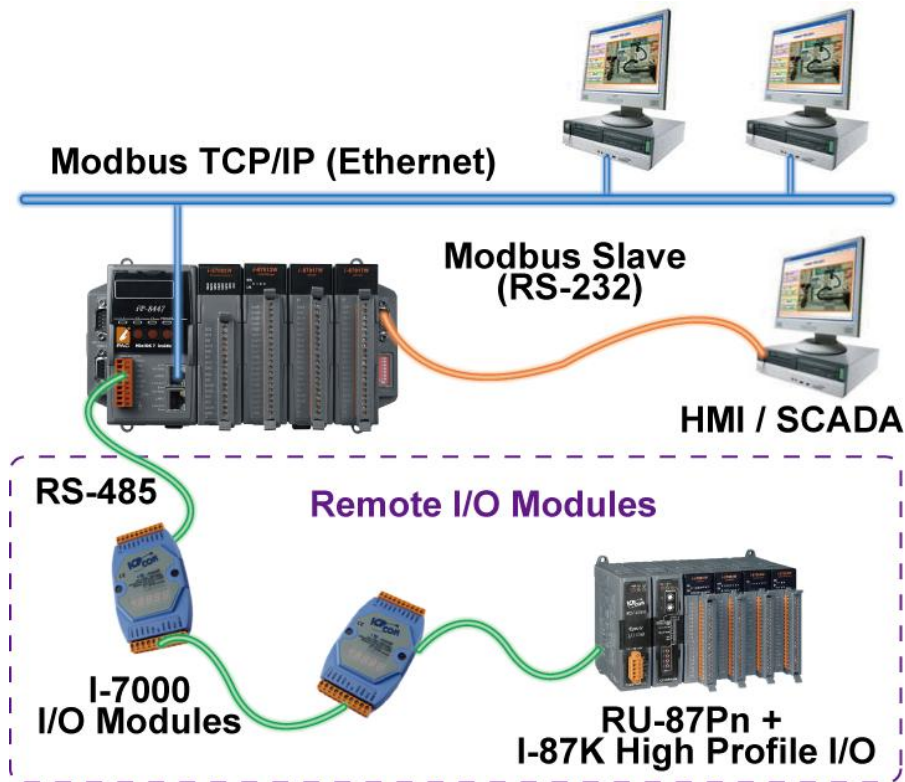
1.17 Wireless I/O Solution

User can use iP-8x7 with two or more SST-2450 wireless communication modules to data acquisition and control applications between a host and remote I/O modules.



1.18 Modbus Converter I-7000 & I-87K I/O

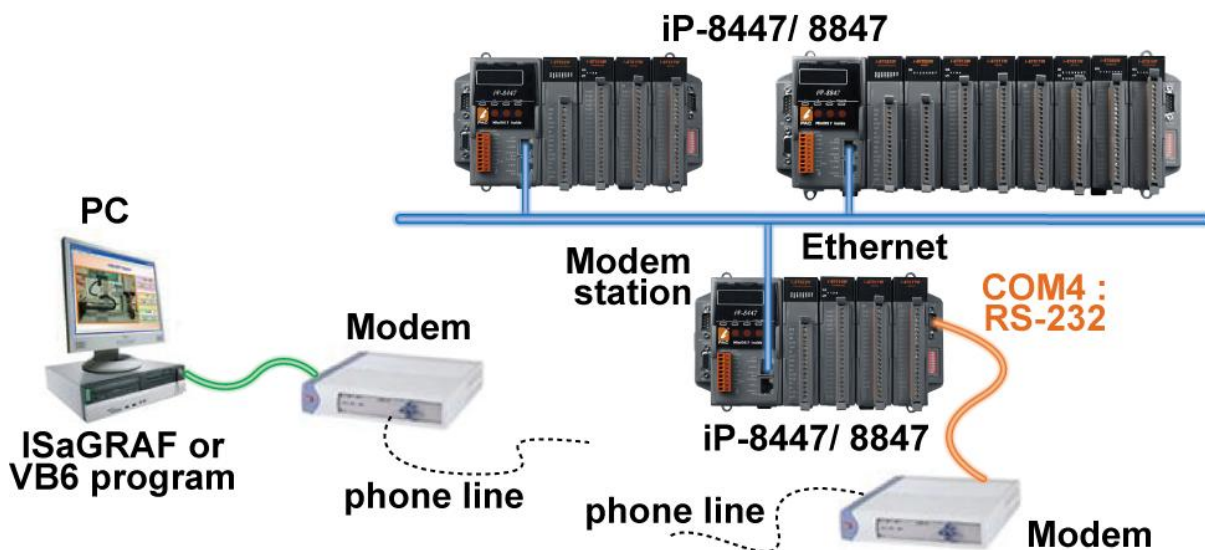
iP-8447/8847 can be a Modbus RTU serial & TCP/IP converter I-7000 & I-87K Remote I/O modules.



Note The iP-8x17 doesn't support the feature

1.19 Download & Monitoring Via Modem_Link

The Modem_Link provides a easy way to remotely download your ISaGRAF program via a general Modem. And also you can monitor I/O, data and if the program allows, you can control it via the Modem.



Chapter 2 Software Programming

Please refer to [ROM:\nappdoisagraf8000english_manu\user_manual_i_8xx7.pdf](#) for detailed ISaGRAF User Manual

2.1 Step 1 Installing the ISaGRAF Software

The user has to install two kinds of software before he can program ISaGRAF controller system. They are

- A. ISaGRAF Workbench
- B. ICP DAS Utilities for ISaGRAF

User has to purchase at least one pcs. of ISaGRAF Version 3 (ISaGRAF32, ISaGRAF256) to install on his PC to edit, download, monitor & debug the controller system. Item (B) is free and bundled inside the ROM which is delivered with P# 8478847

Operating system Requirements:

One of the following computer operating systems must be installed on the target computer system before you can install the ISaGRAF Workbench software program.

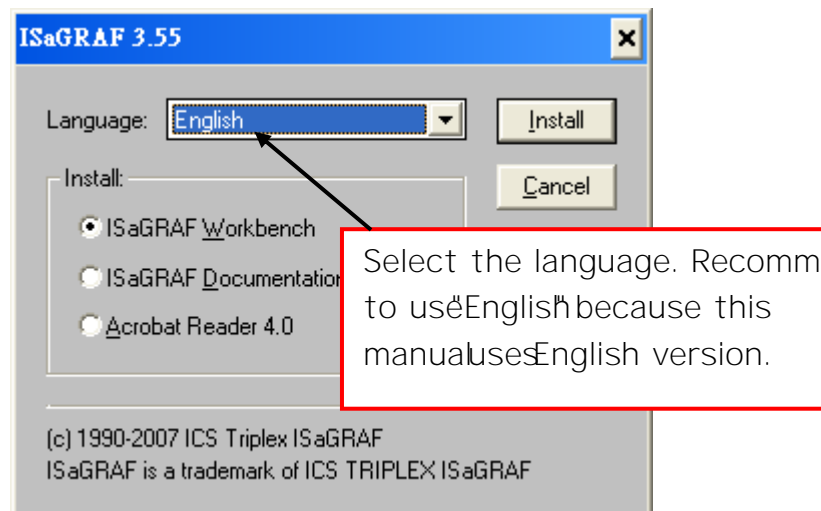
- › Windows 95 / Windows 98 / Windows 2000
- › Windows NT Version 3.51 or Windows NT Version 4.0
- › Windows XP or Vista or Windows 7 (Please refer to www.icpdas.com FAQ > Software > ISaGRAF Ver.3 > FAQ117)

Steps to Installing the ISaGRAF Workbench:

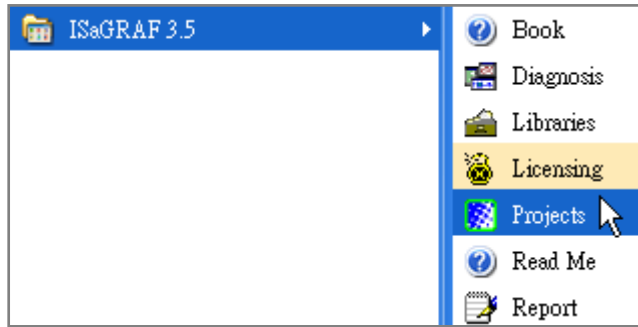


If your operating system is Windows (32bit), please refer [2.1.4](#)
If your operating system is Windows (64bit), please refer [2.1.5](#)

Insert the ISaGRAF Workbench CD into your CD drive. If your computer does not have the autostart feature active, use the Windows Explorer and go to the CD where the Workbench CD is installed, then double click on the install.bat file listed on the ISaGRAF CD. If the install.bat file is not found on your ISaGRAF CD, then click on the ISaGRAF.exe file to start the installation process.

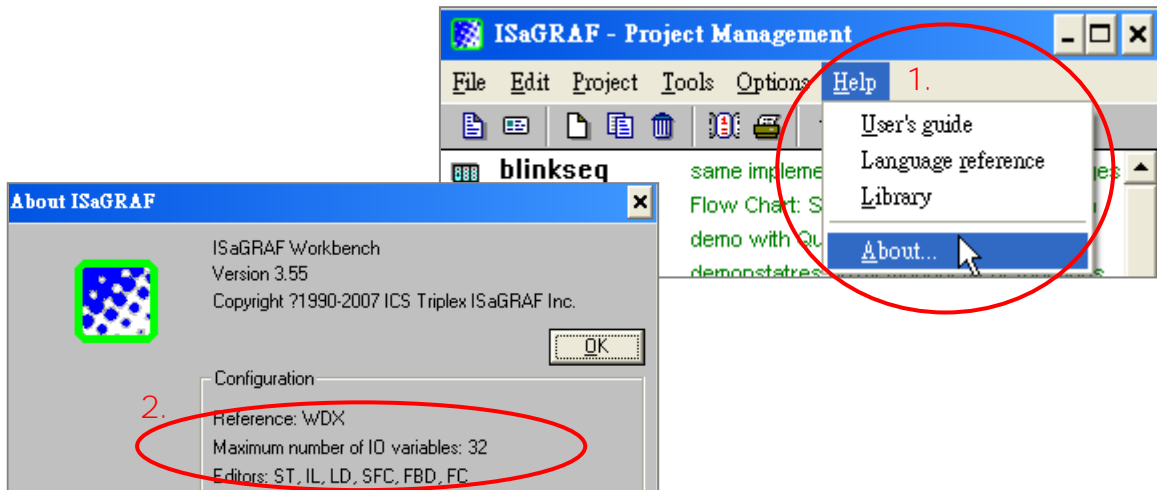


To begin the ISaGRAF 3.x software program, click on the Start button, then on Programs and you should see the ISaGRAF program group as illustrated below. You could click Projects to start the program.



2.1.1 The Hardware Protection Device (Dongle & USB KeyPro)

You must install the hardware protection device (dongle) provided with the ISaGRAF software on your computers parallel port to for the ISaGRAF program to achieve fully authorized functionality. (ISaGRAF32E & ISaGRAB2C DO NOT need dongle or USB KeyPro)



While using ISaGRAF and the dongle is plugged well, if the About says Maximum number of IO variables: 32, it means ISaGRAF workbench cannot find the dongle well. Please reset your PC then check the Help About again. If it still displays Maximum number of IO variables: 32, the driver may not be installed well. Please do the following steps.

Dongle Protection:

Please execute the ISaGRAF CD-ROM\I5382\Setup.exe for ISaGRAF or Sentinel\Setup.exe for other ISaGRAF version and then reset your PC.

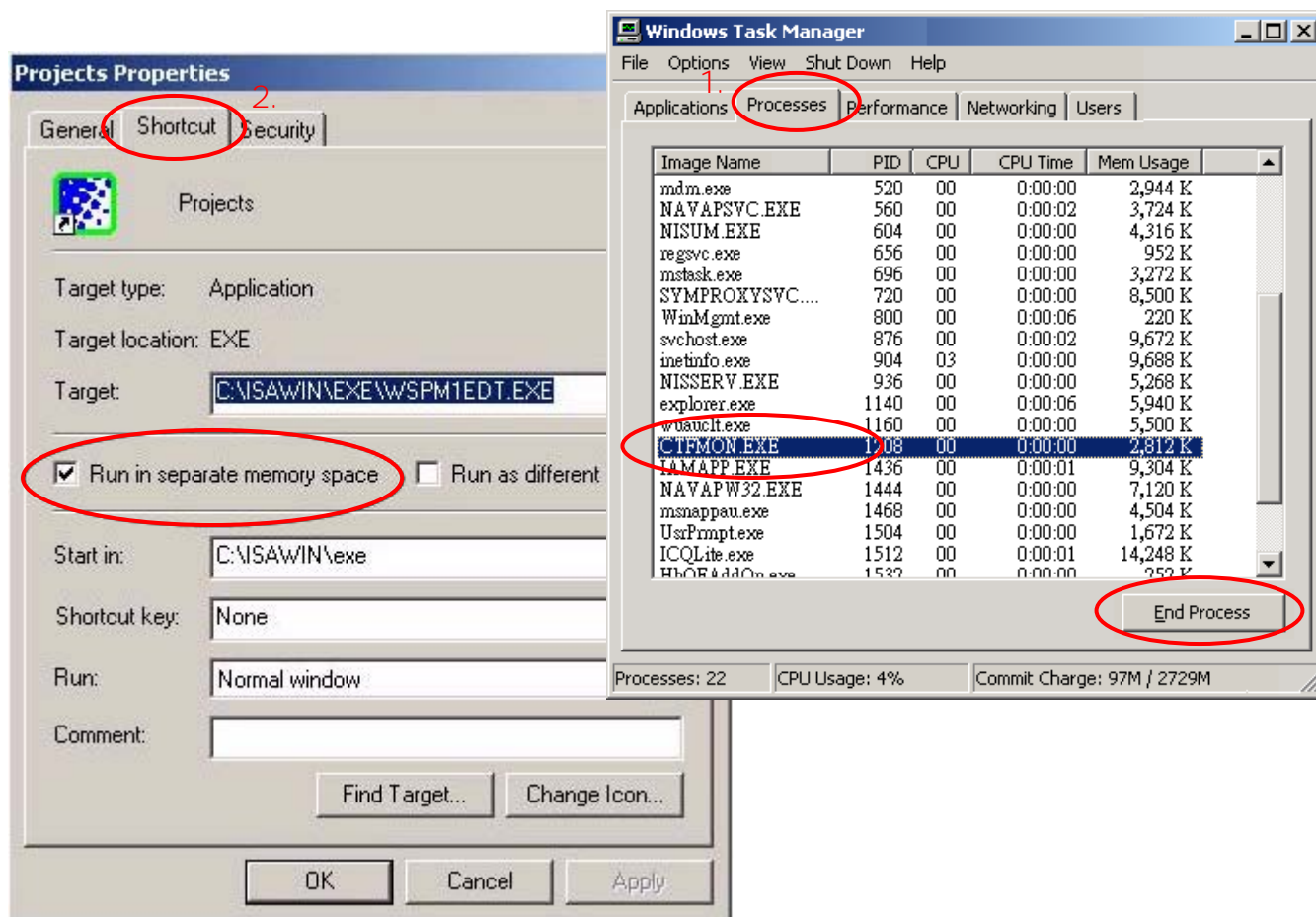
USB KeyPro Protection:

1. To make your PC recognize the ISaGRAF USB protection, please unplug the USB protection key from your USB port first, then insert the Sentinel\SSD541-B2bit.exe in the ISaGRAF 3.55 CD-ROM (or later version) after you have installed the ISaGRAF. Then please reset your PC.

2. To run ISaGRAF Ver. 3.5x, please always plug the USB-protection key # 1 y o

2.1.2 Important Notice for Window 2000 Users

If you close some ISaGRAF windows, it holds about 20 seconds (No response). This may be caused by the procedure CTFMON.EXE of Windows 2000. Just click Ctrl & Alt & Del at the same time to stop the CTFMON.EXE process, and then you may create a short cut for ISaGRAF project manager. And then check on in separate memory space in the shortcut property.



2.1.3 Important Notice for Window NT Users

If your computer is using the Windows NT operating system, you will need to add a line to file in the ISaGRAF Workbench subdirectory.

C:\ISAWINEXE\isa.ini

You can use any ASCII based text editor (such as Notepad or UltraEdit3.2) to open the file. Locate the [WS001] header in the initialization file (it should be at the top of the file). Anywhere within the [WS001] header portion of the initialization file, add the entry shown below within the [WS001] header:

```
[WS001]
NT=1
Isa=C:\ISAWIN
IsaExe=C:\ISAWINEXE
Group=Samples
IsaApl=c:\isawin\smpl
IsaTmp=C:\ISAWIN\TMP
```

2.1.4 Important Notice for Windows Vista or Windows 7 (32-bit) Users

Before installing the SaGRAF, If your operating system is Windows Vista or Windows 7, please change the User Account Control settings to avoid some of the setup restrictions.

How to disable User Account Control



The UAC (User Account Control) setting requires administrator level permission

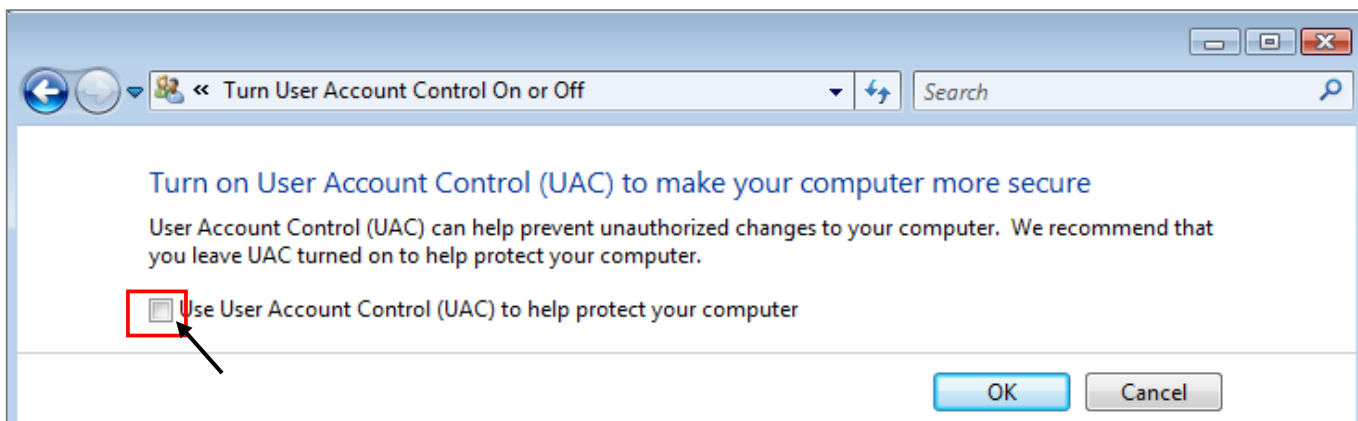
1. Start the Control Panel, choose > User Accounts and Family Safety > User Accounts, then click Change User Account Control settings to turn User Account Control on or off



2. After clicking, it will show up the screen as below.

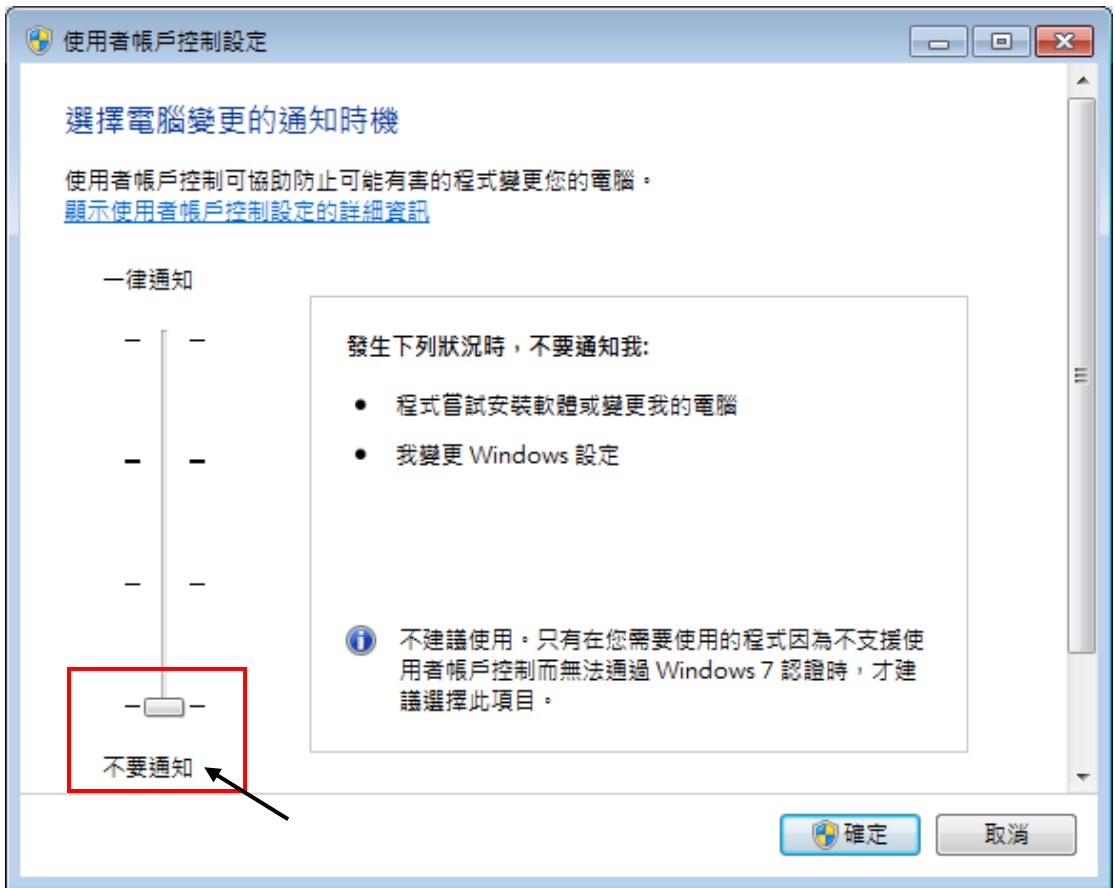
Windows Vista

Uncheck the option Use User Account Control (UAC) to help you protect your computer and then click on OK .



Windows 7:

Move the slider down to Never Notify and then click OK .



3. Reboot your computer to apply the change.
4. After rebooting, please refer to [section installing the ISaGRAF Software](#)

2.1.5 Important Notice for Windows (64bit) Users

If your operating system is Windows 7 (64bit) Professional, Enterprise, or Ultimate, the ISaGRAF must be installed under the XP Mode. Please do the following steps to install Virtual PC and XP Mode.

Installing the Virtual PC and XP Mode

1. Download Windows Virtual PC and Windows XP Mode installers from the Windows Virtual PC site <http://go.microsoft.com/fwlink/?LinkID=160479>
2. Doubleclick on WindowsXPMode-en-NN.exe (where nn-NN is the locale, eg-US) and follow the instructions in the wizard to install Windows XP Mode
3. Doubleclick on Windows6-KB958556-64.msut to install Windows Virtual PC
4. Reboot your computer.
5. After rebooting, click on "Start Programs" in Windows Virtual PC and then click Windows XP Mode
6. Follow the instructions in the wizard to complete Windows XP Mode Setup and Configuration. Record the password that is provided in the Setup because it is required to log on to your virtual machine.
7. Now, go back [section 2.1](#) to install the ISaGRAF.

2.1.6 Important Setting for Using Variable Arrays

Please add two more lines on the top of the `isawin.exe\isa.ini` file to enable the usage of variable arrays.

```
[DEBUG]
Arrays=1
```

2.2 Step 2 Installing the ICP DAS Utilities for ISaGRAF

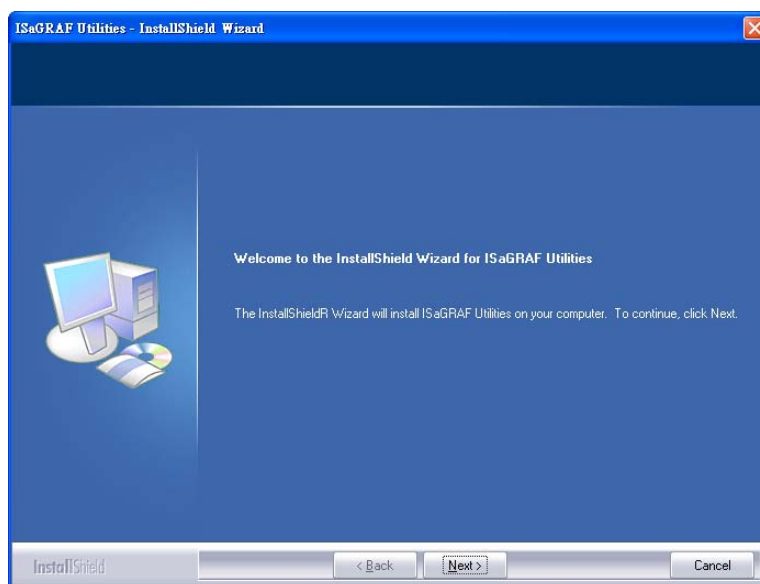
u @ # h ') ° o ' y o 8 k ° 7

- ' I/O libraries (for all ISaGRAF PC)
- ' Modem_Link utility
- ' Autoscan I/O utility

Note:

Make sure you have already installed the ISaGRAF Workbench program. If not, please refer to [Ch 2.1 Step 1](#) before continuing.

There is a CD-ROM applied with each of the PCx7 controllers with the ICP DAS Utilities for ISaGRAF. Please insert the CD-ROM into your CD-ROM drive. Then run `CD-ROM\setup\isagraf\setup.exe`. Follow the steps to install it.



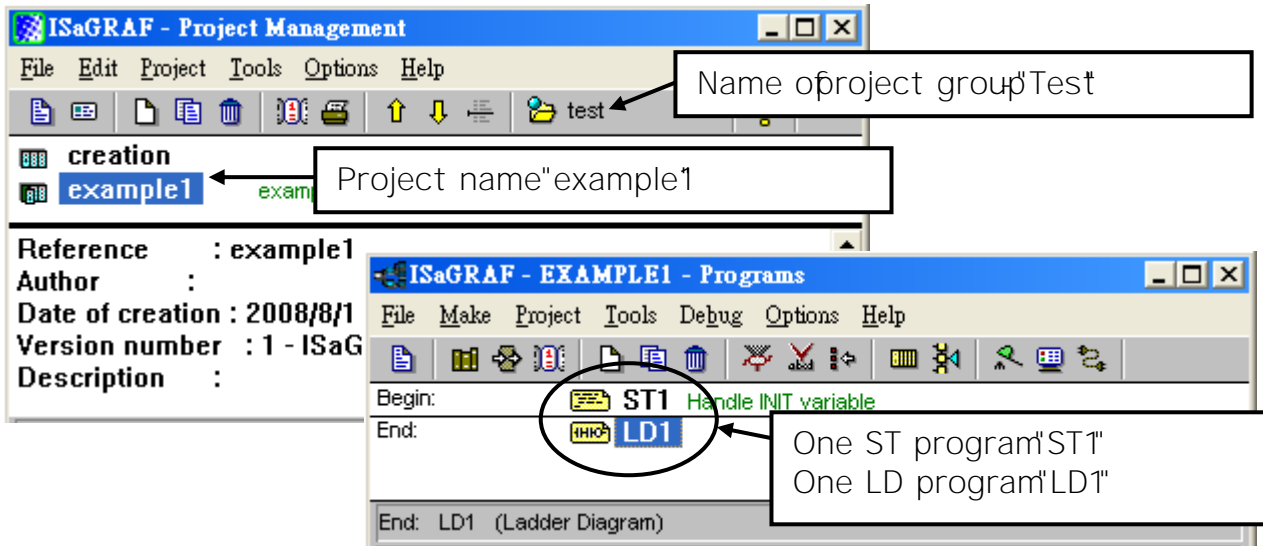
Note

@ ' @ # h ') ° o ' y o 8 k ° 7 -ROM, please refer to website of (<http://www.icpdas.com/products/8000/isagraf.htm> or www.icpdas.com/Products/Software/ISaGRAF/) then click "Driver" icon to download "do_lib.zip", please save the file in path C:\ to ensure the completed access

2.3 Step 3 Writing a Simple ISaGRAF Program

We are going to use ISaGRAF to write a simple ISaGRAF example program. You can download it to the IP-8xx7 controller to make it work. If you installed ISaGRAF & "ICP DAS Utilities for ISaGRAF" please go back [2.1 Step 1](#) & [2.2 Step 2](#).

This example contains 2 programs. One is written in Structured Text (ST) one in ladder Logic (LD) language.



Variables declaration:

Name	Type	Attribute	Description
INIT	Boolean	Internal	Initial TRUE means 1st scan cycle
OUT1	Boolean	Output	Output 1
OUT2	Boolean	Output	Output 2
OUT3	Boolean	Output	Output 3
K1	Boolean	Input	Pushbutton 1
K2	Boolean	Input	Pushbutton 2
T1	Timer	Internal	Timeperiod of blinking

ST program o u

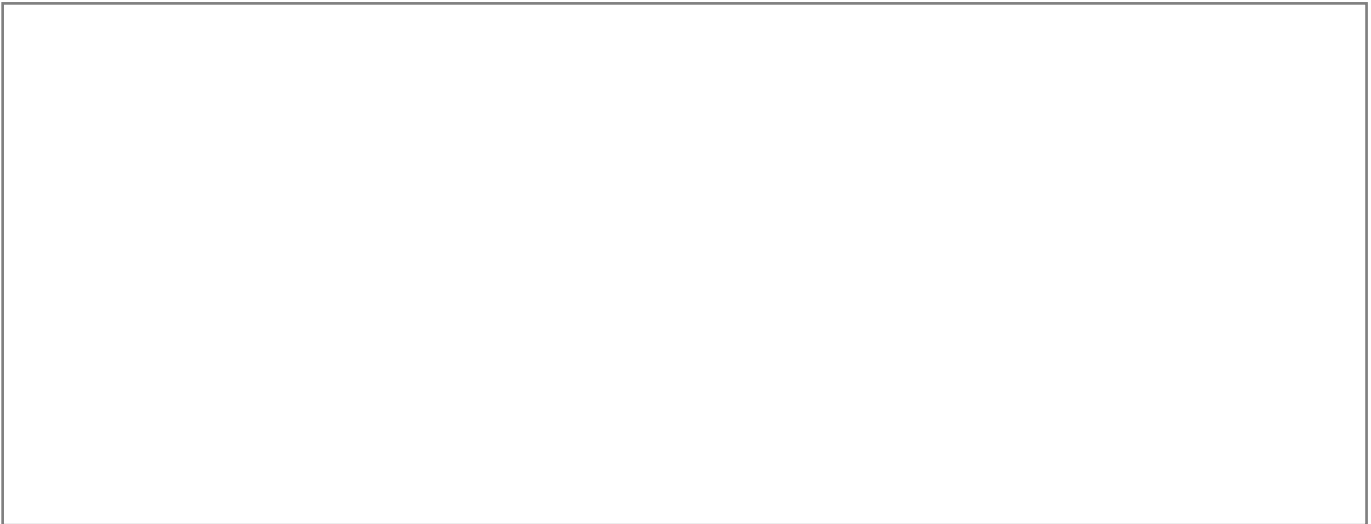
```

IF INIT THEN

    (* Do init steps here *)
    INIT:= False;
    T1:= T#1500ms;

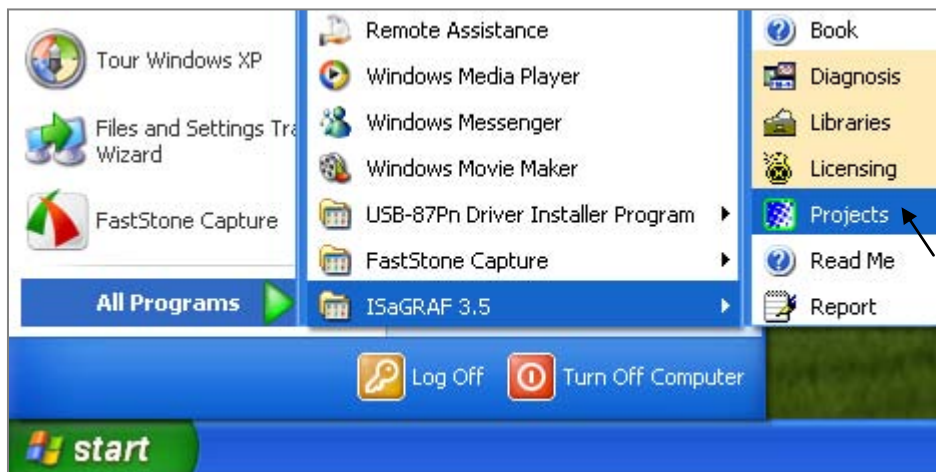
END_IF;
    
```

Ladder Logic Program Outline:



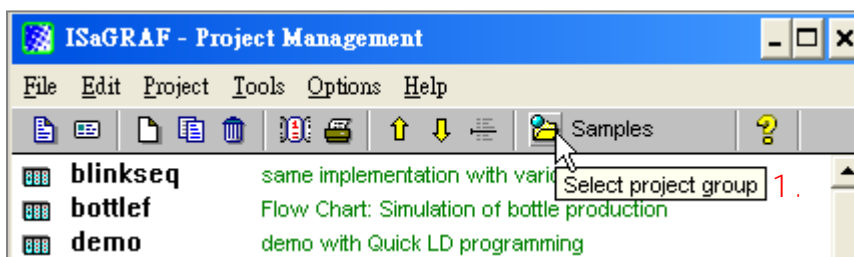
2.3.1 Open ISaGRAF Project Management

Click on the Windows Start > "All Programs" > "ISaGRAF 3.5" > "Project Management" as shown below.

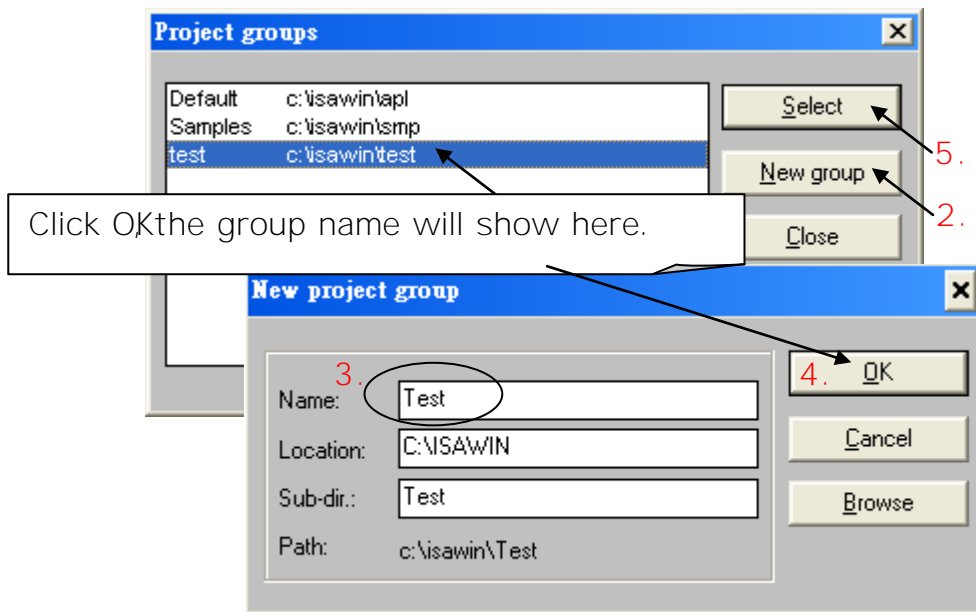


2.3.2 # @ o 8 k ° 7 y 8

Click on the "Select Project Group", and then click on "New Group" (as shown below), then type in the name for the new user's group you wish to create, and last, click on "OK".

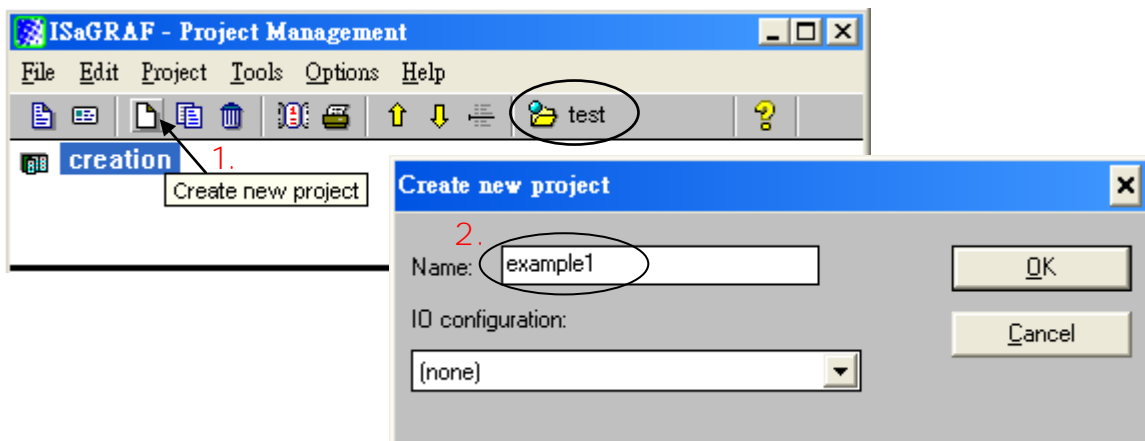


After clicking "OK", the group name will show up, please click to enter this group.



2.3.3 Creating a New ISaGRAF Project

To start a new ISaGRAF project, click on the "Create New Project" icon and then enter for the new project



you can then enter additional information for your project by clicking on the "Edit" and then "Set Comment Text" menu as illustrated below.

3.

4.

